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Patent Owner's Presentation
IPR2023-00891
U.S. Patent No. 8,605,794 ('794 Patent)

Netflix Inc. v. VL Collective IP LLC

October 10, 2024

EX2043

Netflix Inc. v. VL Collective IP LLC

IPR2023-00891

VL Collective IP LLC

Overview of the '794 Patent



'794 Patent


US008605794B2

(12) **United States Patent**
Hellwagner et al.

(10) **Patent No.:** **US 8,605,794 B2**
(45) **Date of Patent:** **Dec. 10, 2013**

(54) **METHOD FOR SYNCHRONIZING
CONTENT-DEPENDENT DATA SEGMENTS
OF FILES**

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(*) **Notice:** Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 962 days.

(21) **Appl. No.:** **11/918,276**

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§ 371 (c)(1),
(2), (4) **Date:** **Jan. 21, 2009**

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PCT Pub. Date: **Oct. 19, 2006**

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(51) **Int. Cl.**
H04N 7/50 (2006.01)

(52) **U.S. Cl.**
USPC 375/240.26; 375/240

(58) **Field of Classification Search**
USPC 375/240.28, 240, 240.01, 240.03,
375/240.18, 240.24
See application file for complete search history.

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P.L.C.

(57) **ABSTRACT**
The synchronization of data segments is particularly neces-
sary for the use of small screens. A method and a device are
disclosed for synchronizing content-dependent first data seg-
ments of a first data file and content-dependent second data
segments of a second data file, the first and second data
segments being respectively output in sequence according to
their chronological order in such a way that based on a pre-
determinable assignment rule for the first and second data
segments, each second data segment is output together with a
corresponding first data segment.

22 Claims, 5 Drawing Sheets

The '794 Patent's Assignment Rule Is A Paradigm Shift From Timestamp-Based Techniques

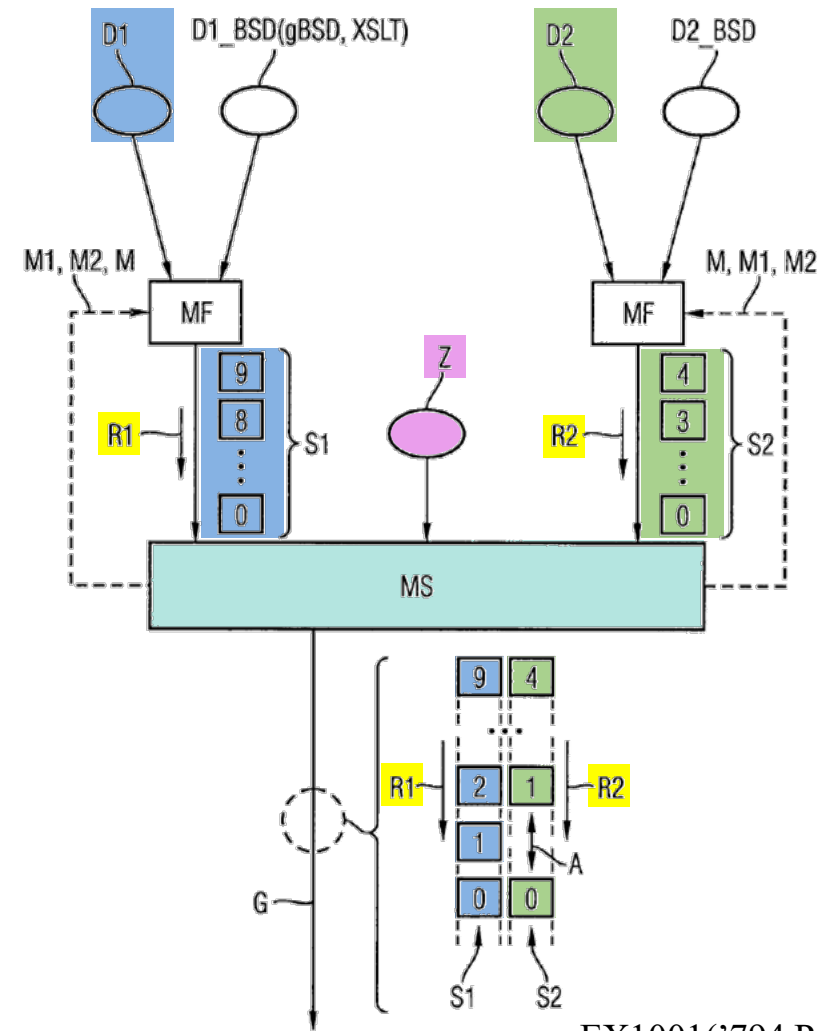
By way of the method according to at least one embodiment of the invention, it is made possible in a simple manner to synchronize content-related first and second data segments. The synchronization is controlled by way of the pre-
40 definable assignment rule. In this way, content-related data segments can be output together according to their chronological sequence. This is of advantage, since the assignment is carried out without the use of timestamps. In this context the term “output” is understood to mean that first and second data
45 segments are, for example, transmitted, stored together or passed on to a processing unit.

EX1001('794 Patent), 2:36-54; Paper 28(POR), 4



Claim 1 of the '794 Patent

1. 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 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.



EX1001('794 Patent), Fig. 1, Claim 1;
Paper 28(POR), 6-7

Claim 1 of the '794 Patent

1. 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 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.

EX1001('794 Patent), Claim 1; Paper 28(POR), 6-7



Statutory Grounds for Challenges

Ground	Assertion	Petitioned Claims
1	Anticipation by Comps	1-5, 9-13, 15-17, 20-21
2	Obviousness based on Comps in view of Wan	6-8, 22
3	Obviousness based on Comps in view of Ahn	14
4	Obviousness based on Comps in view of Kim	18, 19

Paper 2(Petition), 2-3



Claim Construction – “Assignment Rule”



Claim Construction – “Assignment Rule”

Term	Patent Owner’s Construction	Petitioner’s Construction ¹
“assignment rule for assigning each one of the content-related second data segments to one of the content-related first data segments” (claim 1; similar in claims 9 and 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 (claim 1; similar for claims 9 and 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 may be performed by adjusting the timing of the content-related data segments (claim 1; similar for claims 9 and 22)

¹ Petitioner does not formally propose this construction but applies it in its invalidity analysis. Paper 40 (Reply), 4-7, 11-14. Petitioner alleges it is applying the term’s plain meaning, but “assignment rule” was afforded a particular meaning in the ’794 patent.

Traxcell Techs., LLC v. Nokia Solutions and Networks Oy (Fed. Cir. 2021)

The prosecution history confirms this understanding. During prosecution, the applicant distinguished a prior-art reference, "Andersson,"⁵ in part because that reference used multiple computers, whereas its claimed invention (deemed "Reed") used just one. A section of

hardware and software." J.A. 1987-88. We agree with the district court that the patentee clearly and unmistakably disclaimed the use of multiple computers.

Traxcell Techs., LLC v. Nokia Solutions and Networks Oy, 15 F.4th 1136, 1144-45 (Fed. Cir. 2021); Paper 28(POR), 36



Personalized Media Commc'ns, LLC v. Apple Inc. (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.”

Personalized Media Commc'ns, LLC v. Apple Inc., 952 F.3d 1336, 1345 (Fed. Cir. 2020); Paper 28(POR), 36



Assignment Rules Do Not Adjust Timing Information

ments. The synchronization is controlled by way of the pre-
40 definable assignment rule. In this way, content-related data
segments can be output together according to their chrono-
logical sequence. This is of advantage, since the assignment is
carried out without the use of timestamps. In this context the

ments. In this way the assignment rule can be described
merely by specification of the number. This is advantageous
owing to the very low signaling overhead required for signal-
ing the number.

55 In an alternative embodiment, the predefinable assignment
rule is formed in such a way that for each second data segment
a first data segment is assigned by specification of a number,
the number representing a position of the first data segment
within the chronological sequence of the first data segments.
60 By this, the assignment of first and second data segments is
achieved in a particularly flexible manner. In this embodiment

EX1001('794 patent), 2:39-43, 2:51-54, 55-61; Paper 28(POR), 27-28



All Disclosed Assignment Rules Operate Without Adjusting Timing Information

This alternative is explained in more detail with the aid of an example according to FIG. 5. The first and second data segments S1, S2 are to be output in the arrangement according to FIG. 5. For this purpose the assignment rule Z can include the following rule: $V=\{1, 1, 2, 8, 8\}$. This means that the first and second content-related second data segment S2, i.e. those with the numerals 0 and 1, are to be synchronized with the second content-related first data segment S1, which bears the numeral 1. Furthermore, the next second data segment S2 with the numeral 2 is to be output together with the first data segment S1 with the numeral 2. Finally, the fourth and fifth second data segment S2 with the numerals 3 and 4 are to be output together with the first data segment with the numeral 8. Accordingly, the above rule $V=\{1, 1, 2, 8, 8\}$

EX1001, 6:4-19; Paper 28(POR), 28



All Disclosed Assignment Rules Operate Without Adjusting Timing Information

b) The use of the number A firstly enables only one single second data segment S2 to be synchronized with a first data segment S1. Secondly, the intervals at which a first and a second data segment S1, S2 can be output together are permanently predefined by the number A. 60

This means that in an alternative embodiment the predefined assignment rule Z can be formed in such a way that for each second data segment a first data segment S1 is assigned by specification of a number A, where the 65

EX1001, 5:59-67; Paper 28(POR), 28



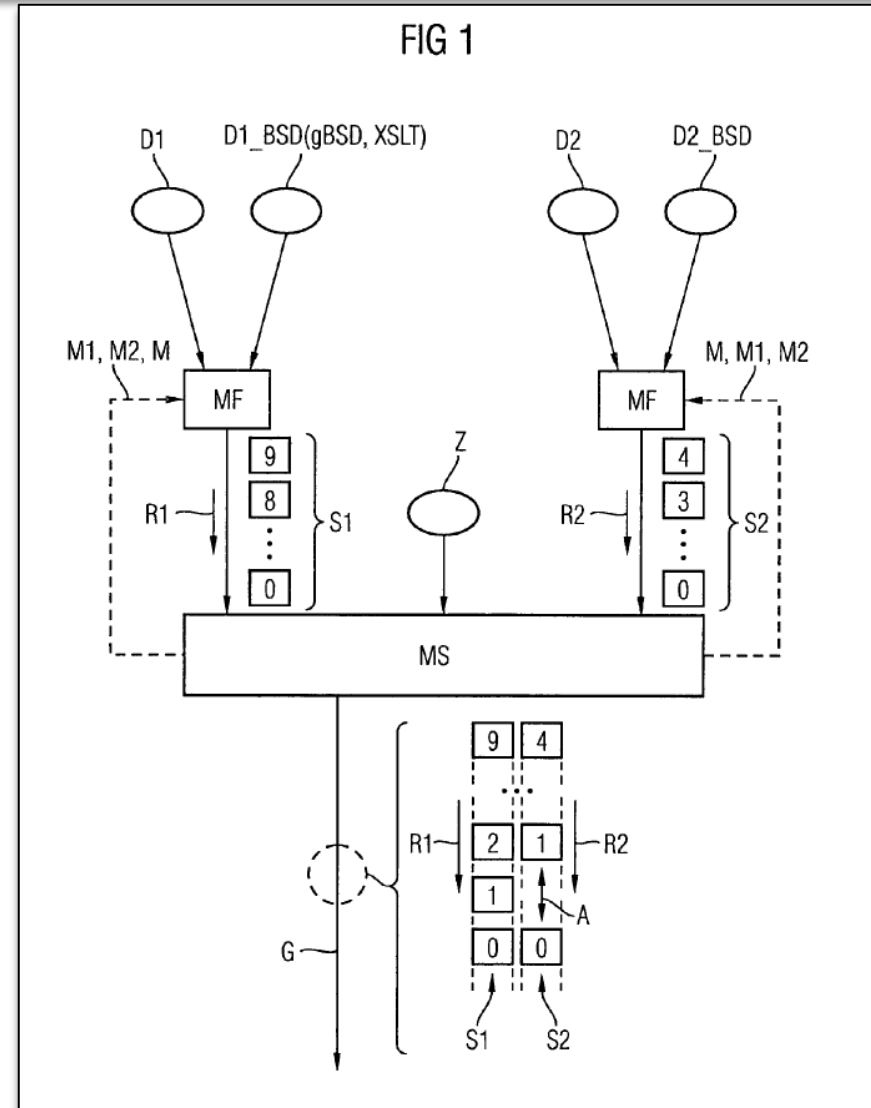
All Disclosed Assignment Rules Operate Without Adjusting Timing Information

In the previous examples, two data files D1, D2 to be synchronized were considered. In general, more than one single second data file D2 can be synchronized with the first data file D1. For example, there are two second data files D21, D22. For this purpose a combined predefinable assignment rule ZK is formed. A combined assignment rule ZK of this kind is illustrated in the example according to FIG. 4. A first description part B_D1 contains information relating to the first data file D1 or its first data segments S1. A second description part B_D21 includes synchronization information for a first second data file D21 or its second data segments S2. A third description part B_D22 includes synchronization information for the further second data file D22 or its second data segments S2. The second description part B_D21 was formed according to the first assignment rule Z1, and the third description part B_D22 according to the second assignment rule Z2.

EX1001, 7:4-20; Paper 28(POR), 28

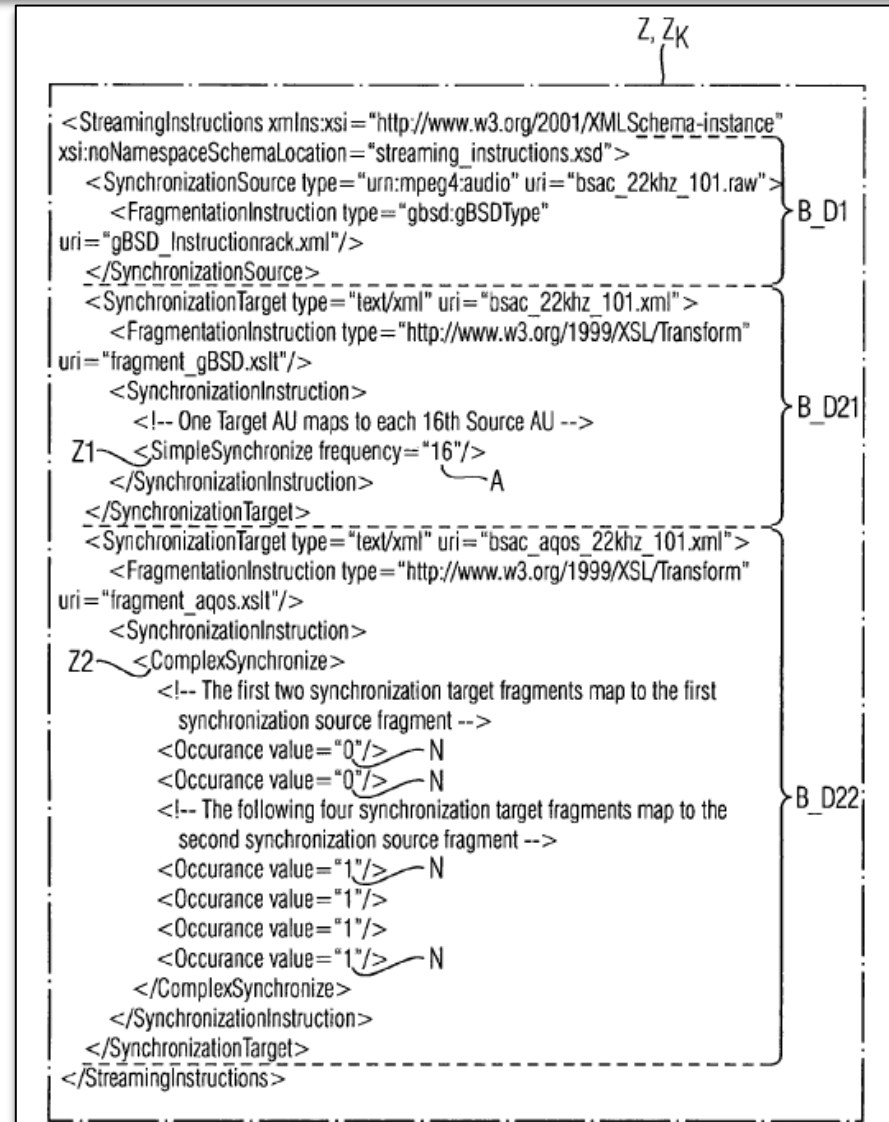


All Disclosed Assignment Rules Operate Without Adjusting Timing Information



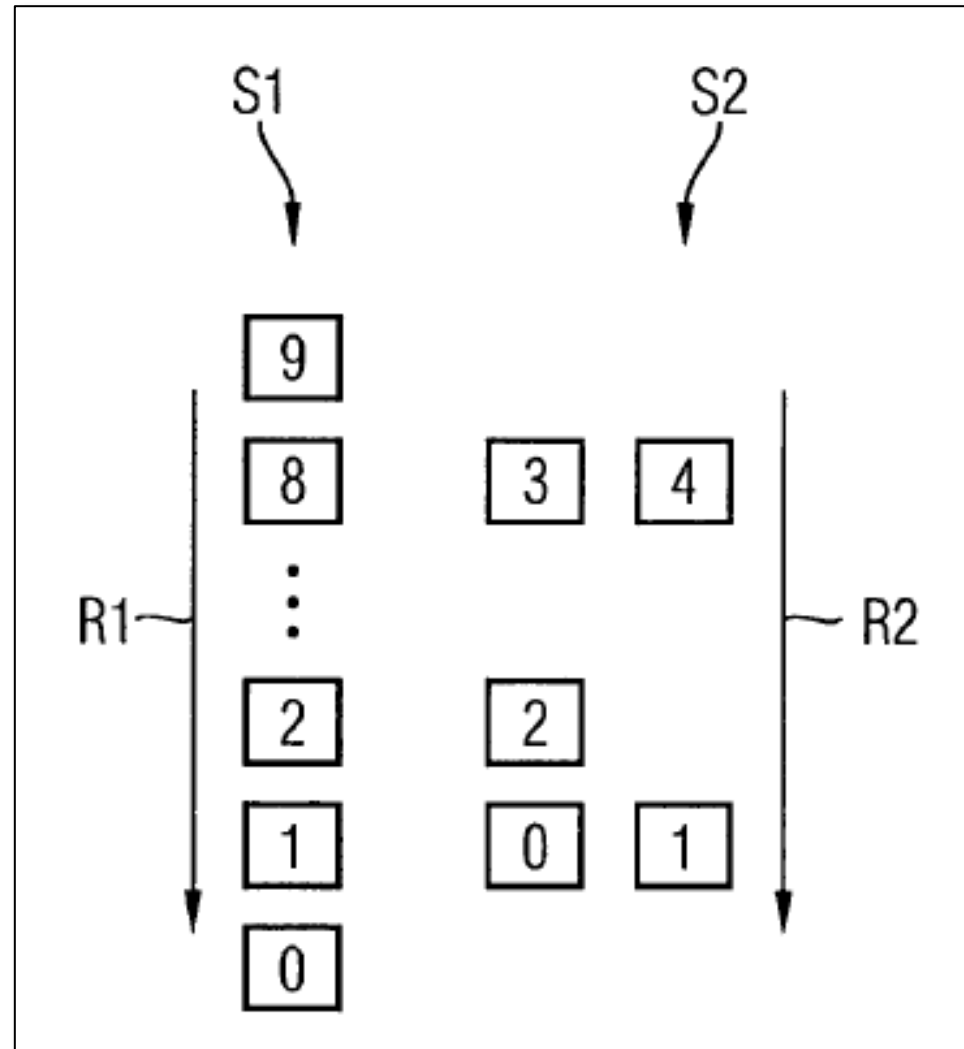
EX1001('794 Patent), Fig. 1;
Paper 28(POR), 6-7

All Disclosed Assignment Rules Operate Without Adjusting Timing Information



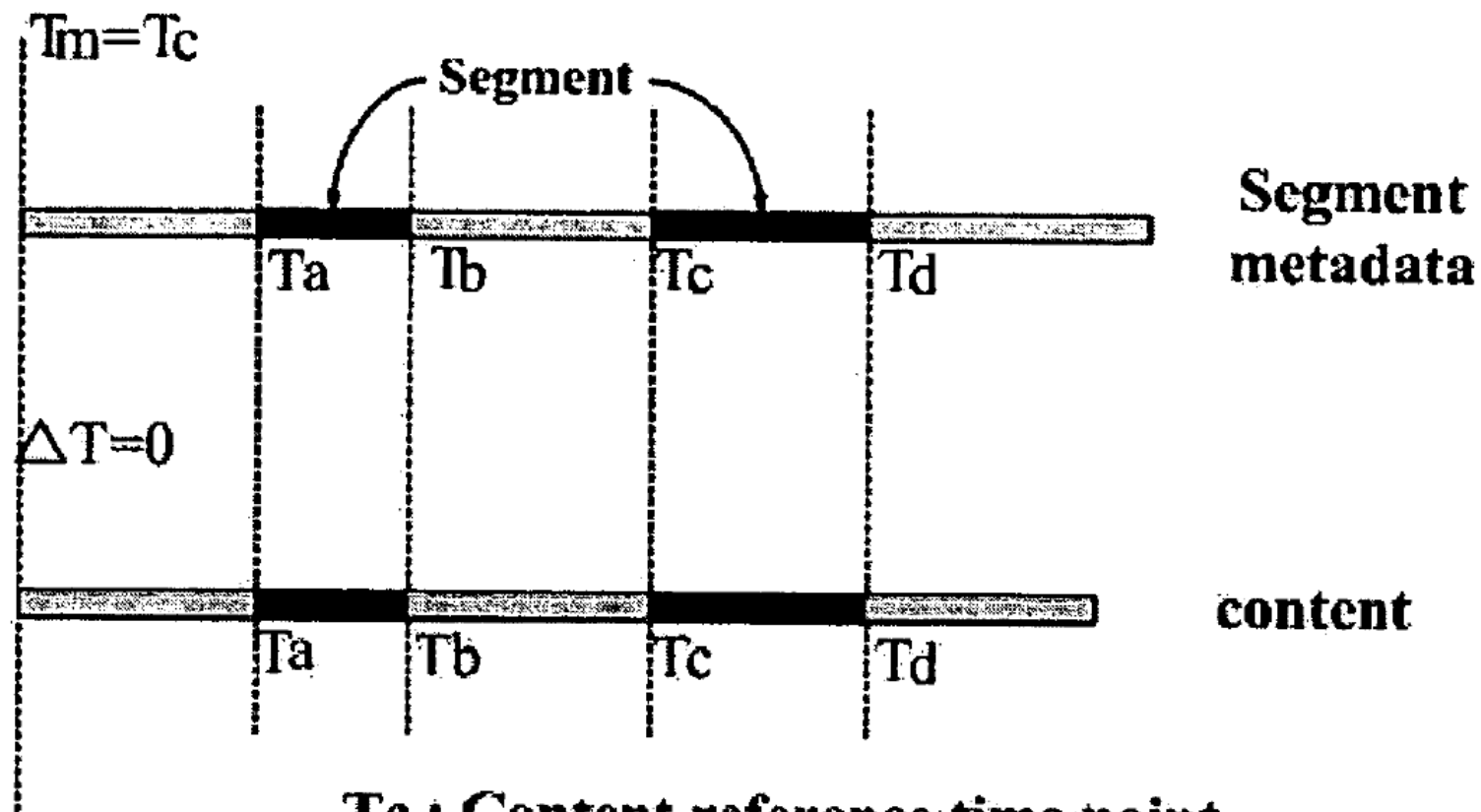
EX1001('794 Patent), Fig. 4;
Paper 28(POR), 6-7

All Disclosed Assignment Rules Operate Without Adjusting Timing Information



EX1001('794 Patent), Fig. 5;
Paper 28(POR), 6-7

Prosecution Reference – Shin

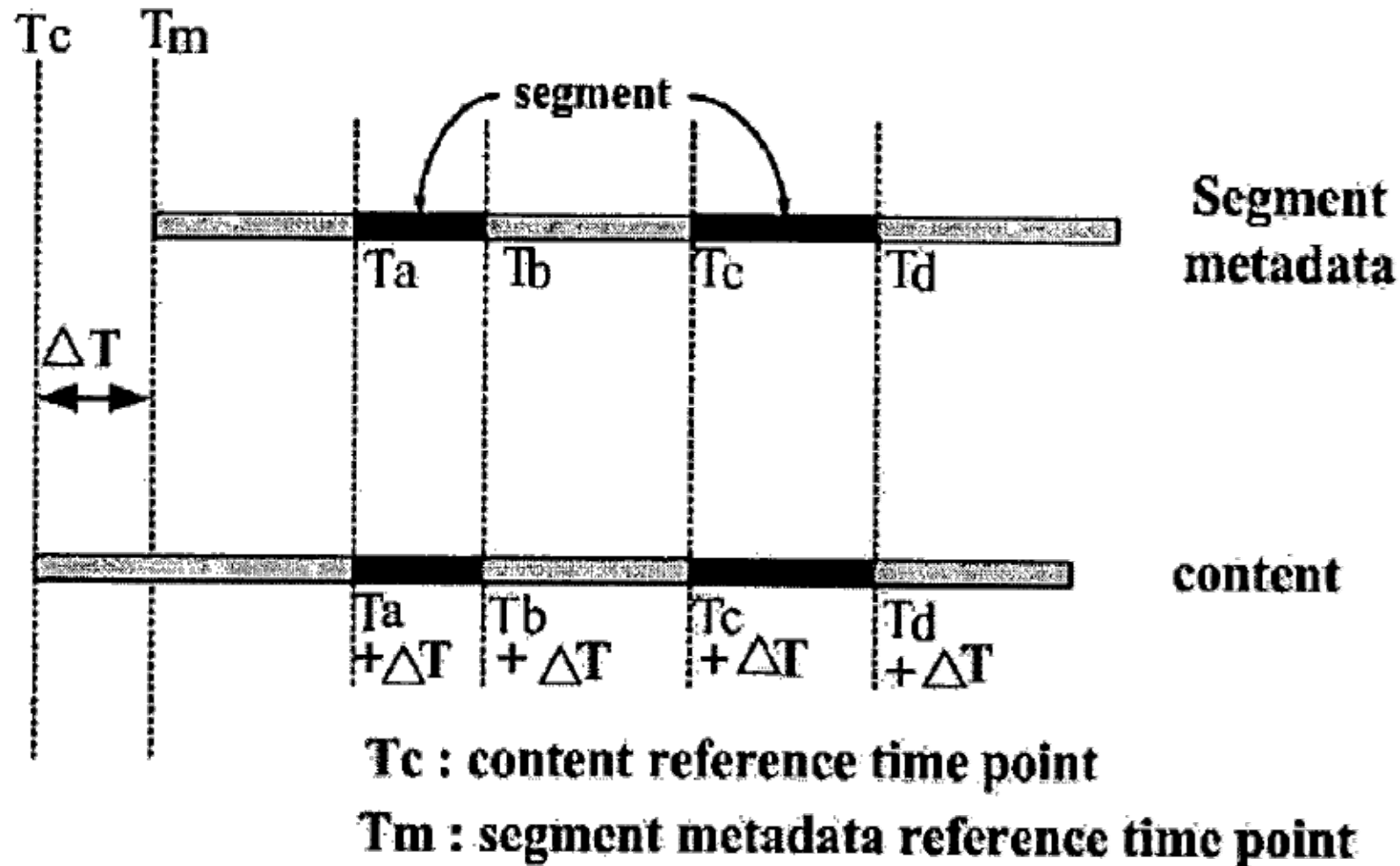


T_c : Content reference time point

T_m : segment metadata reference time point

EX2013(Shin), Fig. 6A; Paper 28(POR), 29-32

Shin Adjusts Timing Information



EX2013(Shin), Fig. 6B; Paper 28(POR), 30

Shin Is a Timestamp-Based Technique

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.

EX1002 (Prosecution History), 268-69 (2012/04/11 Amendment, 8-9); Paper 28(POR), 30-31



Shin Distinguished for Adjusting Timing Information

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. Further, there is no “assigning” of each “second data segment” to “a first data segment” disclosed elsewhere in Shin. For at least these reasons, Shin does not disclose, at least, “each second data segment is output together with an associated first data segment on the basis of an assignment rule for assigning each second data segment to a first data segment,” as recited in amended claim 1.

EX1002 (Prosecution History), 268-69 (2012/04/11 Amendment, 8-9); Paper 28(POR), 30-31



Examiner Agreed

5. Applicant's arguments, see pages 8-10, filed on 04/11/2012, with respect to the rejection(s) of claim(s) 1-17 under 35 U.S.C 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Rosenau et al # 5598352 in view of Yamane # 5661523.

EX1002 (Prosecution History), 223 (2012/06/29 Final Rejection, at 6); Paper 28(POR), 31-32



Rosenau Adjusts Timing Information

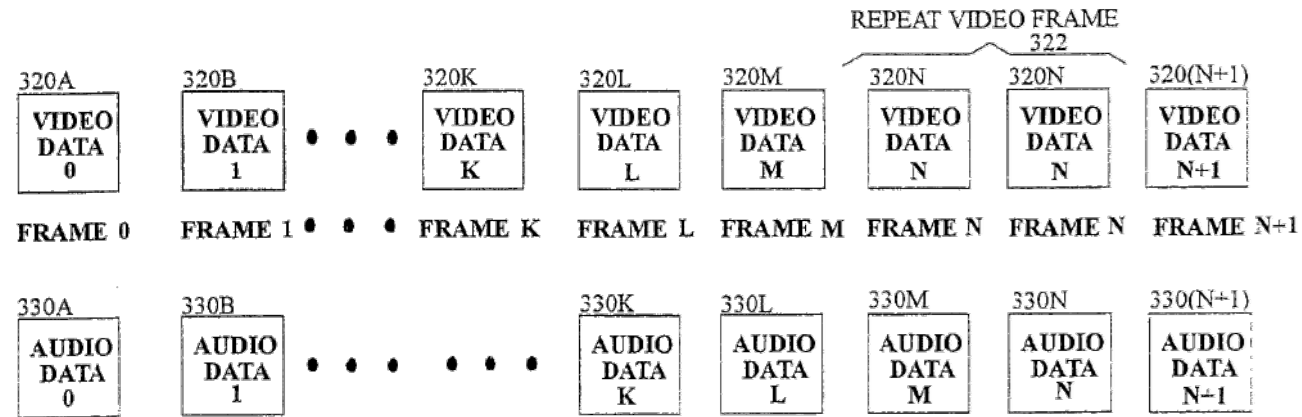


FIGURE 3B

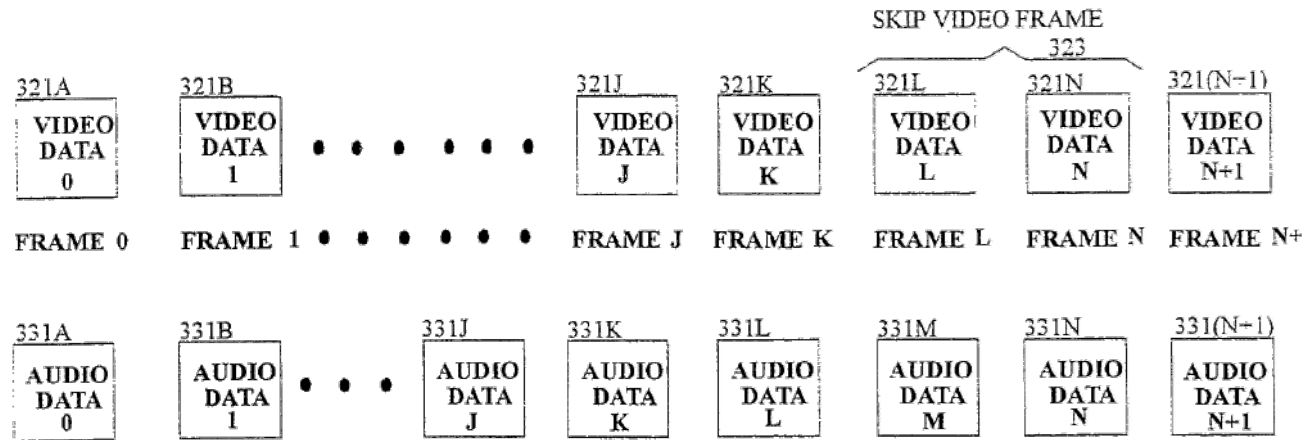


FIGURE 3C

EX2014(Rosenau), Figs. 3B, 3C; Paper 28(POR), 32-33

Rosenau Is a Timestamp-Based Technique

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 pre-determined clock frequency. *Rosenau*, col. 3, l. 57-col. 4, l. 7; col. 4, l. 3-7; col. 5, l. 8-10, 37-40, 65-66; col. 6, l. 24-25.

EX1002 (Prosecution History) 203-205 (2012/11/29 Response After Final Rejection, at 13-15); Paper 28(POR), 34-35



Rosenau Was Distinguished for Adjusting Timing Information

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, l. 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 (Prosecution History) 203-205 (2012/11/29 Response After Final Rejection, at 13-15); Paper 28(POR), 34-35



Examiner Agreed

321N may be resynchronized with audio data(N) 331N. *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 for assigning each one of the content-related second data segment to one of the content-related first data segments”.*

EX1002(Prosecution History), 39-40 (2013/08/01 Notice of Allowance, at 4-5); Paper 28(POR), 35-36



Dr. Bederson Agrees

1 Q. In your view, what is a time stamp in
2 the context of the '794 patent?

3 A. So the '794 patent does not say that
4 much about time stamps. It primarily uses time
5 stamps to distinguish from assignment rules.

6 At Column 2, lines 36 to 43 or so, it
7 explains that using synchronization with a
8 pre-definable assignments rule is an advantage since
9 the assignment is carried out without the use of
10 time stamps.

EX2012 (Bederson Depo. Tr.), 67:1-10; Paper 28(POR), 37



Dr. Freedman Agrees

“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; Paper 28(POR), 37-38



Dr. Goodrich Agrees

99. Based on this, the POSITA would understand that Track 1 (or the master track) executes its events according to its precise timing information. *Id.* at 4:18-43. Tracks 2 and 3 (or the slave tracks), however, will execute their events according to their respective timing information only between SYNCH commands and the timing of Track 1. *Id.* That is, when the master microprocessor reaches SYNCH1 in Track 1, it sends synchronization data to the microprocessors for Tracks 2 and 3. *Id.* If the slave microprocessors have not reached the SYNCH1 commands in Tracks 2 or 3 after receiving synchronization data from the master microprocessor, they will skip all events in Tracks 2 or 3 until it reaches the SYNCH1 command. After reaching the SYNCH1 command, the slave

microprocessors again execute the commands that follow the SYNCH1 command in Tracks 2 or 3. *Id.* Alternatively, if the slave microprocessors reach the SYNCH1 commands in Tracks 2 or 3 before receiving synchronization data from the master microprocessor (i.e., before the master microprocessor has encountered the SYNCH1 command in Track 1), they will stop executing commands in Tracks 2 or 3. The slave microprocessors will continue to execute commands once the synchronization data for Track 1 (or the master track) is received (i.e., when the master microprocessor encounters or reaches SYNCH1 in Track 1). *Id.* The POSITA would understand that the slave microprocessors must adjust the timing of Tracks 2 or 3 when they skip events or stop executing commands. In other words, the slave microprocessors must *adjust the timing* of the events that follow SYNCH commands in Tracks 2 or 3 to match the timing of the corresponding events in Track 1. As such, in my opinion, Comps does not satisfy the requirements of the “assignment rule.”

EX2011 (Goodrich Decl.), 99; Paper 28(POR), 43-47



Patent Owner's Claim Construction Proposals

Term	Patent Owner's Construction	Patent Owner's Proposed Construction In the <i>Unified</i> IPR
“assignment rule for assigning each one of the content-related second data segments to one of the content-related first data segments” (claim 1; similar in claims 9 and 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 (claim 1; similar for claims 9 and 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 using exact timing information for the content-related data segments (claim 1; similar for claims 9 and 22)

Unified Patents, LLC v. VL Collective IP LLC, IPR2022-01086, Paper 20 at 32(PTAB April 17, 2023)



Comps Does Not Disclose An Assignment Rule



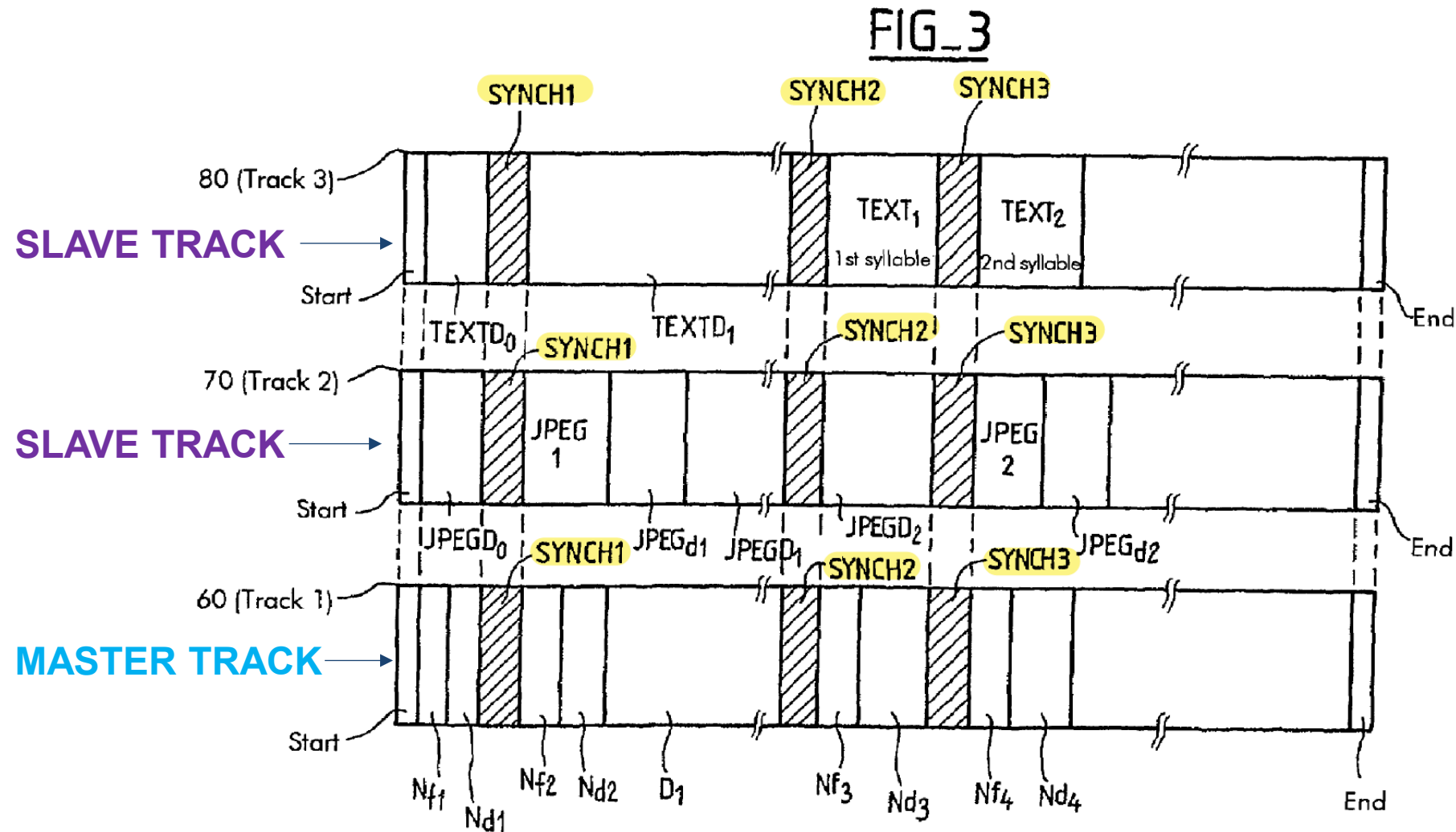
Comps Identifies the Problem of Content Tracks Falling Out of Synch

Each microprocessor, associated with each track containing one type of data uses an oscillator. Each oscillator produces a signal with a frequency slightly different from those of the other oscillators. Also, the software executed by each processor can be based on different operating systems, which drift with time in dissimilar ways. Thus two microprocessors that begin to read their respective tracks at the same time are eventually no longer synchronized with each other. For example, if the microprocessor for the sound data track is lagging behind the microprocessor for the text data track, the text of a phrase will be displayed before the sung phrase is heard.

EX1004 (Comps), 1:29-40; Paper 28 (POR), 8



Comps Solves the Problem By Periodically Syncing All “Slave” Tracks With the Timing of the “Master” Track



EX1004(Comps), Fig. 3; Paper 28(POR), 9, 43-44

Comps' SYNCH Commands Adjust The Timing of the Slave Tracks to Match the Master Track

In the FIG. 3 example, musical notes included in the track 1 data must not be interrupted. Synchronizing the three tracks must not entail interrupting the music heard by the user. The microprocessor dedicated to reading this track is considered to be the master. 50

It forces the other microprocessors in charge of the other tracks, referred to as slaves, to synchronize with it.

EX1004(Comps), 3:48-54; Paper 28(POR), 43-44



Comps' SYNCH Commands Adjust The Timing of the Slave Tracks to Match the Master Track

25 The master microprocessor, which is dedicated to track 1, reaches the first synchronization command, corresponding to the field SYNCH1, and sends first synchronization data to the other microprocessors.

Two situations arise:

30 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.

35 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.

40

EX1004(Comps), 4:25-43; Paper 28(POR), 9, 10-11

Dr. Bederson Agrees That Comps Adjust the Timing of the Slave Tracks

4 So, in other words, it might get a
5 little bit behind, since in all of these examples --
6 and I think the way this would typically work is
7 there would be a capital D waiting time field before
8 the synch. And so what it would typically do would
9 be to essentially shorten that waiting time so that
10 it could then continue with the synch command at the
11 same time that it received the synch command from
12 the master microprocessor. So that's the first
13 situation.

EX2012(Bederson Depo. Tr.), 59:4-13; Paper 28(POR), 46



Dr. Bederson Agrees That Comps Adjust the Timing of the Slave Tracks

14 The second situation described at
15 Column 4, starting at line 38, says, "If, before
16 receiving the data, the slave microprocessor
17 dedicated to track i had already reached the field
18 SYNCH1, it stops reading the fields of track i until
19 it receives the first synchronization data sent by
20 the master microprocessor. It then resumes reading
21 the fields of track i and executes the commands
22 described."

1 So, in other words, in this scenario,
2 one of these slave microprocessors corresponding in
3 Figure 3 to Tracks 2 or 3 got ahead. So when it
4 gets to SYNCH1, it just stops and waits until it
5 receives the SYNCH1 command from Track 1.

EX2012(Bederson Depo. Tr.), 59:14-60:5;
Paper 28(POR), 46



Dr. Bederson Agrees That Comps Adjust the Timing of the Slave Tracks

14 A. That assignment happens through the
15 way that Comps works. I described that in some
16 detail when we analyzed -- when I explained my
17 analysis of the synchronization in Comps Column 4,
18 lines 25 through 44 -- or 43, where basically a
19 synch -- a slave track, as it processes either its
20 own synch commands or an incoming synch command from
21 the master track, decides whether to continue along
22 or to pause or to jump ahead; and in doing so, the
1 content-related data segment that it is processing,
2 such as an image or a text, is then assigned to play
3 back simultaneously with sound from the first track.

EX2012(Bederson Depo. Tr.), 76:14-77:3; Paper 28(POR), 46



Petitioner's Mapping of Comps to the Assignment Rule Limitation Changed

Thus, the “assignment rule” which “assign[s] each one of the content-related second data segments to one of the content-related first data segments” is the synchronization commands being executed by the microprocessors. Like the “assignment rule” described in the '794 patent where it specifies which content from data segment s2 is synchronized with content from data segment s1 (*see, e.g., '794Pat*, 6:4-27), tracks 60, 70, and 80 in *Comps* have inserted SYNCH commands that control which content from each track is synchronized with content from the other tracks, so that they can be “output together” or transmitted together simultaneously, as explained in section VII.A.1.b, which is incorporated herein by reference, and can be seen by the tracks vertical alignment illustrated in Figure 3 below.

Paper 2 (Petition), 33;
Paper 44 (PO Sur-Reply), 8



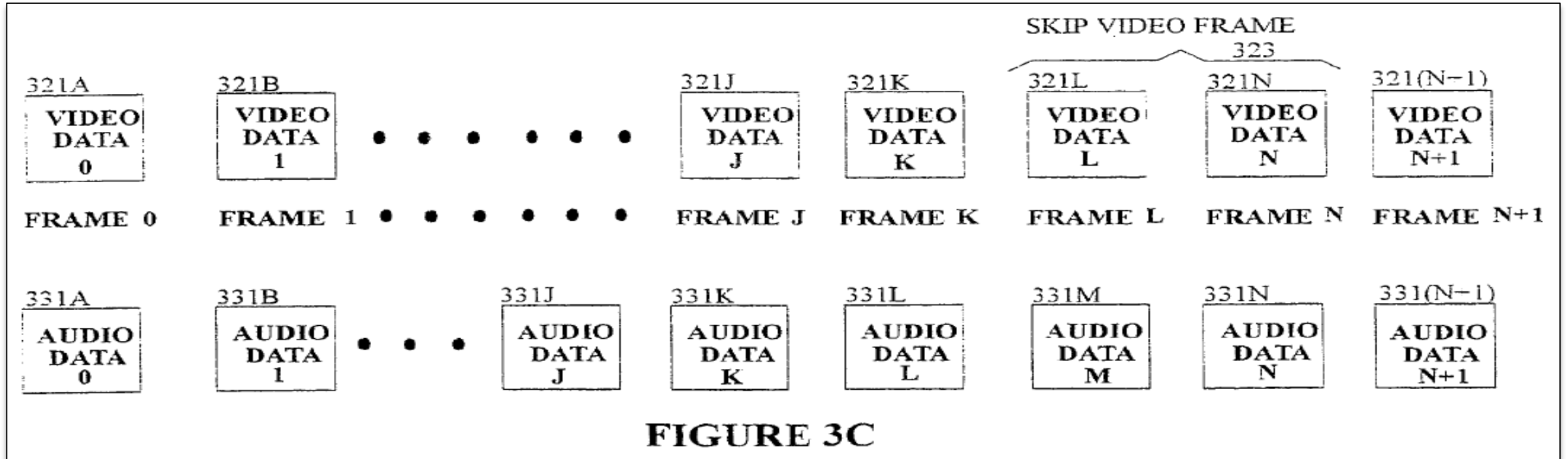
Petitioner's Mapping of Comps to the Assignment Rule Limitation Changed

(emphasis added). In other words, Dr. Bederson confirmed Petitioner's position that the SYNCH commands do not themselves adjust the timing of any "content-related...data segments"; any timing adjustments are the *result* of actions taken in response to the SYNCH commands. *Id.*, 57:5-7 ("[T]he synch commands can *result* in effectively speeding up or slowing down the execution of commands in a track" (emphasis added)). Because the SYNCH commands in Comps do not adjust the timing of any "content-related...data segments," Comps teaches the "assignment rule" limitation even under PO's proposed construction.

Paper 40 (Reply), 13; Paper 44 (PO Sur-Reply), 9



Comps Is Indistinguishable From Rosenau



EX2014(Rosenau), Fig. 3C; Paper 28(POR), 45-46

Comps Is Indistinguishable From Rosenau

Referring to FIG. 3C, the video data frame lags the audio data such that in order to resynchronize the video data frame with the audio data, a video data frame may be skipped. Initially, video data frame(O) 321A and audio data(O) 331A
25 are in complete synchronization. Over time video data frame(J) 321J lags audio data(j) 331J. Once a lag threshold—such as one or one half frame—is reached, the A/V sync circuit causes a video frame (or half frame as the case may be) to be skipped.

EX2014(Rosenau), 6:21-29; Paper 28(POR), 45-46



Comps Does Not Disclose the Assignment Rule of Claims 20 and 21



The Assignment Rule Must Not Be “Based on a Timestamp”

20. The method of claim 1, wherein the assignment rule is not based on a timestamp.

21. The device of claim 9, wherein the assignment rule is not based on a timestamp.

EX1001('794 Patent), Claims 20, 21; Paper 28(POR), 57-59



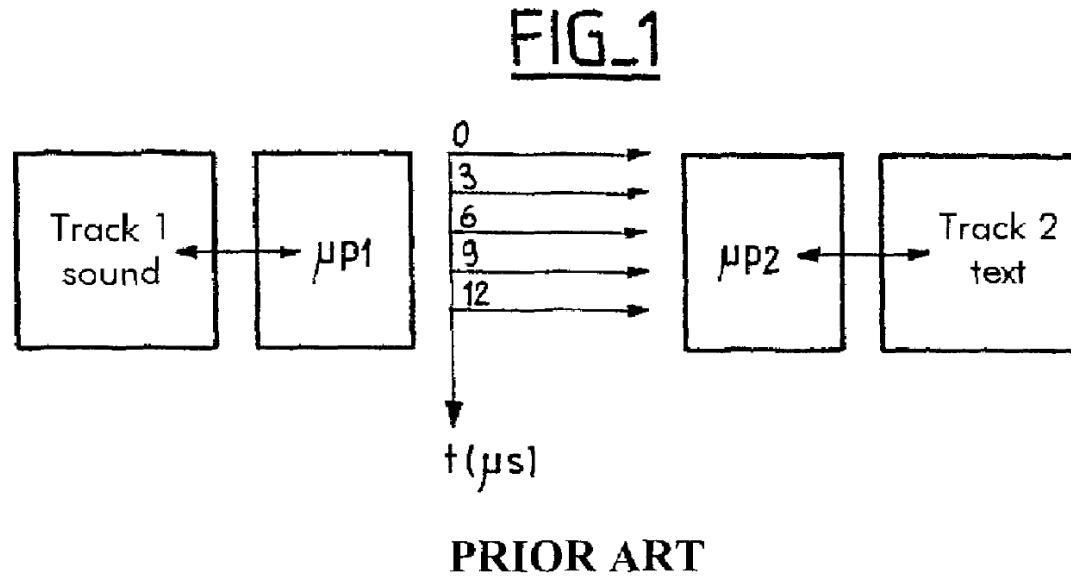
Petitioner Misinterprets Comps

The synchronization commands are not temporal commands, as in the prior art, but are instead dependent on a specific event. Thus the fields SYNCH_i are not present in the tracks at regular time intervals. 45

EX1004 (Comps), 3:44-47; Paper 28 (POR), 59



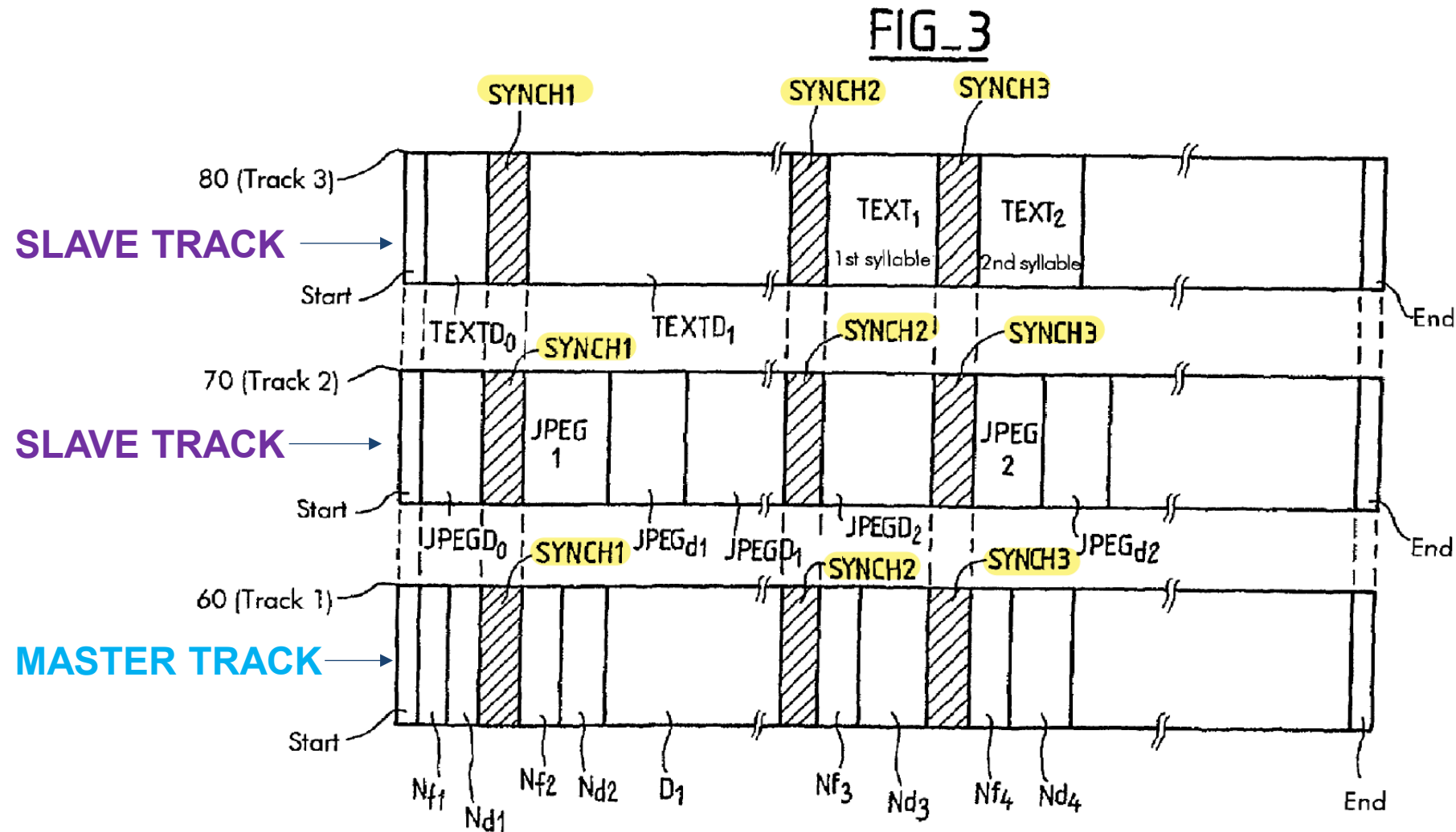
Comps Distinguished Itself From the Prior Art By Using SYNCH Commands Sparingly Instead of at Set Time Intervals



The prior art solution is temporal synchronization. In the FIG. 1 example, the microprocessor μp_1 , which reads the track 1 containing sound, sends synchronization data every 3 μs to the microprocessor μp_2 , which reads the track 2 containing text. The synchronization data can optionally be stored in the multimedia file.

Thus the microprocessor μp_2 verifies every 3 μs whether its clock is synchronized to that of the first microprocessor μp_1 . If the microprocessor μp_2 finds that it is in advance of the other one, it calculates the time difference and stops reading track 2 for that period of time. It then restarts in synchronism with the microprocessor μp_1 . It is apparent that the better the synchronization required, the greater the quantity of synchronization data that has to be sent and the more frequently it has to be sent.

Comps Periodically Synchs All “Slave” Tracks With the Timing of the “Master” Track



EX1004(Comps), Fig. 3; Paper 28(POR), 9, 43-44

Comps' SYNCH Commands Adjust The Timing of the Slave Tracks to Match the Master Track

In the FIG. 3 example, musical notes included in the track 1 data must not be interrupted. Synchronizing the three tracks must not entail interrupting the music heard by the user. The microprocessor dedicated to reading this track is considered to be the master. 50

It forces the other microprocessors in charge of the other tracks, referred to as slaves, to synchronize with it.

EX1004(Comps), 3:48-54; Paper 28(POR), 43-44



The Meaning of Timestamps Is Undisputed

132. Based on my reading of the '794 Patent, I understand that timestamps can be absolute times or absolute time ranges. *See e.g.*, '794 Patent (EX1001) at 6:43-49. Dr. Freedman agreed with this reading in the '086 IPR. *See Unified Patents, LLC, v. VL Collective IP, LLC*, IPR2022-01086, EX1005 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).

EX2020(Goodrich Decl.), ¶132; Paper 28(POR), 57-59



Timestamps

2 Q. What understanding of "time stamps"
3 did you apply in your declaration?

4 A. So in my paragraph 52, I describe some
5 of what I just explained and cited to '794 patent,
6 Column 2, lines 36 to 43, as well as Claims 20 and
7 21. And I use the plain and ordinary meaning of the
8 word "time stamp," which clearly is related to time
9 and the fact that Comps, as I said, expressly uses
10 synchronization commands that are not temporal
11 commands that teaches that they're not time stamps.
12 And, furthermore, the synch commands
13 are used in very similar way to the assignment rules
14 of the '794 patent, which is why I point to them for
15 teaching that.

EX2012(Bederson Depo. Tr.), 68:2-15
Paper 44(PO Sur-Reply), 25



Timestamps

3 Q. Dr. Bederson, is -- in your view, is
4 an absolute time a time stamp?

5 A. I didn't offer a construction of the
6 term "time stamp," and I didn't need to. Because as
7 I explained, Comps teaches something so expressly
8 not a time stamp, since the assignment rule that I
9 pointed to through the synch commands are explained
10 to not be temporal commands, but I didn't go further
11 in trying to construe or provide a definition of
12 "time stamp."

13 Q. Do you have an opinion about whether
14 an absolute time is a time stamp?

15 A. No, I do not.

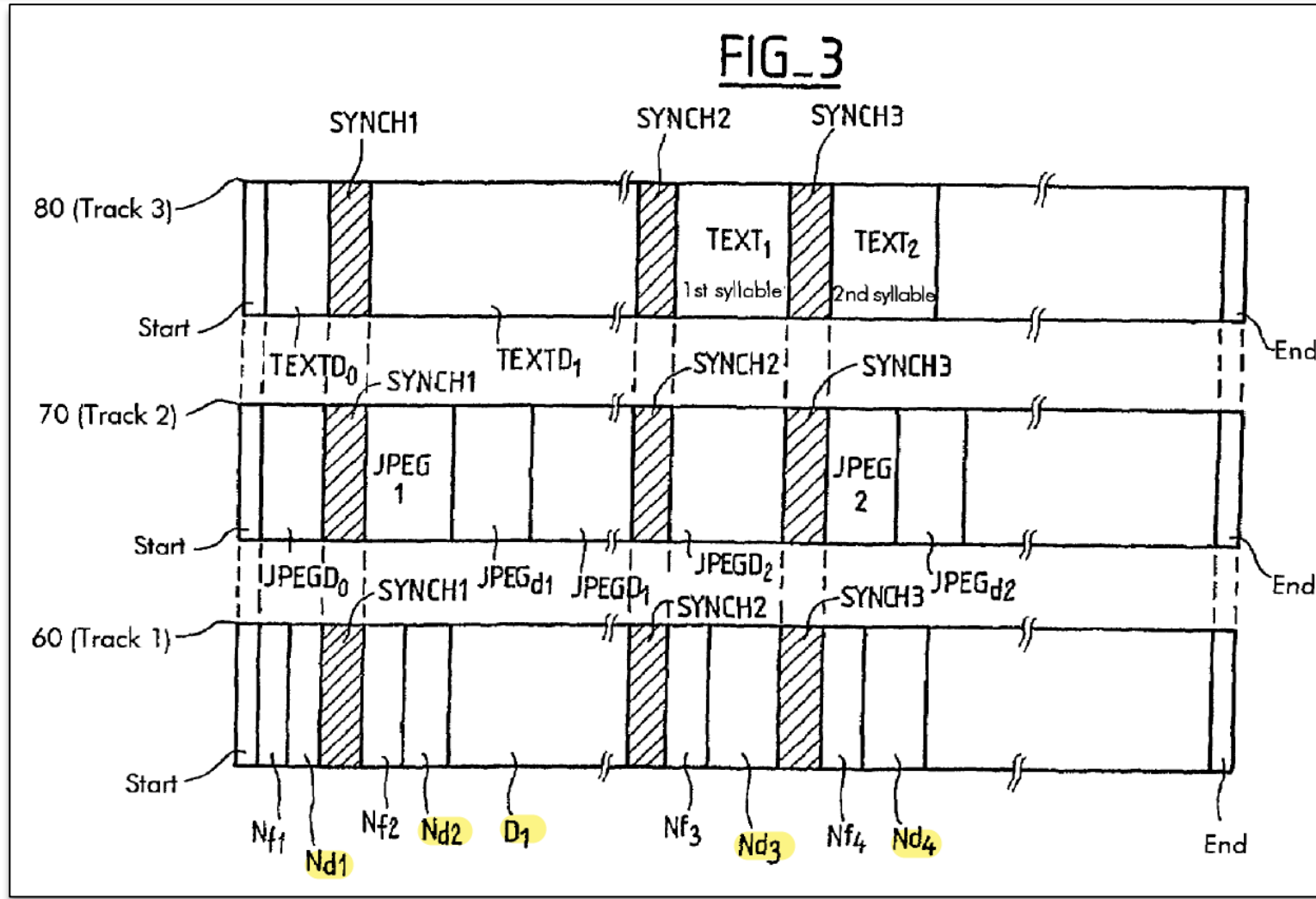
16 Q. Do you have an opinion about whether
17 an absolute time range is a time stamp?

18 A. No, I do not.

EX2012(Bederson Depo. Tr.), 69:3-18
Paper 44(PO Sur-Reply), 25



Comps Uses Timestamps



EX1004(Comps), Fig. 3; Paper 28(POR), 9, 43-44

Dr. Bederson Agrees

14 Q. Okay. Thank you.

15 And each track in Comps -- well, maybe
16 let me stick with Track 1. So the master track in
17 Comps in example Figure 3, it has audio data.audio
18 in Track 1 which is the master track, and it's got
19 timing information for how long to play each note or
20 how long to wait between notes; correct?

21 A. Track 1 does include that information.

22 Q. Okay. And Track 2 also includes that
1 information, but for image or video-related data
2 instead of audio-related data; right?

3 A. So Track 2 does include information
4 about how long to display an image or video, as well
5 as how long to wait before the next display of image
6 or video.

EX2012(Bederson Depo. Tr.), 60:14-61:6;
Paper 44(PO Sur-Reply), 25



Dr. Bederson Agrees

7 Q. But for Track 2, it's possible, based
8 on the timing of the synch commands, that part or
9 all of events in Track 2 will be skipped; is that
10 correct?

11 A. So I think in Comps, the only kind of
12 command that can be skipped would be a waiting time.
13 And as I said, I think primarily that wouldn't
14 happen at all. A waiting time might be shortened,
15 you know.

16 But the point of this is to have
17 waiting times to have the ability to accommodate
18 slight variations in microprocessor clocks. So as I
19 said, if a slave track got slightly behind, it might
20 cut short the waiting time in order to catch up, but
21 Comps is quite explicit to not skip other kinds of
22 commands.

EX2012(Bederson Depo. Tr.), 61:7-22;
Paper 44(PO Sur-Reply), 25



Dr. Goodrich Explains Why Comps' Synchronization Is Based on Timestamps – No Rebuttal By Dr. Bederson

135. The slave microprocessors are forced to skip events or stop executing events in the slave tracks so they may reach a SYNC command in the respective slave track at the same *time* as the master microprocessors reach the corresponding SYNCH command in the master track. *See e.g., id.* at 3:51-54, 4:25-43.

Accordingly, the SYNCH commands in master track force the slave microprocessors to execute the events after the corresponding SYNCH command based on the timestamps of the master track. Therefore, the POSITA would understand that the SYNCH commands (i.e., alleged assignment rules) are in fact based on timestamps, and thus do not satisfy the requirements of claims 20 and 21.

EX2020(Goodrich Decl.), ¶135; Paper 28(POR), 57-59



Enzo Biochem, Inc. v. Gen-Probe, Inc. (Fed. Cir. 2005)

favor of the nonmoving party, Enzo presented no evidence to the district court disputing the identity of the Ortho delivery. Instead, the court was faced only with Enzo's arguments and perhaps a suggestion of what Enzo might present at trial; that alone is insufficient to meet its burden of production. Attorney argument is no substitute for evidence. Although,

Enzo Biochem, Inc. v. Gen-Probe, Inc., 424 F.3d 1276, 1284 (Fed. Cir. 2005); Paper 44(PO Sur-Reply), 25-26



Claim Construction – Outputting “Each” of the Content-Related Second Data Segments With a Content-Related First Data Segment Based on an Assignment Rule

Claim Construction – Outputting “Each” of the Content-Related Second Data Segments

Term	Patent Owner’s Construction	Petitioner’s Construction ¹
“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” (claim 1; similar in claims 9 and 22)	every content-related second data segment is output together with an associated one of the content-related first data segments on the basis of an assignment rule (claim 1; similar for claims 9 and 22)	every content-related second data segment is output together with an associated one of the content-related first data segments on the basis of an assignment rule; each “data segment” can comprise one or more data segments (claim 1; similar for claims 9 and 22)

¹ Petitioner does not formally propose this construction but applies it in its invalidity analysis. Paper 40 (Reply), 2-4, 14-17.

Petitioner Agrees “Assignment Rule” Must Apply to “Every” Content-Related Second Data Segment and Not a “Subset”

PO has a fundamental misunderstanding of Comps and what the '794 patent claims require, and it mischaracterizes Petitioner's mapping of this limitation. PO asserts “Comps is about synchronizing a *subset* of the outputted events instead of *each* outputted event.” POR, 47. But the '794 claims do not require *every event* in Comps be outputted together on the basis of an “assignment rule”; the claims only require “*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.” See, e.g., EX1001, Claim 1 (emphasis added). Thus, only the “content-related...data segments” in Comps need to be output together. Conversely, data segments in Comps that are not “content-related data segments” do not need to be output together.

Reply, 14



Petitioner Agrees “Assignment Rule” Must Apply to “Every” Content-Related Second Data Segment and Not a “Subset”

PO again misreads the '794 patent's claims to assert that Comps does not teach this limitation because “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.” POR, 55 (emphasis added). PO's flawed interpretation of the claims would require *all* “alleged *data segments* in the alleged data files” to be output “sequentially” and in “chronological sequence.” *Id.* (emphasis added). But the '794 patent claims only require the claimed “content-related...data segments” to be output “sequentially” and in “chronological sequence” based on the assignment rule. As explained above, Comps' waiting times in each track (*e.g.* D1, JPEGD₁, TEXTD₁) are not “content-related...data segments,” and therefore they do not need to be output “sequentially” and in “chronological sequence” based on the “assignment rule.”

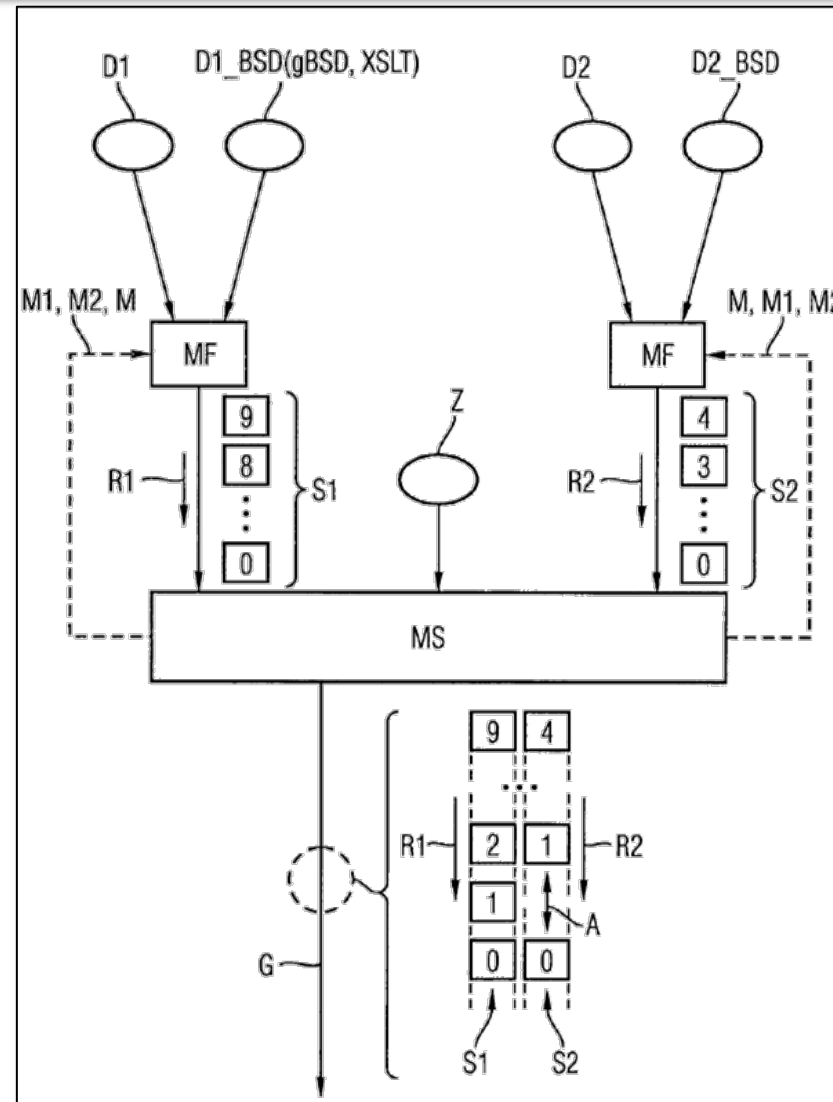
Reply, 17-18



Petitioner Improperly Maps Two Discrete Data Units To “Content-related . . . Data Segment”

“But the Petition never analyzes or considers Nf2 and Nd2 or JPEG1 and JPEGd1 as separate events, because they are not independent events. . . . [B]oth components necessarily belong together and comprise the claimed ‘content-related . . . data segment.’”

Patent Owner's Interpretation Is Consistent With Every Disclosed Embodiment



EX1001('794 Patent), Fig. 1; Paper 28 (POR), 6-7

Patent Owner's Interpretation Is Consistent With The Claims,

1. 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 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.

EX1001('794 Patent), Fig. 1; Paper 44(PO Sur-Reply), 11



Patent Owner's Interpretation Is Consistent With Every Disclosed Embodiment, The Claims, And Prosecution History

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(Prosecution History), 204; Paper 44(PO Sur-Reply), 11



The Claims Require Assigning “Every” Content-Related Second Data Segment

1. 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 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.

EX1001('794 Patent), Claim 1; Paper 28(POR), 6-7



Enzo Biochem, Inc. v. Applera Corp. (Fed. Cir. 2015)

added). First, the phrase "at least one component of a signalling moiety" indicates that the signalling moiety is composed of multiple parts as the term "component" in and of itself indicates a multipart system. Thus, construing the phrase to allow for a single-component system, as the district court did here, would read out the phrase "component of a signalling moiety" and would thus impermissibly broaden the claim. **[**12]** See [*Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 \(Fed. Cir. 2006\)](#) ([HN3](#)[↑]) "Claims are interpreted with an eye toward giving effect to all terms in the claim.").

Enzo Biochem, Inc. v. Applera Corp., 780 F.3d 1149, 1154 (Fed. Cir. 2015); Paper 44 (PO Sur-Reply), 12



Bicon, Inc. v. Straumann Co. (Fed. Cir. 2006)

[\(Fed. Cir. 2002\)](#) (en banc). Allowing a patentee to argue that physical structures and characteristics specifically described in a claim are merely superfluous would render the scope of the patent ambiguous, leaving examiners and the public to guess about which claim language the drafter deems necessary to his claimed invention and which language is merely superfluous, nonlimiting elaboration. For that reason, claims are interpreted with an eye toward giving effect to all terms in the claim. See, e.g., [Elekta Instrument S.A. v. O.U.R. Scientific Int'l, Inc.](#), 214 F.3d 1302, 1305, 1307 (Fed. Cir. 2000) (claim language "only within a zone extending

Bicon, Inc. v. Straumann Co., 441 F.3d 945, 950 (Fed. Cir. 2006); Paper 44 (PO Sur-Reply), 11



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

Comps Uses SYNCH Commands Before “Important” Events

To this end, the invention provides a method of synchronizing data in a multimedia document (50) comprising at least two separate data files (track1, track2) referred to as the first file, the second file, etc., in which method:

10 data of a first type, of a second type, etc. is stored in the first file, in the second file, etc., respectively, and grouped into the form of at least one event-related command characterizing an important event or an unimportant event, and

15 at least one synchronization command is inserted into each file, which method is characterized in that said synchronization command is inserted before each event-related command characterizing an important event.

20 The method is advantageously characterized in that the important event corresponds to a command to display a text, a command to display a picture, or a command to reproduce a sound.

“Important” Events “Must Not Be Interrupted”

45 Thus each important command, i.e. a command whose execution must not be interrupted, is represented by a given field preceded by a field representing a synchronization command. The synchronization command is at the same place in all the other tracks. Because of this, different tracks are resynchronized before any important command, if necessary.
50

EX1004(Comps), 4:44-50; Paper 44 (PO Sur Reply), 13



Only Events In the Master Track Can Be “Important” Events

In the FIG. 3 example, musical notes included in the track 1 data must not be interrupted. Synchronizing the three tracks must not entail interrupting the music heard by the user. The microprocessor dedicated to reading this track is considered to be the master. 50

It forces the other microprocessors in charge of the other tracks, referred to as slaves, to synchronize with it.

EX1004(Comps), 3:48-54; Paper 28 (POR), 10



Comps Uses SYNCH Commands Sparingly

In mobile terminals there are severe file size constraints. The available memory is limited for reasons of overall size and battery life. What is more, multimedia files must be downloadable from a server center in a reasonable time, which is directly dependent on the file size. 60

Storing recurrent synchronization data is costly in terms of memory: the flow of data exchanged is burdened with many exchanges of synchronization data, which overloads the memory.

The object of the present invention is to reduce the size of multimedia files, to optimize the quantity of data exchanged, 5 and to provide optimum synchronization.

EX1004(Comps), 1:56-64, 2:3-4, Paper 44 (PO Sur Reply), 13-14



Comps Uses SYNCH Commands Sparingly

(57)

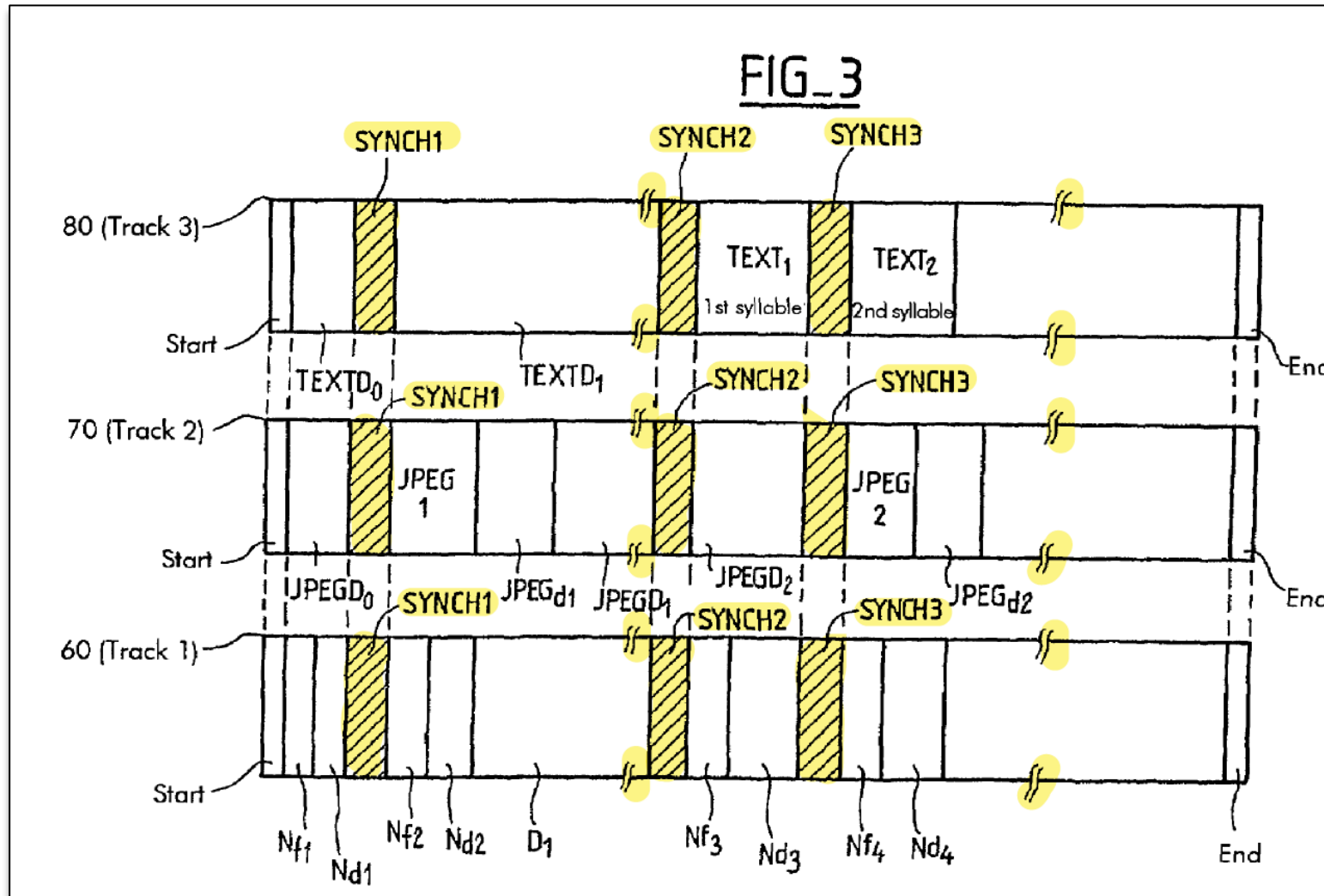
ABSTRACT

The invention concerns a method for synchronizing data in a multimedia document (50), said document comprising at least two separate computer files (track1, track2) called the first file, the second file, etc., in which method: there is stored in the first file, in the second file, etc., respectively data of a first type, of a second type, etc., said data being grouped in the form of at least one event-related command characterizing an event, said event being either important or unimportant,—at least one synchronization command is inserted in each file, characterized in that said synchronization command is inserted before each event-related command characterizing an important event.

EX1004(Comps), Abstract, Paper 44 (PO Sur Reply), 13-14

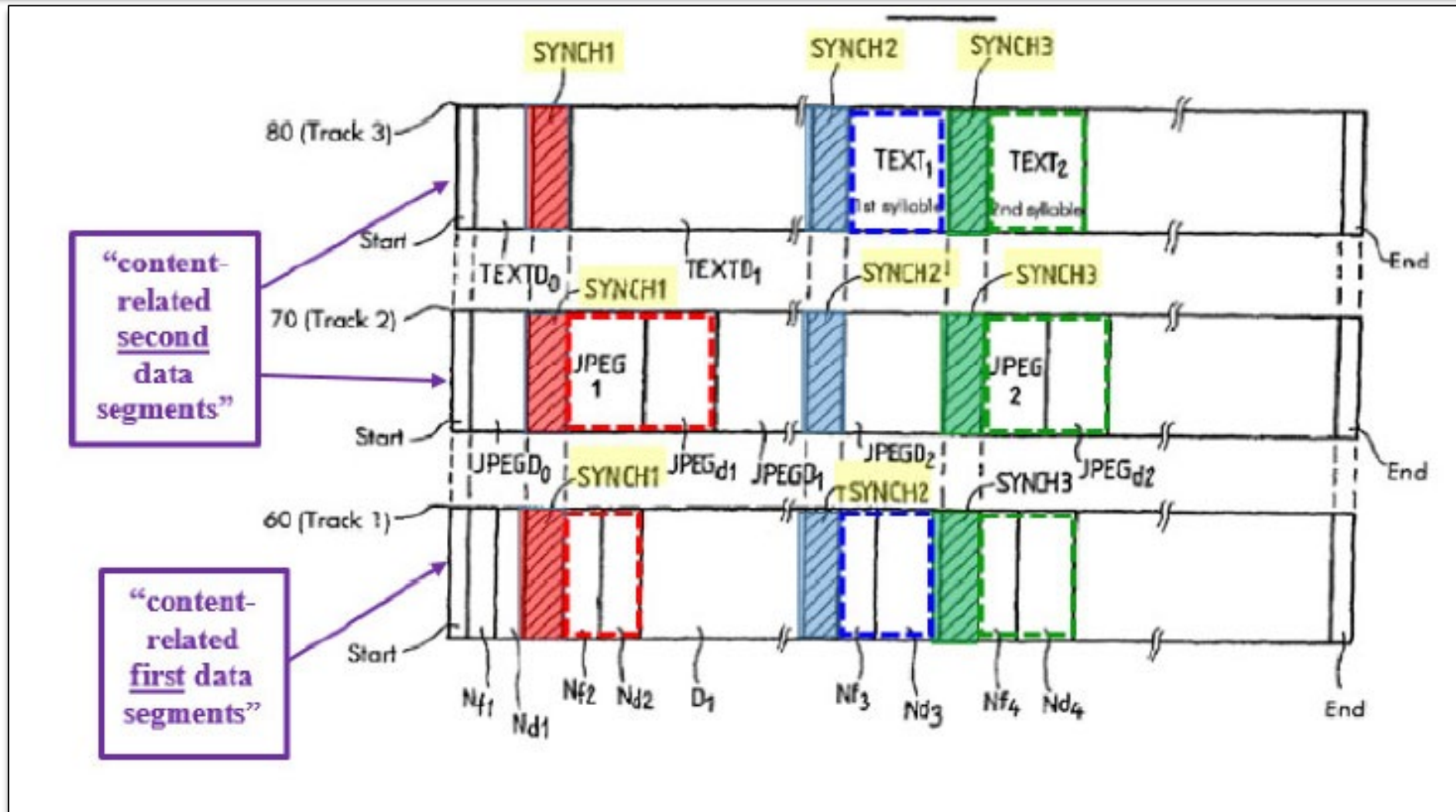


Comps Uses SYNCH Commands Sparingly



EX1004 (Comps), Fig. 3; Paper 28(POR), 9

Petitioner Treats Multiple Events As a Single Data Segment



Paper 2(Petition), 34 (depicting EX1004, Comps, Fig. 3); Paper 28(POR), 48

Comps Describes Each Event As a Separate Unit of Data

Track 1 contains data relating to sound. A first field Nf_1 represents the frequency of a first note and a second field Nd_1 represents its duration. Likewise, the fields Nh_2 and Nd_2 define a second note. The field D_1 represents a waiting time 25 before presenting the subsequent notes of the track.

The fields Nh_3 and Nd_3 respectively represent the frequency and the duration of a third note.

Comps Describes Each Event As a Separate Unit of Data

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. 35
The fields JPEGD₀, JPEGD₁ and JPEGD₂ represent waiting times before or between images.

Comps Describes Each Event As a Separate Unit of Data

Thus the first synchronization command, which corresponds to the field SYNCH1, is:

- 5 between the fields Nd_1 and Nf_2 in track 1,
 between the fields $JPEGD_0$ and $JPEG1$ in track 2,
 between the fields $TEXTD_0$ and $TEXTD_1$ in track 3.

The second synchronization command, which corresponds to the field SYNCH2, is:

- 10 between the fields D_2 and Nf_3 in track 1,
 between the fields $JPEGD_1$ and $JPEGD_2$ in track 2,
 between the fields $TEXTD_1$ and $TEXT$ in track 3.

The third synchronization command, which corresponds to the field SYNCH3, is:

- 15 between the fields Nd_3 and Nf_4 in track 1,
 between the fields $JPEGD_2$ and $JPEG2$ in track 2,
 between the fields $TEXT1$ and $TEXT2$ in track 3.

EX1004 (Comps) 4:3-18; Paper 44(PO Sur-Reply), 15

Each Event In Comps Is a “Segment”

segment



[noun **seg**-muhnt; verb **seg**-ment, seg-ment]

☒ Phonetic (Standard) ☐ IPA

noun

- 1 one of the parts into which something naturally separates or is divided; a division, portion, or section:

a segment of an orange.

EX2041 (Definition of “Segment”); Paper 44(PO Sur-Reply), 16



Petitioner Wrongly Asserts That All Events Corresponding to Content Are “Important” Events

To this end, the invention provides a method of synchronizing data in a multimedia document (50) comprising at least two separate data files (track1, track2) referred to as the first file, the second file, etc., in which method:

10 data of a first type, of a second type, etc. is stored in the first file, in the second file, etc., respectively, and grouped into the form of at least one event-related command characterizing an important event or an unimportant event, and

15 at least one synchronization command is inserted into each file, which method is characterized in that said synchronization command is inserted before each event-related command characterizing an important event.

20 The method is advantageously characterized in that the important event corresponds to a command to display a text, a command to display a picture, or a command to reproduce a sound.

EX1004(Comps), 2:6-23; Paper 44 (PO Sur Reply), 13



Petitioner Wrongly Asserts That All Events Related to Presenting Content Are “Important” Events

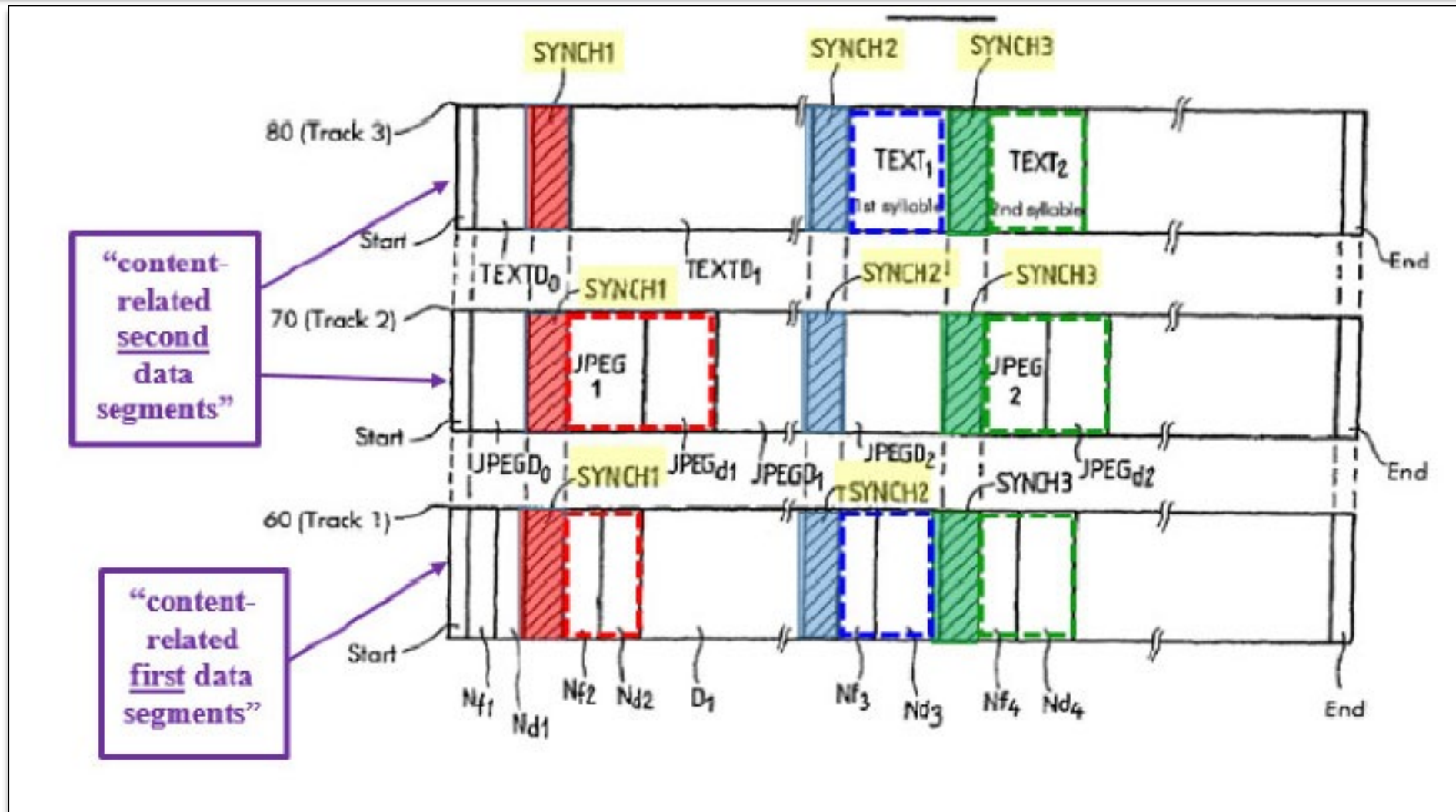
In the FIG. 3 example, musical notes included in the track 1 data must not be interrupted. Synchronizing the three tracks must not entail interrupting the music heard by the user. The microprocessor dedicated to reading this track is considered to be the master. 50

It forces the other microprocessors in charge of the other tracks, referred to as slaves, to synchronize with it.

EX1004(Comps), 3:48-54; Paper 28 (POR), 10



Petitioner's Theory Is Logically Inconsistent



Timing Events Are Discrete Events

Track 1 contains data relating to sound. A first field Nf_1 represents the frequency of a first note and a second field Nd_1 represents its duration. Likewise, the fields Nh_2 and Nd_2 define a second note. The field D_1 represents a waiting time before presenting the subsequent notes of the track. 25

The fields Nh_3 and Nd_3 respectively represent the frequency and the duration of a third note.

Thus fields defining a note or a waiting time can follow on from each other in track 1. 30

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. 35
The fields JPEGD₀, JPEGD₁ and JPEGD₂ represent waiting times before or between images.

Track 3 contains data corresponding to text messages. In this example two syllables represented by the fields TEXT1 and TEXT2 must be presented to the user. The fields 40
TEXTD₀ and TEXTD₁ represent waiting times before a text.

The synchronization commands are represented by fields SYNCH_i for i from 1 to n .

EX1004(Comps), 3:22-43; Paper 28 (POR), 9-10, 55

Dr. Bederson Conceded That Audio “Content” Includes Silence

20 Q. And video streams and audio streams
21 will sometimes have -- let me ask this is a little
22 differently.
1 And sometimes in audio streams, there
2 will be parts of the audio stream where there is no
3 sound; right? It's silence?
4 A. I think that's right.

EX2012(Bederson Depo Tr.) 41:20-42:4; Paper 28 (POR), 9-10, 55



Dr. Bederson Conceded That Audio “Content” Includes Silence

21 Q. In the context of the '794 patent, can
22 audio content include content in which what's going
1 to be output is silence?

2 A. I don't think that's something I
3 specifically analyzed. I think sitting here today,
4 I can envision sometimes there might be -- I can
5 envision some kinds of audio, like a recording of a
6 person talking, where they're not talking for a
7 moment, so there might be silence.

EX2012(Bederson Depo Tr.) 42:21-43:7; Paper 28 (POR), 54



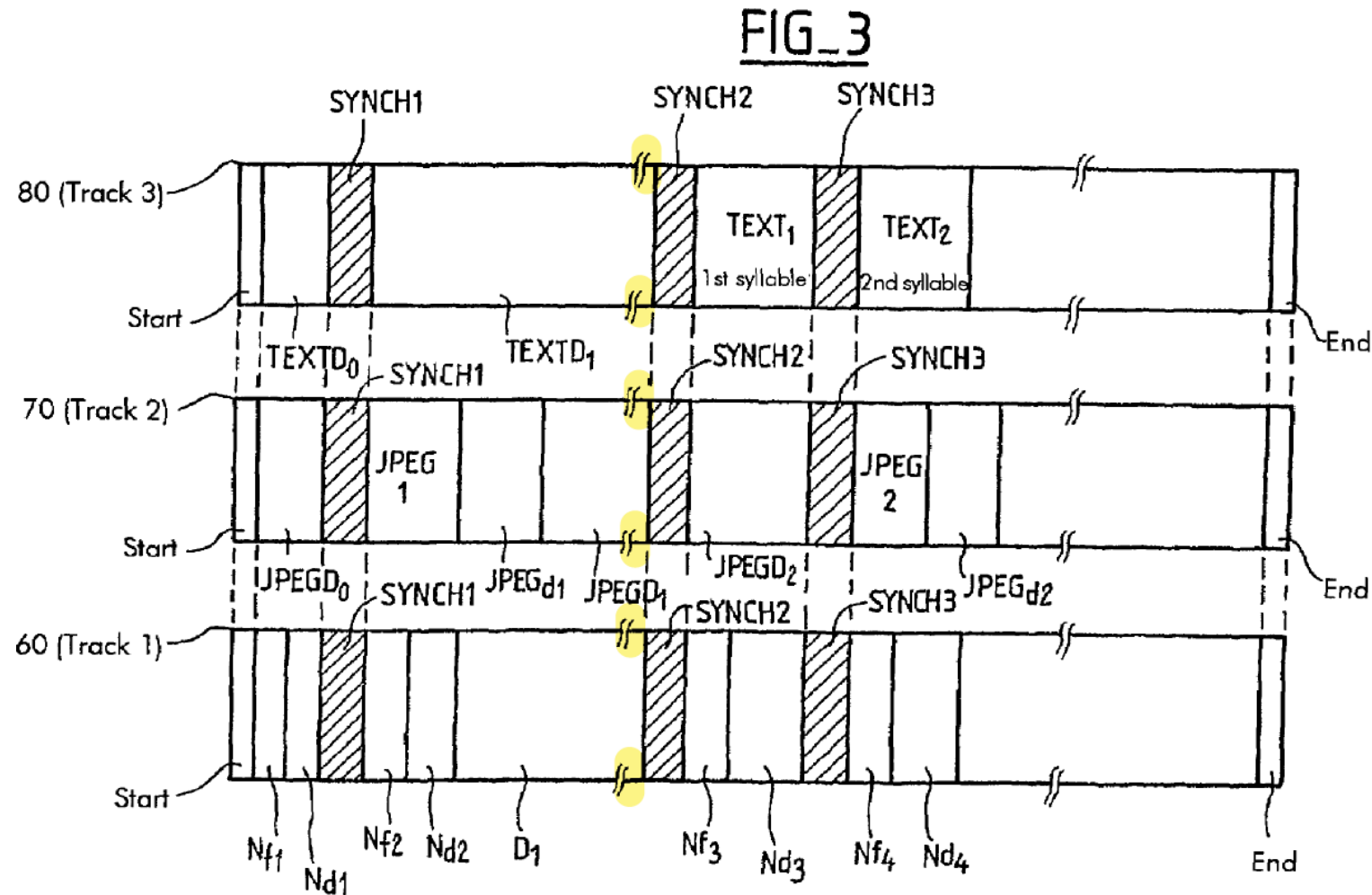
Dr. Goodrich Explained That “Content” Includes Waiting Durations

However, the POSITA would consider a moment of silence just as essential as the sound itself. For example, as Dr. Bederson described during his deposition “I can envision some kinds of audio, like a recording of a person talking, where they’re not talking for a moment, so there might be silence.” Bederson Tr. (EX2012) at 43:5-7. In Dr. Bederson’s example, the POSITA would consider this moment of silence just as important as the person talking because it would be part of the same audio. Without this moment of silence, the audio may change a speaker’s cadence or style of speaking ... That is, if Dr. Bederson alleges Nf1/Nd1, Nf2/Nd2, Nf3/Nd3, and Nf4/Nd4, JPEG1/JPEGd1, and JPEG2/JPEGd2, and TEXT1 and TEXT2 are “content-related data segments” the wait time events must also be “content-related data segments”.

EX2011(Goodrich Decl.), ¶115 ; Paper 28 (POR), 53-54

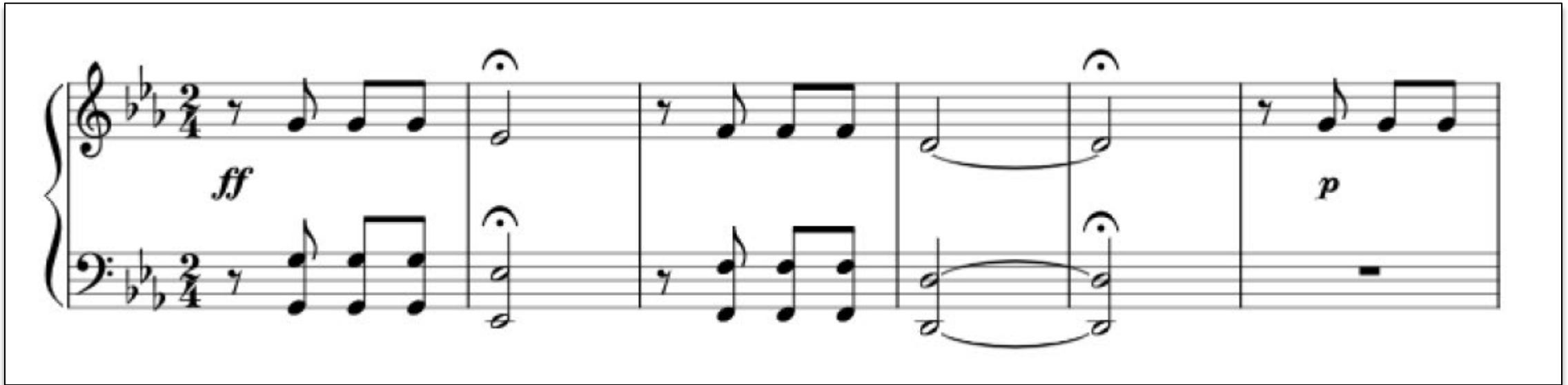


Waiting Time Events Have Specific Durations



EX1004 (Comps), Fig. 3; Paper 28(POR), 9

Like Notes and Rest Notes in Sheet Music, Frequencies and Waiting Times In Comps Correspond to Content



Notes and Rest Notes Both Correspond to Content

“Music is the silence between the notes”



-Claude Debussy

Petitioner's Theories Rely on Modifications to Comps That Are Legally Improper

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); Paper 28(POR), 49



Petitioner's Theories Rely on Modifications to Comps That Are Legally Improper

disclosed or described in "the prior art." Thus, for the instant rejection under [35 USC 102\(e\)](#) to have been proper, the Flynn reference must clearly and unequivocally disclose the claimed compound or direct those skilled in the art to the compound without any need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference. Such [HN3](#) picking

In re Arkley, 455 F.2d 586, 587 (CCPA 1972); Paper 28(POR), 49



Claim Construction – “Content-Related . . . Data Segments”



Claim Construction – “Content-Related ... Data Segments”

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

¹ Petitioner does not formally propose this construction but applies it in its invalidity analysis. Paper 40 (Reply), 2-4, 14-17.

Patent Owner's Construction Is Consistent With the Board's and Judge Hall's Previous Constructions

Term	Patent Owner's Construction	Judge Hall's Construction ¹	Board's Construction in the <i>Unified</i> IPR
"content related ... data segments"	segments of content data that have a syntactical meaning within the respective data file	segments of content data that have a syntactical meaning within the respective data file	segments of content data that have a syntactical meaning

EX1019(*Starz Entm't, LLC v. VL Collective IP, LLC*, Claim Construction Order (Dkt. 88)), 4; *Unified Patents, LLC v. VL Collective IP, LLC*, IPR2022-01086, Paper 37 at 16-18 (PTAB December 18, 2023); Paper 28(POR), 14-15



Lexicography Requires Data Segments to Have Content

For every first and second data file D1, D2 there exists in
10 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-re-
lated second data segments S1, S2 can be obtained from the
respective first and second data file D1, D2. The term “con-
15 tent-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. Furthermore, sections of the data
20 file can also be understood thereby, such as e.g. individual
images of a video sequence. In the following description data
segments always refer to content-based data segments.

EX1001('794 Patent), 4:9-22; Paper 28(POR), 12-13



“Content-Based Data Segments” Must Contain Content

based



[beyst]

☒ Phonetic (Standard) ☐ IPA

adjective

- 1 having a specified object or material as its base or foundation or as its primary constituent (often used in combination):

Our house was one of the three stone-based houses of that era, built by my maternal grandfather.

The '794 Patent Only Describes “Content-Based Data Segments” That Include Content

Petitioner argues that its construction is consistent with the phrase “content-related” data segments. But “content-related” is defined in the specification, and its definition shows that data segments in the '794 patent have content. EX1001, 4:9-62. This interpretation is consistent with every embodiment and the nature of the problem being solved. *Id.*, Title, Abstract, Figs. 1-5, 1:23-2:20, 3:4-10, 3:65-5:34, claims 1-21; *Amdocs (Isr.), Ltd. v. Openet Telecom, Inc.*, 761 F.3d 1329, 1340 (Fed. Cir. 2014). The definition of “content-related” must apply, not its plain meaning.

Judge Hall Agreed

22 THE COURT: I guess, is the patent
23 limited -- we're all assuming that we're
24 talking about videos here, but the patent is
25 not limited to videos; right?

EX2003(Markman Hearing Transcript, *Starz Entertainment, LLC et al. v. VL Collective IP, LLC et al.*, No. 21-cv-1448-JLH) 87:22-25;



Judge Hall Agreed

5	MR. CARDENAS: Well, let me clarify
6	what I mean when I say it's not limited to
7	videos. It is -- I think from the context, it
8	is related to, sort of broadly, audio-visual
9	content, but one of the data files might be,
10	for example, like, subtitles or something like
11	that or might be some metadata. There might be
12	other things that are synched that are not just
13	audio or video, but we do understand this
14	invention as being limited to, broadly,
15	audio-visual content.

EX2003(Markman Hearing Transcript, *Starz Entertainment, LLC et al. v. VL Collective IP, LLC et al.*, No. 21-cv-1448-JLH) 88:5-15;



Petitioner's Construction Is Inconsistent With the Claims

1. 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 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.

EX1001('794 Patent), Claim 1; Paper 28(POR), 6-7



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

Comps's Alleged Data Segments Do Not Include Actual Content

10 data of a first type, of a second type, etc. is stored in the
first file, in the second file, etc., respectively, and
grouped into the form of at least one event-related
command characterizing an important event or an
unimportant event, and
15 at least one synchronization command is inserted into
each file, which method is characterized in that said
synchronization command is inserted before each
event-related command characterizing an important
event.
20 The method is advantageously characterized in that the
important event corresponds to a command to display a text,
a command to display a picture, or a command to reproduce
a sound.

EX1004(Comps), 2:10-23; Paper 28(POR), 39



Comps's Alleged Data Segments Do Not Include Actual Content

45 The data in a multimedia file according to the invention can comprise either time values or sound, text or picture coding values. The time values can represent a note duration,

Track 60 or track 1 contains only MIDI sound data. The sound data could consist of sampled sounds (speech, miscellaneous noises such as applause or microphone noise, etc.).

Track 70 or track 2 contains only data corresponding to 15 sequences of JPEG images. This data could equally be video data.

Track 80 or track 3 contains only data corresponding to text messages.

EX1004(Comps), 2:44-46, 3:11-19; Paper 28(POR), 7-11 38-43



Comps's Audio Track Only Contains MIDI Sound Data

Track 60 or track 1 contains only MIDI sound data. The sound data could consist of sampled sounds (speech, miscellaneous noises such as applause or microphone noise, etc.).

EX1004(Comps), 3:11-14; Paper 28(POR), 40



MIDI Sound Data Is Not Actual Sound Content

A TUTORIAL ON MIDI AND WAVETABLE MUSIC SYNTHESIS

By Jim Heckroth

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; Paper 28(POR), 40-41



MIDI Sound Data Is Not Actual Sound Content

Track Chunks

The track chunks (type MTrk) are where actual song data is stored. Each track chunk is simply a stream of MIDI events (and non-MIDI events), preceded by delta-time values. The format for Track Chunks (described below) is exactly the same for all three formats (0, 1, and 2: see "Header Chunk" above) of MIDI Files.

The contents of the MIDI stream represented by this example are broken down here:

Delta Time (dec)	Event Code (hex)	Other Bytes (dec)	Comment
0	FF 58	04 04 02 24 08	4 bytes: 4/4 time, 24 MIDI clocks/click, 8 32nd notes/24 MIDI clocks
0	FF 51	03 500000	3 bytes: 500,000 μ sec per quarter-note
0	C0	5	Ch. 1, Program Change 5
0	C1	46	Ch. 2, Program Change 46
0	C2	70	Ch. 3, Program Change 70
0	92	48 96	Ch. 3 Note On #48, forte
0	92	60 96	Ch. 3 Note On #60, forte
96	91	67 64	Ch. 2 Note On #67, mezzo-forte
96	90	76 32	Ch. 1 Note On #76, piano
192	82	48 64	Ch. 3 Note Off #48, standard
0	82	60 64	Ch. 3 Note Off #60, standard
0	81	67 64	Ch. 2 Note Off #67, standard
0	80	76 64	Ch. 1 Note Off #76, standard
0	FF 2F	00	Track End

The entire format 0 MIDI file contents in hex follows.

EX2019(Standard MIDI Files), 5 and 12; Paper 28(POR), 41

MIDI Sound Data Is Not Actual Sound Content

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.

EX2017(Tutorial on MIDI and Music Synthesis), 1; Paper 28(POR), 40-41



Dr. Bederson Agrees MIDI Sound Data Is Not Actual Sound Content

7 Q. And what's your understanding of MIDI?

8 A. It's -- I don't know what kind of
9 standard it is. I don't know. Maybe it's an
10 industry standard, which I believe probably includes
11 some kind of data format for representing musical
12 information that can be used to control playback of
13 music, such as synthesizers.

EX2012(Bederson Depo. Tr.), 45:7-13; Paper 28(POR), 41



Dr. Bederson Agreed That Comps Could Include Note Frequencies and Nothing Else

18 Q. Looking back at Figure 3 of Comps, for
19 N sub f1 or N sub f2, any of these Nfs, what actual
20 data is in those blocks represented by N sub f1?

21 A. Comps describes N sub f1 in particular
22 at Column 3, line 22, where it says, "A first field
1 Nf1 represents the frequency of a first note."

2 So I would think a person of skill in
3 the art reading this would expect that N sub f1
4 would include at least the frequency of a first
5 note.

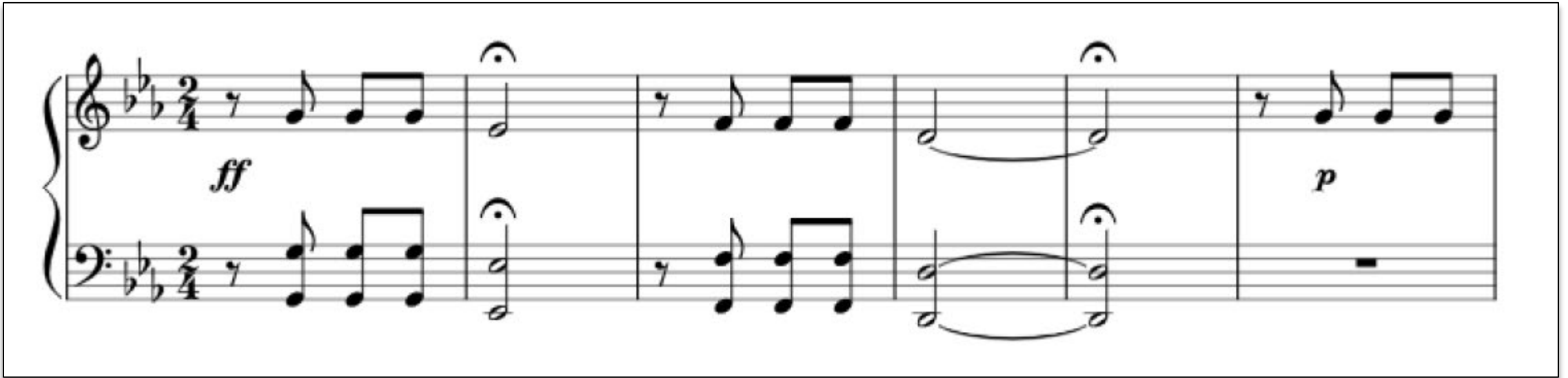
6 Q. Would it include anything else?

7 A. It may. I don't think Comps describes
8 the data structures or specifically which data are
9 used in this different fields, but as I said, it
10 does describe this particular field as representing
11 the frequency of a note.

EX2012(Bederson Depo. Tr.), 43:18-44:11; Paper 44(PO Sur-Reply), 23



Comps Is Akin to Sheet Music



Comps' Other Tracks Also Contain Commands Or Instructions

Track 70 or track 2 contains only data corresponding to sequences of JPEG images. This data could equally be video data. 15

Track 80 or track 3 contains only data corresponding to text messages.

EX1004(Comps), 3:15-19; Paper 28(POR), 42

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. 35
The fields JPEGD₀, JPEGD₁ and JPEGD₂ represent waiting times before or between images.

EX1004(Comps), 3:31-37; Paper 28(POR), 42

Comps Aims To Limit The Size Of The Tracks

In mobile terminals there are severe file size constraints. The available memory is limited for reasons of overall size and battery life. What is more, multimedia files must be downloadable from a server center in a reasonable time, which is directly dependent on the file size. 60

Storing recurrent synchronization data is costly in terms of memory: the flow of data exchanged is burdened with many exchanges of synchronization data, which overloads the memory.

EX1004(Comps), 1:56-64; Paper 28(POR), 3



Net MoneyIN, Inc. v. VeriSign, Inc. (Fed. Cir. 2008)

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); Paper 28 (POR), 49



Corephotonics, Ltd. v. Apple Inc. (Fed. Cir. 2023)

[27] We begin by further explaining the permissible scope of an IPR petitioner's reply. The APA, the IPR statute, the Board's regulations, and our precedents collectively impose two separate, but related, restrictions on what a petitioner may include in its reply. First, the arguments and evidence in the reply must not be part of a *new* theory of unpatentability. Second, the arguments and evidence in the reply must be *responsive* to the patent owner's contentions or the Board's institution decision.

claim is based”). Determining whether a reply has improperly raised a new theory or argument requires a comparison between the petitioner's petition and the petitioner's reply.

Corephotonics, Ltd. v. Apple Inc., 84 F.4th 990, 1001, 1008 (Fed. Cir. 2023); Paper 44 (PO Sur-Reply), 8



Dependent Claims Expressly Require Types of Content Data

5. The method as claimed in claim 1, wherein media data are represented by at least one of the first data file and the second data file.

12. The method as claimed in claim 5, wherein the media data include at least one of video and audio data.

13. The method as claimed in claim 1, wherein at least one of media data and metadata are represented by at least one of the first data file and the second data file.

14. The method as claimed in claim 13, wherein the meta-data include metadata encoded according to the XML standard.

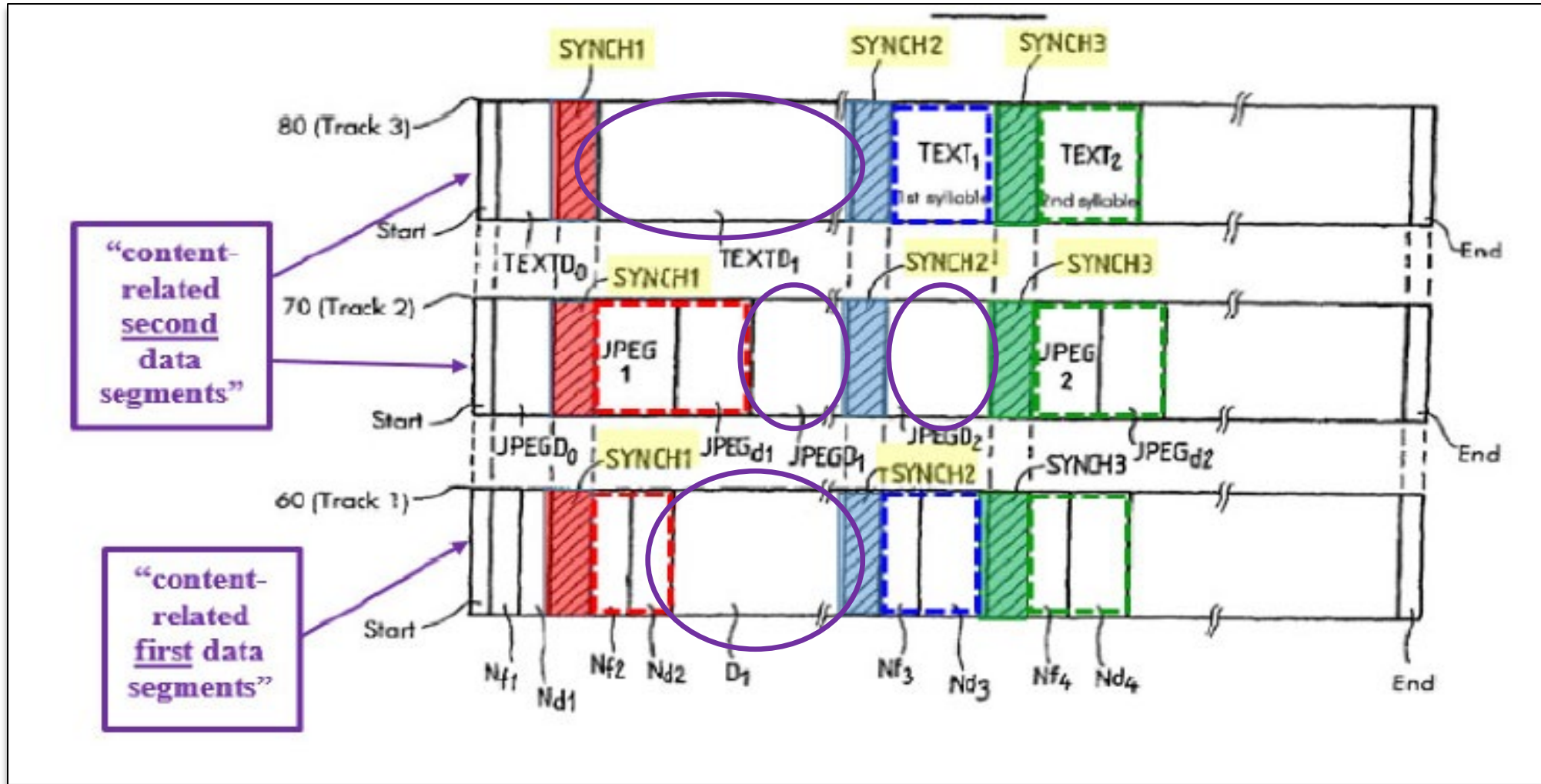
15. The method as claimed in claim 13, wherein the media data include at least one of video and audio data.

EX1001('794 Patent), Claims 5, 12-15; Paper 28(POR), 43



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

Comps Events Are Not Output Sequentially



Paper 2(Petition), 34 (depicting EX1004, Comps, Fig. 3); Paper 28(POR), 48

Comps Events May Be Skipped

30 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.

35
40 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.

EX1004(Comps), 4:30-43; Paper 28(POR), 9, 10-11

14 A. That assignment happens through the
15 way that Comps works. I described that in some
16 detail when we analyzed -- when I explained my
17 analysis of the synchronization in Comps Column 4,
18 lines 25 through 44 -- or 43, where basically a
19 synch -- a slave track, as it processes either its
20 own synch commands or an incoming synch command from
21 the master track, decides whether to continue along
22 or to pause or to jump ahead; and in doing so, the

EX2012(Bederson Depo. Tr.), 76:14-22; Paper 28(POR), 46

**Comps Does Not Insert Synch Commands After A
Predefined Number Of Events And Comps Synch
Command Numbers Do Not Represent The Position Of
The Events In The Tracks**

Claim 2

2. The method as claimed in claim 1, wherein the assignment rule is formed in such a way that each of the content-related second data segments are assigned to precisely one of the content-related first data segments and a further assignment is carried out after a number of sequentially succeeding content-related first data segments.

EX1001('794 Patent), Claim 2; Paper 28(POR), 61-62

b) The use of the number A firstly enables only one single second data segment S2 to be synchronized with a first data segment S1. Secondly, the intervals at which a first and a second data segment S1, S2 can be output together are permanently predefined by the number A.

EX1001('794 Patent), 5:59-63; Paper 44(PO Sur-Reply), 26

Comps Does Not Insert Synch Commands After A Predefined Number Of Events

Thus each important command, i.e. a command whose
45 execution must not be interrupted, is represented by a given
field preceded by a field representing a synchronization
command. The synchronization command is at the same
place in all the other tracks. Because of this, different tracks
are resynchronized before any important command, if nec-
50 essary.

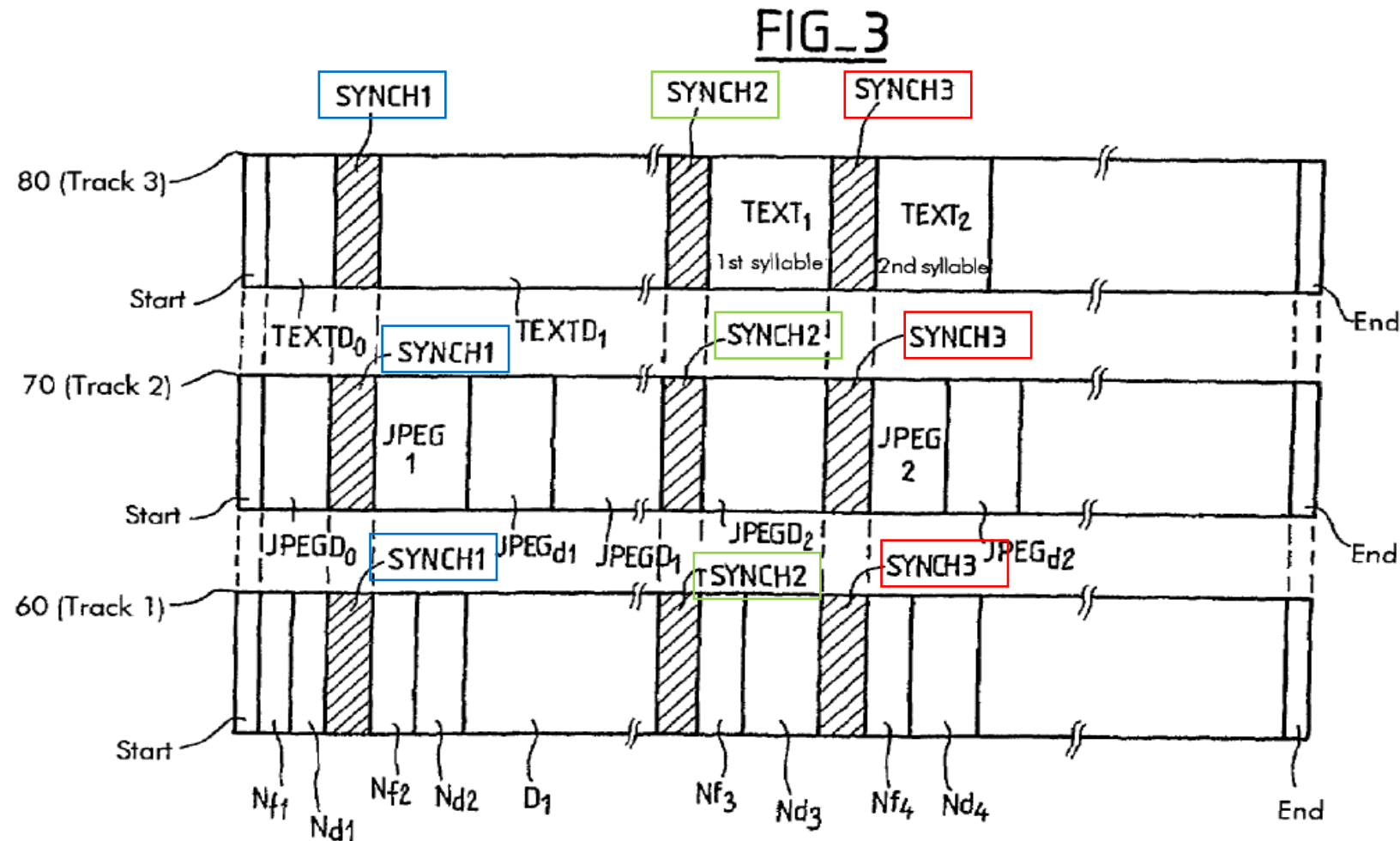
EX1004(Comps), 4:44-50; Paper 28(POR), 61



Claim 3

3. The method as claimed in claim 1, wherein the assignment rule is formed in such a way that, for each of the content-related second data segments, the content-related first data segments are assigned by 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.

Comps's SYNCH Command Numbers Are Not The Position Of The Events

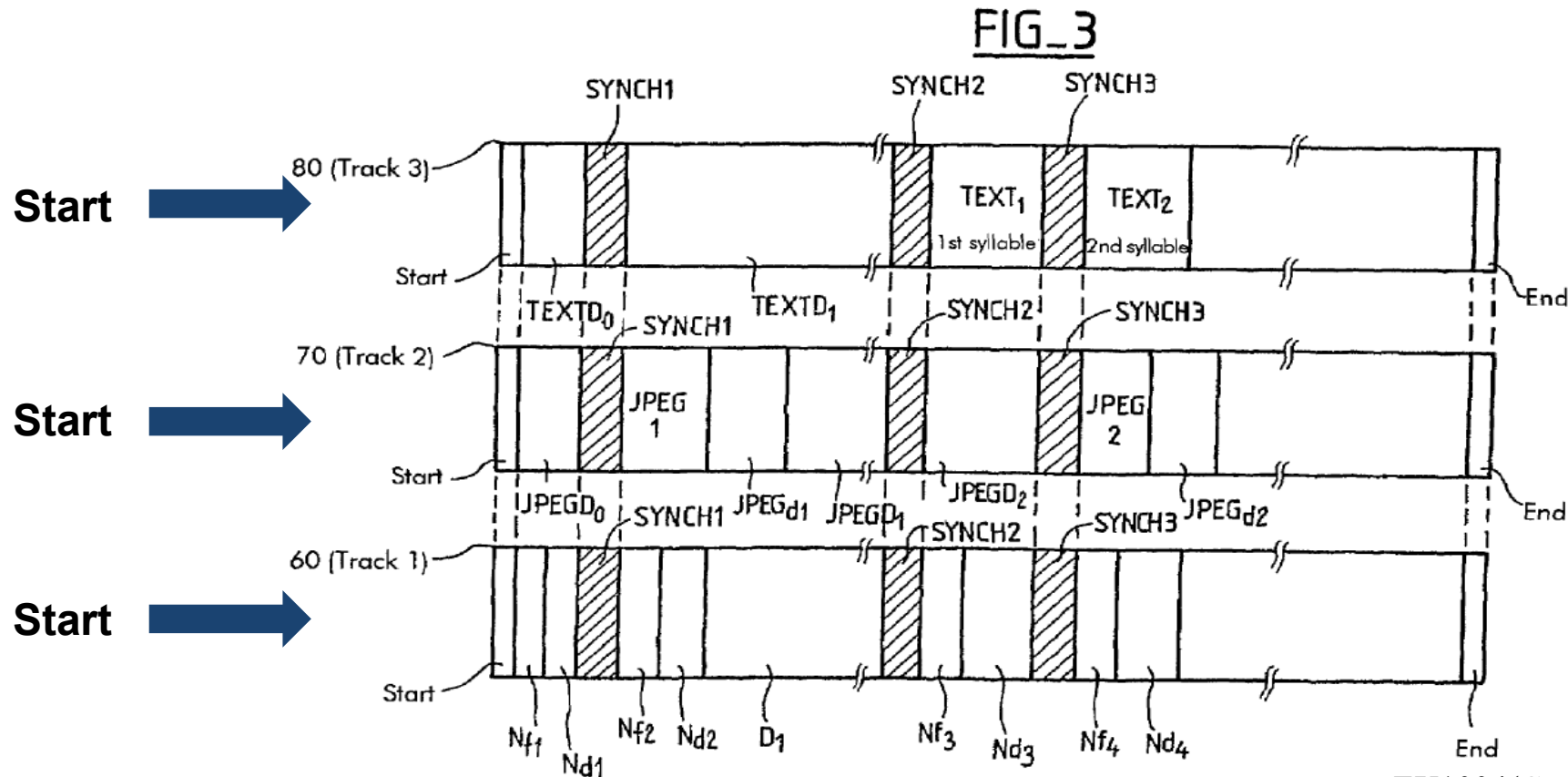


EX1004(Comps), Fig. 3; Paper 28(POR), 9, 43-44

**A POSA Would Not Be Motivated To Modify Comps To
Add Separate Content-Related Markers**

Comps Has No Need For Separate Content-Related Markers

Comps scans its tracks linearly



EX1004(Comps), Fig. 3; Paper 28(POR), 9, 43-44

Petitioner's Mapping For Content-Related Markers Is Inconsistent For Claim 7 and 8

Claim 7

Similarly, *Wan* describes markers within the Scene description stream 46.

Paper 2(Petition), 52

Claim 8

With this context, *Wan* uses a scene description stream 46 that is separate from content that can be used for transmitting *updates to scene graphs*, which are “content-related markers.” *Id.*, [0047] (emphasis added).

Paper 2(Petition), 55; Paper 28(POR), 63

**A POSA Would Not Be Motivated To Modify Comps To
Maintain Comps SYNCH Commands In A Separate File**

Claims 18 and 19

18. The method of claim 1, wherein the assignment rule is maintained in a file separate from the first data file and the second data file.

19. The device of claim 9, wherein the assignment rule is maintained in a file separate from the first data file and the second data file.

EX1001('794 Patent), Claims 18-19; Paper 28(POR), 64-66

Petitioner's Alleged Combination Changes The Principal Operation Underpinning Comps

“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.”

25 The master microprocessor, which is dedicated to track 1, reaches the first synchronization command, corresponding to the field SYNCH1, and sends first synchronization data to the other microprocessors.

Two situations arise:

30 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.

40 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.

EX1004(Comps), 4:25-43; Paper 28(POR), 64

