UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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Comcast Cable Communications, LLC
Petitioner

v.

Promptu Systems Corporation
Patent Owner

_____

Patent No. 7,047,196

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PETITION FOR *INTER PARTES* REVIEW

(Petition 1 of 2)

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Federal Court Cases

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LIST OF EXHIBITS

Exhibit	Description
1001	U.S. Patent No. 7,047,196 ("'196 Patent")
1002	Prosecution history of U.S. Application No. 09/785,375, which led to the issuance of the '196 Patent ("File History")
1003	Provisional Application No. 60/210,440
1004	"Speech Recognition by Machine: A Review" by D. Raj Reddy, Proceedings of the IEEE, Vol. 64, No. 4, April 1976
1005	"Multimodal User Interfaces in the Open Agent Architecture" by D. Moran, et al., Proceedings of the 2nd International Conference on Intelligent User Interfaces (IUI '97), pp. 61-68, 1997
1006	"Quantization of Cepstral Parameters for Speech Recognition over the World Wide Web" by V. Digalakis, et al., IEEE Journal on Selected Areas in Communications, Vol. 17, No. 1, Jan. 1999
1007	"Enabling New Speech Driven Services for Mobile Devices: An Overview of the ETSI Standards Activities for Distributed Speech Recognition Front-Ends" by D. Pearce, AVIOS 2000: The Speech Applications Conference, 2000
1008	"IBM Technical Disclosure Bulletin: Speech Recognition Methods for Controlling Cable Television," Vol. 38, No. 08, August 1995
1009	U.S. Patent No. 6,345,389
1010	U.S. Patent No. 7,013,283 ("Murdock")
1011	Provisional Application No. 60/166,010 ("Murdock Provisional")
1012	U.S. Patent No. 6,513,063 ("Julia")
1013	U.S. Patent No. 6,490,727 ("Nazarathy")
1014	U.S. Patent No. 6,650,624 ("Quigley")

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1015	U.S. Patent No. 5,477,262 ("Banker")
1016	U.S. Patent No. 6,314,573 ("Gordon")
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1018	Declaration of Jeffrey Lau in Support of Petition for *Inter Partes* Review
1019	Declaration of Christopher Schmandt Regarding U.S. Patent No. 7,047,196 ("Schmandt Decl.")

MANDATORY NOTICES UNDER 37 C.F.R. § 42.8

Real Party-in-Interest (37 C.F.R. § 42.8(b)(1))

The real parties-in-interest are petitioner Comcast Cable Communications, LLC ("Petitioner") and Comcast Corporation. No unnamed entity is funding, controlling, or directing this petition or has the opportunity to control or direct this petition or Petitioner's participation in any resulting *inter partes* review.

Related Matters (37 C.F.R. § 42.8(b)(2))

Petitioner is aware of the following pending matter related to U.S. Patent No. 7,047,196: *Promptu Systems Corporation v. Comcast Corporation and Comcast Cable Communications, LLC*, Case No. 2:16-06516 (E.D. PA). In addition, Petitioner is concurrently filing another petition for *inter partes* review of different claims in U.S. Patent No. 7,047,196 along with this petition.

Lead and Back-Up Counsel (37 C.F.R. § 42.8(b)(3))

Petitioner appoints James L. Day (Reg. No. 72,681) of Farella Braun + Martel LLP as lead counsel and appoints Daniel Callaway (Reg. No. 74,267) of Farella Braun + Martel LLP as back-up counsel. Petitioner also appoints Leo L. Lam (Reg. No. 38,528) of Keker, Van Nest & Peters LLP as back-up counsel. An appropriate Power of Attorney is being filed herewith.

Service Information (37 C.F.R. § 42.8(b)(4))

Service of any documents to lead and back-up counsel can be made via hand-delivery to Farella Braun + Martel LLP, 235 Montgomery Street, 17th Floor, San Francisco, California, 94104. Petitioner consents to electronic service to the following email addresses: jday@fbm.com, dcallaway@fbm.com, calendar@fbm.com, and llam@keker.com.

I. INTRODUCTION

Petitioner respectfully requests *inter partes* review of claims 1-2, 4-6, 12-13, 27-28, 30-32, and 38-42 (the "challenged claims") of U.S. Patent No. 7,047,196 (the "'196 Patent"), owned by Promptu Systems Corporation ("Patent Owner"). The '196 Patent is directed to voice control in a cable television system. The patent acknowledges that speech recognition processing and voice control systems existed in the prior art, but asserts that speech recognition processing had not yet been implemented at a "wireline node" (i.e., headend) in a cable television or video network. The '196 Patent purports to address this problem by locating the speech recognition processor "in or near a wireline node." '196 Patent at 5:11-15.

But the claimed invention of the '196 Patent was not new or inventive as of its earliest effective filing date in June 2000. For example, U.S. Patent No. 7,013,283 ("Murdock"), which is based on a provisional application filed in 1999, describes a cable television system in which users' voice commands are transmitted to the cable head-end for voice recognition processing just as in the '196 Patent. Similarly, U.S. Patent No. 6,513,063 ("Julia"), which was filed earlier in 2000, also describes a cable network where voice commands from multiple system users are transmitted to a central remote server for speech recognition processing. To the extent Patent Owner may argue that there was anything novel claimed with regard to processing upstream signals from multiple cable system

users, Murdock or Julia can be combined with even older prior art patents (i.e., U.S. Patent No. 6,490,727 ("Nazarathy") or U.S. Patent No. 6,650,624 ("Quigley")) describing well-known techniques for distinguishing multiple users' signals at a cable headend. Finally, several challenged dependent claims recite elements related to "financial" transactions that would have been obvious to a person of ordinary skill in the art and are also disclosed by prior art describing the basic steps in a pay-per-view system (i.e., U.S. Patent No. 5,477,262 ("Banker") or U.S. Patent No. 6,314,573 ("Gordon")). The challenged claims are obvious in light of these prior art patents.

The petition demonstrates a reasonable likelihood Petitioner will prevail on at least one of the claims challenged. Therefore, *inter partes* review should be instituted and the challenged claims of the '196 Patent should be canceled as unpatentable.

II. GROUNDS FOR STANDING

Petitioner certifies pursuant to Rule 42.104(a) that the '196 Patent is available for *inter partes* review and that Petitioner is not barred or estopped from requesting an *inter partes* review challenging the validity of the claims of the '196 Patent on the grounds identified in this petition.

III. IDENTIFICATION OF CHALLENGE

Pursuant to 37 C.F.R. § 42.104(b), Petitioner requests *inter partes* review of the challenged claims of the '196 Patent and further requests that the challenged claims be canceled as unpatentable for being obvious under 35 U.S.C. § 103[1] based on the following grounds (each of which includes the specific prior art identified as well as the knowledge of one of ordinary skill in the art):

Ground 1: All challenged claims (i.e., claims 1-2, 4-6, 12-13, 27-28, 30-32, and 38-42) are unpatentable as obvious over Murdock (Ex. 1010);

Ground 2: All challenged claims are unpatentable as obvious over Murdock in light of either Nazarathy (Ex. 1013) or Quigley (Ex. 1014);

Ground 3: Claims 5-6 and 31-32 are unpatentable as obvious over Murdock alone or in light of Nazarathy or Quigley and further in light of either Banker (Ex. 1015) or Gordon (Ex. 1016);

Ground 4: All challenged claims are unpatentable as obvious over Julia (Ex. 1012) in light of either Nazarathy or Quigley; and

Ground 5: Claims 5-6 and 31-32 are unpatentable as obvious over Julia in light of Nazarathy or Quigley and further in light of either Banker or Gordon.

Petitioner's proposed construction of terms, the evidence relied upon, and the precise reasons why the claims are unpatentable are provided in the following

[1] The pre-AIA version of Sections 102, 103, and 112 of the Patent Act apply.

sections of this petition. A List of Exhibits identifying the specific evidence relied upon is provided above.

IV. THE CHALLENGED PATENT

A. Effective Filing Date of the '196 Patent

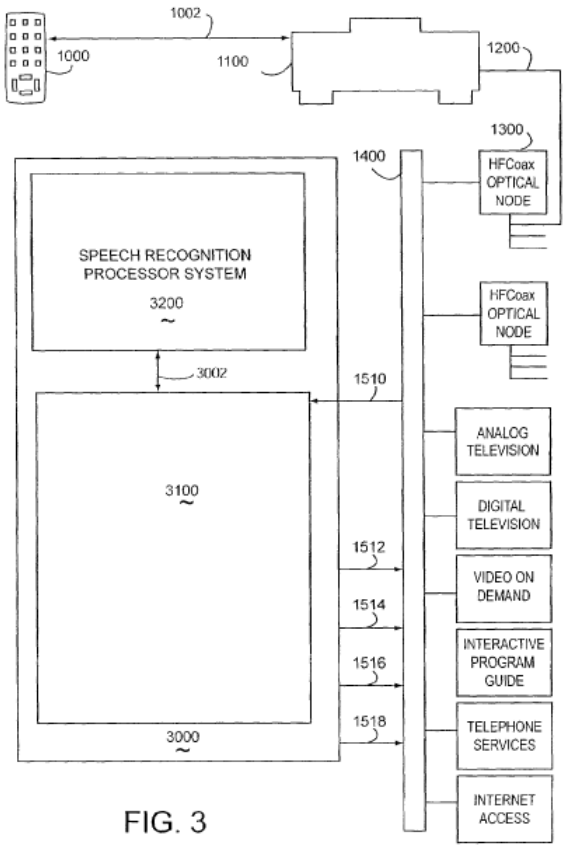
The '196 Patent issued from U.S. Application No. 09/785,375, which was filed on February 16, 2001 and claims priority to a provisional application filed on June 8, 2000. *See* Schmandt Decl. ¶¶ 54-57 (summarizing prosecution history) (Ex. 1019). The effective filing date of all claims in the '196 Patent is therefore no earlier than June 8, 2000. Patent Owner does not assert any earlier priority date. Infringement Contentions at 5 (Ex. 1017).

B. Overview of the '196 Patent

The '196 Patent is entitled "System and Method of Voice Recognition Near a Wireline Node of a Network Supporting Cable Television and/or Video Delivery." '196 Patent at cover (Ex. 1001). The patent discloses a "method and system of speech recognition presented by a back channel from multiple user sites within a network supporting cable television and/or video delivery …." '196 Patent at Abstract; *see also id.* at 5:3-5 ("An embodiment of the invention provides speech recognition services to a collection of users over a network that supports cable television and/or video delivery.").

The '196 Patent discloses a "multi-user control system for audio visual devices that incorporates a speech recognition system that is centrally located in or

near a wireline node, and which may include a Cable Television (CATV) Headend." '196 Patent at 5:11-15. An embodiment of the disclosed system is illustrated in Figure 3. *Id.* at 7:17-26.



'196 Patent Fig. 3

As illustrated in Figure 3, "remote control unit 1000" is coupled to "set-top apparatus 1100." *Id.* at 9:48-49. "Set-top apparatus 1100 communicates through distributor node 1300 across a high-speed physical transport 1400 to a tightly coupled server farm 3000, possessing various delivery points 1510 and entry points 1512-1518." *Id.* at 9:52-55. The system includes a central "speech recognition processor system 3200." *Id.* at Fig. 3.

C. Person of Ordinary Skill in the Art

A person of ordinary skill in the art would have been familiar with interactive multi-media network architectures, including for interactive television, and speech recognition and voice control technologies. This familiarity would have come through having (i) an undergraduate degree (or equivalent) in electrical engineering, computer science, or a comparable subject and at least three years of professional work experience in the field of multi-media systems including in particular speech recognition and control technologies, or (ii) an advanced degree (or equivalent) in electrical engineering, computer science, or a comparable subject and at least one year of post-graduate research or work experience in the field of multi-media systems including in particular speech recognition and control technologies. Schmandt Decl. ¶¶ 75-77.

V. CONSTRUCTION OF TERMS IN THE CHALLENGED CLAIMS

In this proceeding, the claims are to be given their broadest reasonable construction in light of the specification. 37 C.F.R. § 42.100(b). Other than the terms addressed here, Petitioner believes the challenged claims can be understood based on their plain meaning to one of ordinary skill in the art in light of the specification.

A. "wireline node" (claims 1, 14, 27, and 53)

The challenged independent claims each refer to a "wireline node." '196 Patent at 50:64-66, 52:65-66, 58:12-13. The specification states that "a centralized

wireline node refers to a network node providing video or cable television delivery to multiple users using a wireline physical transport between those users at the node." *Id*. at 1:66-2:2. For example, a wireline node could be the headend of a cable television system that serves multiple subscribers over coaxial and fiber-optic cables. Schmandt Decl. ¶ 80. Thus, the broadest reasonable interpretation of "wireline node" is "a network node providing video or cable television delivery to multiple users over physical wires between the node and the multiple user locations." *Id.* ¶ 81.

B. "back channel" (claims 1, 2, 14, 27, 28, and 53)

Claims 1, 2, 14, and 53 each recite a "back channel." '196 Patent at 50:62-51:4, 51:14-18, 53:7-11, 58:21-25. The patent specification uses "back channel" to refer to an upstream communication channel for delivering signals from user sites to a central wireline node. For example, the patent states that "[t]he back channel is from a multiplicity of user sites and is presented to a speech processing system at the wireline node in the network." *Id*. at 22:12-14; *see also id.* 30:4-7, 32:37-39. This usage of "back channel" is consistent with the fact that cable television systems have for decades enabled two-way data communication between a central headend and users' set-top boxes by using an upstream channel (or "back channel") for signal transmission from the user to the headend. Schmandt Decl. ¶ 82. The broadest reasonable interpretation of "back channel" is therefore the

"upstream communication channel delivering signals from multiple user sites to a central wireline node." *Id*. ¶ 83.

C. "partitioning said received back channel into a multiplicity of [said] received identified speech channels" (claims 1, 2, 27, 28)

Claims 1 and 27 require "partitioning said received back channel into a multiplicity of received identified speech channels." '196 Patent at 51:3-4. Dependent claims 2 and 28 further limit this step by requiring "partitioning said received back channel into a multiplicity of said received identified speech channels from said associated user site." *Id*. at 51:14-18.[2]

Neither the claims nor the specification describe any particular approach to "partitioning" the back channel. Instead, the specification simply restates, without further explanation, the same language used in the claims. '196 Patent at 22:8-12, 22:24-26, 23:2-5, 51:3-4, Fig. 10 (step 2012), Fig. 11A (step 2072); Schmandt Decl. ¶¶ 85-86. Absent any limitations in the patent, a person of ordinary skill in the art would understand the term "partitioning said received back channel" to broadly include any approach or technique to divide a communication channel into identifiable portions. Schmandt Decl. ¶ 87.[3] Therefore, the broadest reasonable

[2] All emphasis is added unless otherwise indicated.

[3] Certainly, Patent Owner cannot argue for a narrow construction of this term given the broad scope of the infringement contentions asserted in the related

interpretation of "partitioning said received back channel into a multiplicity of [said] received identified speech channels" is "dividing the received back channel into multiple portions that are each identified with speech commands originating from system users." *Id.*

The process of multiplexing and demultiplexing is one well-known technique for "partitioning" a communication channel. Schmandt Decl. ¶¶ 88-89. Multiplexing means to combine several communication signals together for transmission to a central node, and demultiplexing means to decompose that combined signal into portions identified with each transmitting user location (i.e., "partitioning"). *Id.* ¶ 88.

VI. OVERVIEW OF THE PRIMARY PRIOR ART REFERENCES

A. Overview of Murdock

Murdock is entitled "System and Method for Providing Programming Content in Response to an Audio Signal." Murdock at cover (Ex. 1010). It was filed on November 16, 2000, and claims priority to a provisional application filed on November 17, 1999. Murdock at cover; Murdock Provisional Application (Ex. 1011). The Board has held that under the Federal Circuit decision in *Dynamic Drinkware, LLC v. National Graphics, Inc.*, 800 F.3d 1375 (Fed. Cir. 2015), a

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litigation. Infringement Contentions at 39, 40, 60, 62 (Ex. 1017) (Patent Owner's contentions regarding the "partitioning" limitations.

patent is entitled to the benefit of a "provisional application's filing date if the provisional application provides sufficient support for *at least one claim* in the child [patent]." *Ex Parte Mann*, 2016 WL 7487271, at *5-6 (PTAB Dec. 21, 2016) (emphasis in original). Petitioner's expert Christopher Schmandt shows in his supporting declaration that at least claim 1 of Murdock is supported by the disclosure in the provisional application. Schmandt Decl. ¶¶ 99-113. In addition, the Board has required that "the provisional application must *also* provide support for the subject matter relied upon" to establish that the challenged patent is unpatentable. *See Ex Parte Mann*, 2016 WL 7484271, at *5 (emphasis in original). Petitioner's expert witness confirms that the Murdock provisional application meets this requirement, too. Schmandt Decl. ¶¶ 135-293 (showing that the provisional application discloses the challenged claims and also showing that the provisional application discloses the same subject matter); *see also, e.g., Cisco Systems v. Capella Photonics*, 2016 WL 783545,at *9-11 (PTAB Feb. 17, 2016) (applying provisional application priority date in IPR where provisional application contained support for two claims and the subject matter cited in prior art patent). Thus, Murdock is entitled to the benefit of the provisional application's filing date (i.e., November 17, 1999) and is therefore prior art to the '196 Patent under at least 35 U.S.C. § 102(e).

Murdock discloses "a system and method for providing video content in response to an audio signal such as a spoken audio command." Murdock at 1:41-43. An embodiment of the Murdock "voice activated system 100" is illustrated in Figure 1. *Id*. at 2:11-12.

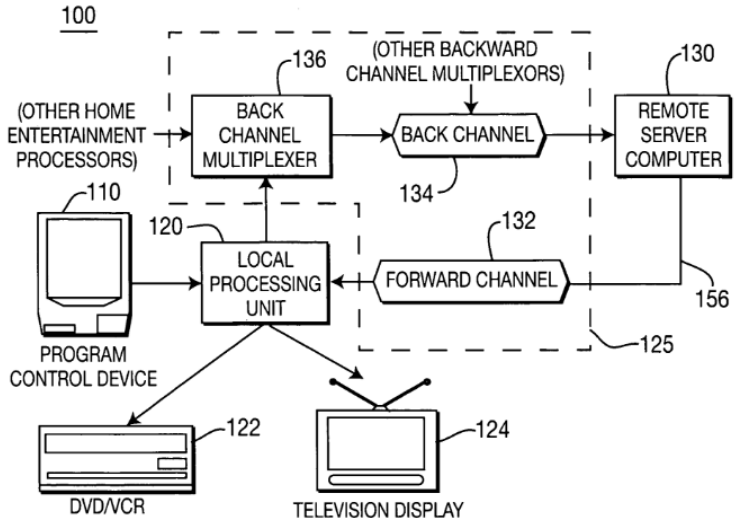


FIG. 1

Murdock Fig. 1

Murdock explains that "[t]he program control device 110 captures the input verbal command from the user of the voice activated control system 100." *Id*. at 2:22-24; *see also id*. at 2:35-36 ("program control device 110 comprises a portable or hand-held controller"). The verbal command "may comprise a verbal request of programming content from a service provider." *Id*. at 2:24-26. The program control device wirelessly transmits "the command signal to the local processing unit 120." *Id*. at 2:31-34; *see also id*. at 2:44-47 ("local processing unit 120" can be a "set top terminal, a cable box, and the like"). Then the local processing unit

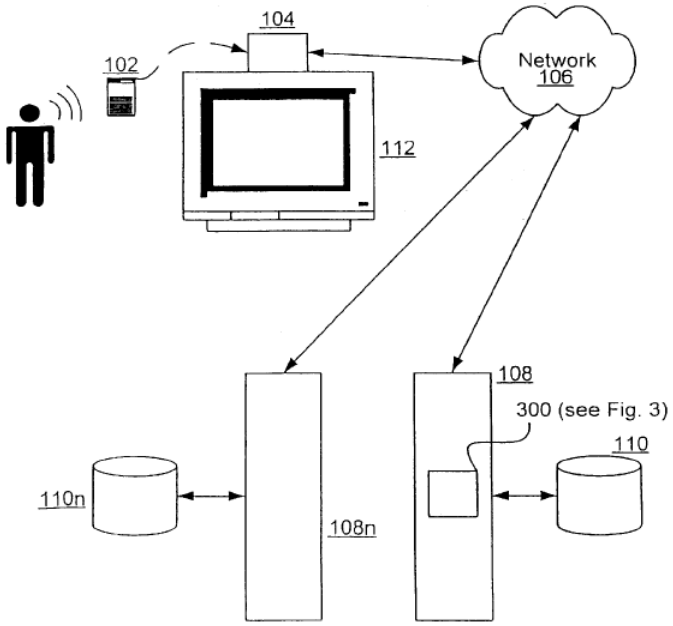
transmits the signal through "back channel multiplexer 136" and "back channel 134" to "remote server computer 130" at a service provider. *Id.* at 2:44-3:12.

The remote serve computer "performs speech recognition on the received signal." Murdock at 3:15-17. "Once the user is identified and the requested programming content is determined, the server computer 130 retrieves the requested program content from a program database and transmits the retrieved program content via the forward channel 132 to the local processing unit 120." *Id.* at 3:31-36. The user can view the program on "video player 122" or record it on "television record 124." *Id.* at 2:63-67, Fig. 1.

B. Overview of Julia

Julia is entitled "Accessing Network-Based Electronic Information Through Scripted Online Interfaces Using Spoken Input." Julia at cover (Ex. 1012). It was filed on March 14, 2000, and it issued on January 28, 2003. Julia constitutes prior art to the '196 Patent under at least 35 U.S.C. § 102(e).

Julia describes a "system, method, and article of manufacture for navigating network-based electronic data sources in response to spoken input requests." Julia at 2:27-30. Figure 1a of Julia "illustrates a system providing a spoken natural language interface for network-based information navigation, in accordance with an embodiment of the present invention with server-side processing of requests." *Id.* at 3:7-10.



Julia Fig. 1a

In an embodiment, "well suited for the home entertainment setting, voice input device 102 is a portable remote control device with an integrated microphone, and the voice data is transmitted from device 102 . . . to communication box 104" (e.g., a "set-top box"). *Id.* at 3:45-54. The voice data is "transmitted across network 106 to a remote server or servers 108" where it is "processed by request processing logic 300 in order to understand the user's request and construct an appropriate query or request for navigation of remote data source 110," which "may include multimedia content, such as movies or other digital video and audio content, other various forms of entertainment data, or other electronic information." *Id.* at 3:54-64, 4:10-13. After the requested information has been retrieved, "it is electronically transmitted via network 106 to the user for viewing on client display

device 112" (e.g., "a television monitor or similar audiovisual entertainment device"). *Id.* at 4:18-24.

VII. THE CHALLENGED CLAIMS ARE OBVIOUS BASED ON MURDOCK AS THE PRIMARY PRIOR ART REFERENCE

As discussed in detail below, Murdock alone discloses every element of the challenged claims to a person of ordinary skill in the art (Ground 1). Schmandt Decl. ¶ 131. In addition, the combination of Murdock with the teachings of either Nazarathy[4] or Quigley[5] also discloses every element of the challenged claims. *Id.* ¶ 132. Because a person of ordinary skill in the art would have been motivated to combine these references, as discussed below, the combination of Murdock with either Nazarathy or Quigley also renders the challenged claims obvious (Ground 2). *Id.* ¶¶ 132, 294-299.

The section that follows addresses claims 1-2, 4, 12-13, 27-28, 30, and 38-42 in light of Murdock alone or combined with Nazarathy or Quigley. *See* Section

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[4] Nazarathy was filed on October 7, 1999, and it issued on December 3, 2002. It constitutes prior art to the '196 Patent under at least 35 U.S.C. § 102(e). *See also* Schmandt Decl. ¶¶ 119-122.

[5] Quigley was filed on May 19, 2000, and it issued on November 18, 2003. It constitutes prior art to the '196 Patent under at least 35 U.S.C. § 102(e). *See also* Schmandt Decl. ¶¶ 123-126.

VII.A, below. Claims 5-6 and 31-32, which recite additional "financial" elements that are suggested by Murdock and explicitly disclosed by Banker[6] and Gordon[7], are addressed separately in the next section. *See* Section VII.B, below.

A. Claims 1-2, 4, 12-13, 27-28, 30, and 38-42 Are Obvious in Light of Murdock Alone or Combined with Nazarathy or Quigley

1. Claim 1

a. A method of using a back channel containing a multiplicity of identified speech channels from a multiplicity of user sites presented to a speech processing system at a wireline node in a network supporting at least one of cable television delivery and video delivery, comprising the steps of

Murdock discloses a method of using a back channel containing a multiplicity of identified speech channels as recited in claim 1. Schmandt Decl. ¶¶ 135-137. In particular, Murdock discloses a cable television system, including a forward channel and back channel for two-way communication, in which users issue voice commands to request programming content from a remote server

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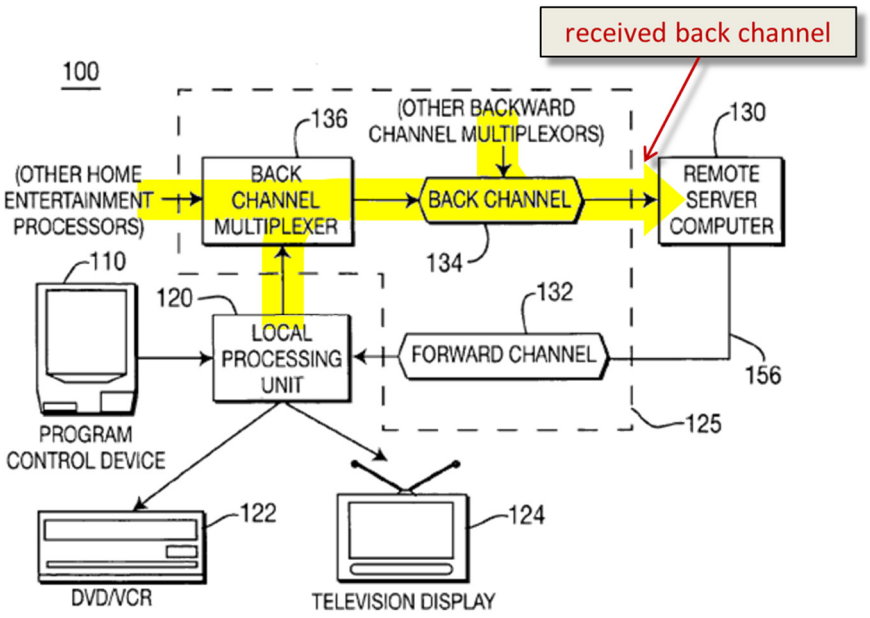
[6] Banker was filed on November 29, 1991, and it issued on December 19, 1995. It constitutes prior art to the '196 Patent under at least 35 U.S.C. § 102(a), (b), and (e). *See also* Schmandt Decl. ¶¶ 127-128.

[7] Gordon was filed on May 29, 1998, and it issued on November 6, 2001. It constitutes prior art to the '196 Patent under at least 35 U.S.C. § 102(e). *See also* Schmandt Decl. ¶¶ 129-130.

computer. Murdock at 2:24-26, 2:47-49. As discussed in more detail below, Murdock discloses using a "back channel" (i.e., back channel 134) "containing a multiplicity of identified speech channels from a multiplicity of user sites" (i.e., the users' voice commands) that are presented to a "speech processing system at a wireline node" (i.e., remote server computer 130 at the service provider) in a "network supporting at least one of cable television delivery and video delivery," as recited in claim 1.

b. receiving said back channel to create a received back channel

Murdock discloses this step. Schmandt Decl. ¶¶ 140-141. In Murdock, the user issues voice commands using "program control device 110," which transmits the voice command to "local processing unit 120." Murdock at 2:31-34. The local processing unit transmits the voice command signal to "back channel multiplexer 136," which "multiplexes or combines the audio signal transmitted from the local processing unit 120 with additional audio signals from the local processing units of other users, i.e., other users of other voice activated home entertainment systems." *Id*. at 3:1-5. "The multiplexed audio signal is then transmitted via the back channel 134 to the service provider." *Id*. at 3:5-7. As illustrated below, "the back channel 134 transmits audio control signals from a plurality of local processing units 120 to the remote server computer 130 at the service provider." *Id*. at 3:9-12.



Murdock Fig. 1 (annotated)

The remote server computer receives back channel 134, which constitutes the claimed "received back channel." Schmandt Decl. ¶¶ 140-141; Murdock at 3:15-17 ("the remote serve computer 130 ***receives*** the multiplexed signal from the back channel 134"); *see* Section V.B, above.

c. partitioning said received back channel into a multiplicity of received identified speech channels

Murdock discloses this step of claim 1. Schmandt Decl. ¶¶ 144-146. In Murdock, back channel 134 carries the voice command signals from "a plurality of local processing units" from multiple different users. Murdock at 3:1-12. Speech recognition processing is performed by the remote server computer. *Id*. at 3:15-17. As Murdock explains, the "remote server computer 130 performs the speech recognition by identifying and recognizing the user that generated the audio signal

and determining the requested programming content contained in the audio signal." *Id*. at 3:28-31. In order to identify each users' voice command signal, the remote server computer would demultiplex the multiplexed signal on back channel 134, as a person of ordinary skill in the art would have known. Schmandt Decl. ¶ 145. Demultiplexing the back channel signal constitutes "partitioning said received back channel into a multiplicity of received identified speech channels," as recited in the claim. *Id*. ¶ 146; *see* Section V.C, above.

A person of ordinary skill in the art would have known, based on general experience in the field, that Murdock's multiplexed back channel signal must be demultiplexed. Schmandt Dec. ¶¶ 144-145. In addition, such a person could also combine the disclosure in Murdock with various prior art techniques for demultiplexing a multiplexed communication signal at a cable headend. *Id*. ¶¶ 148-151. For instance, Nazarathy discloses demultiplexing a multiplexed signal from multiple different users at a cable network headend. Nazarathy at 14:62-64 ("Any operations of TDM and/or WDM multiplexing are undone at the HE [headend] by corresponding WDM and TDM demultiplexers."). Quigley also discloses demultiplexing signals transmitted to the cable headend from multiple cable modems. Quigley at 51:31-35 ("The signals of the frame 179 from different cable modems 12a, 12b, 12c, 12d, etc. … are introduced in upstream data processing through upstream channel 191 … to a TDMA demultiplexer 191 … in

the cable modem termination system 10."). Thus, the combination of Murdock with the teaching of either Nazarathy or Quigley also discloses "partitioning said received back channel into a multiplicity of received identified speech channels," as recited in claim 1. Schmandt Decl. ¶¶ 148-151.

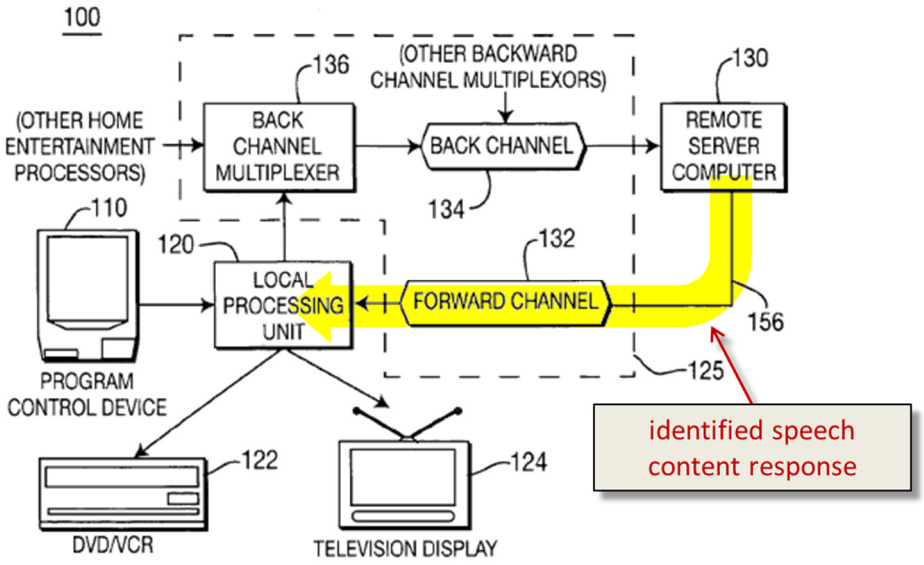
d. processing said multiplicity of said received identified speech channels to create a multiplicity of identified speech content

In Murdock, "remote server computer 130 performs . . . speech recognition" of the received audio signals. Murdock at 3:13-17. Murdock explains that the remote server computer executes "speech recognition module 410 that … causes the remote server computer 130 to operate as a speech recognition server." *Id*. at 5:4-7. In this way, the remote server computer "recognizes" each user's voice command and then processes each particular request. *Id*. at 5:10-22. Thus, Murdock discloses "processing said multiplicity of said received identified speech channels" (i.e., voice command signals) "to create a multiplicity of identified speech content" (i.e., each user's specific command), as recited in the claim. Schmandt Decl. ¶ 153.

e. responding to said identified speech content to create an identified speech content response that is unique, for each of said multiplicity of identified speech contents

After identifying the content requested by each user, "the server computer 130 retrieves the requested program content from a program database and transmits

the retrieved program content via the forward channel 132" to the requesting user, as illustrated below. Murdock at 3:31-36, 5:23-34.



Murdock Fig. 1 (annotated)

Thus, Murdock's remote server computer performs the step of "responding to said identified speech content" (i.e., recognized voice command) "to create an identified speech content response" (i.e., requested programming content) "that is unique, for each of said multiplicity of identified speech contents" (i.e., the content is delivered to the viewer who requested it), as recited in the claim. Schmandt Decl. ¶ 156.

2. Claim 2

Dependent claim 2 begins as follows:

The method of claim 1, wherein at least one of said identified speech channels has an associated user site; and …

As discussed in connection with claim 1, Murdock discloses "identifying or recognizing the user that generated the audio signal." Murdock at 3:28-31; *see* Section VII.A.1.b, above. Thus, Murdock discloses that "at least one of the identified speech channels" (i.e., voice command signals) "has an associated user site," as recited in the claim. Schmandt Decl. ¶ 159.

Claim 2 then states:

> **wherein the step partitioning said received back channel is further comprised of the step of:**
> **partitioning said received back channel into a multiplicity of said received identified speech channels from said associated user site;**

This limitation of claim 2 is essentially the same as the "partitioning" step of claim 1 but adds the further limitation that the "received identified speech channels" are "from said associated user site." '196 Patent at 51:3-4, 51:16-18. Murdock alone or in combination with Nazarathy or Quigley discloses "partitioning said received back channel" as discussed in connection with claim 1. *See* Section VII.A.1.c, above. The back channel signal is demultiplexed to identify specific voice command signals and each of those signals is associated with a particular user site (i.e., local processing unit 120). Murdock at 3:1-12; Schmandt Decl. ¶¶ 159, 162. Thus, Murdock alone or in combination with Nazarathy or Quigley discloses "partitioning said received back channel" into "received identified speech channels" from particular "associated user site[s]," as recited in

claim 2. Schmandt Decl. ¶ 162; *see also id*. ¶¶ 163-164 (describing further partitioning of individual viewers' voice commands).

Claim 2 then states:

> **wherein the step processing said multiplicity of said received identified speech channels is further comprised the step of: processing said multiplicity of said received identified speech channels from said associated user site to create a multiplicity of said identified speech contents; and ….**

This limitation of claim 2 is essentially the same as the "processing" step of claim 1 but adds the further limitation that the "received identified speech channels" are "from said associated user site." '196 Patent at 51:5-7, 51:22-25. Murdock discloses "processing said received identified speech channels" (i.e., voice command signals) to create "identified speech contents" (i.e., recognized commands), as discussed in connection with claim 1. *See* Section VII.A.1.d, above. Murdock also discloses that the voice command signals are "from said associated user site," (i.e., the particular viewer's local processing unit 120). Murdock at Murdock at 2:44-47, 3:28-31, Fig. 1. Thus, Murdock discloses this limitation of claim 2. Schmandt Decl. ¶¶ 169-170.

Claim 2 then states:

> **wherein the step responding to said identified speech content is further comprised the step of:**
> **responding to said identified speech content from said associated**

user site to create said identified speech content response for said associated user site.

This limitation of claim 2 is essentially the same as the "responding" step of claim 1 but adds the further limitation that the "identified speech content" is "from said associated user site" and the "identified speech content response" is "for said associated user site." '196 Patent at 51:8-10, 51:28-30. As discussed in connection with claim 1, Murdock discloses transmitting programming content to the local processing unit of the requesting viewer (i.e., "said associated user site"). Murdock at 3:31-36, 5:23-34, Fig. 1; *see* Section VII.A.1.e, above. Thus, Murdock discloses this limitation of claim 2. Schmandt Decl. ¶ 173.

3. Claim 4

Dependent claim 4 reads as follows:

The method of claim 2, wherein the step responding to said identified speech contents from said associated user site is comprised of the steps of:
processing said identified speech content response to create said identified user site response; and
sending said identified user site response to said identified user site.

Murdock explains that the remote server computer "performs speech recognition on the received signal." Murdock at 3:15-17. It then "retrieves the requested program content from a program database and transmits the retrieved program

content via the forward channel 132 to the local processing unit 120." *Id.* at 3:31-36; *see also id.* at 5:23-34. Thus, Murdock discloses processing the "identified speech content response to create said identified user site response" (*i.e.*, retrieving requested program content) and then "sending said identified user site response to said identified user site" (*i.e.*, delivering the requested content to local processing unit 120 for display), as recited in the claim. Schmandt Decl. ¶ 176.

4. Claim 12

Dependent claim 12 recites the following additional limitation:

> **The method of claim 2, wherein the step responding to said identified speech content from said associated user site is further comprised of the step of:**
> **responding to said speech content identified as to said user site based upon natural language to create a speech content response of said speech content identified with said user site.**

This limitation is the same as the "responding" step of claim 2 but additionally recites that the speech recognition is "based upon natural language." '196 Patent at 51:28-30, 52:52-55. Murdock provides a specific example in which the disclosed system responds to a voice command "based upon natural language," as recited in claim 12. Schmandt Decl. ¶ 204. Murdock states: "For example, the user may speak the following input command to the program control device 110: 'Show me all the college football games on this Saturday.'" *Id.* at 3:42-57. A person of

ordinary skill in the art would recognize this as a "natural language" command because it reflects a natural manner of speaking. Schmandt Decl. ¶ 204. Thus, Murdock discloses "responding to said speech content identified as to said user site based upon natural language to create a speech content response of said speech content identified with said user site," as recited in claim 12. *Id*. ¶¶ 204-206; *see* Sections VII.A.1.e and VII.A.2, above.

5. Claim 13

Dependent claim 13 recites the following additional limitation:

> **The method of claim 2, wherein the step processing said multiplicity of said received speech channels is further comprised for at least one of said user sites is further comprised of the step of:**
> **processing said received speech channels from said user site based upon natural language for said user site to create said speech content identified as to said user site.**

This limitation is the same as the "processing" step of claim 2 but additionally recites that the speech recognition is "based upon natural language." '196 Patent at 51:28-30, 52:52-55. As discussed above, Murdock provides a specific example in which the disclosed system processes a voice command "based upon natural language," as recited in claim 13. Murdock at 3:42-57 ("Show me all the college football games on this Saturday."); Schmandt Decl. ¶ 209. Thus, Murdock discloses "processing said received speech channels from said user site based upon

natural language for said user site to create said speech content identified as to said user site," as recited in claim 13. *Id.* ¶¶ 209-210; *see* Sections VII.A.1.d and VII.A.2, above.

6. Claim 27

a. A system supporting speech recognition in a network, said system comprising

As discussed in connection with claim 1, Murdock discloses a system supporting speech recognition in a cable network. *See* Section VII.A.1.a, above; Schmandt Decl. ¶ 213.

b. a speech recognition system coupled to a wireline node in said network for receiving a back channel from a multiplicity of user sites coupled to said network, further comprising

In Murdock, speech recognition processing is performed by remote server computer 130, which constitutes "a wireline node" in the network. Schmandt Decl. ¶ 216; *see* Section V.A, above. The remote server computer receives "a back channel from a multiplicity of user sites" coupled to the network, as discussion in connection with claims 1 and 2. *See* Sections VII.A.1.b and VII.A.2, above. Thus, Murdock discloses this element of claim 27. Schmandt Decl. ¶¶ 216-220.

c. a back channel receiver, for receiving said back channel to create a received back channel

As explained in connection with claim 1, remote server computer 130 receives a back channel 134 containing the voice requests issued by various users

via their local processing units to create a "received back channel." *See* Section VII.A.1.b, above. The remote server computer 130 therefore includes "a back channel receiver," as claimed. Schmandt Decl. ¶ 223.

d. a speech channel partitioner, for partitioning said received back channel into a multiplicity of received identified speech channels

As discussed in connection with claim 1, Murdock's remote server computer receives the multiplexed voice command signals from multiple users and demultiplexes (i.e., partitions) the signal to identify individual voice commands. *See* Section VII.A.1.c, above. A person of ordinary skill would have known that the remote server would include a demultiplexer (i.e., the claimed "partitioner") to demultiplex the back channel signal. Schmandt Decl. ¶ 226. Additionally, both Nazarathy and Quigley expressly disclose demultiplexers used to decompose a multiplexed signal to identify specific upstream signals. Nazarathy at 14:62-64; Quigley at 51:31-35. Thus, Murdock alone or combined with Nazarathy or Quigley discloses a "speech channel partitioner" to partition the "back channel into a multiplicity of received identified speech channels" (i.e., voice command signals), as claimed. Schmandt Decl. ¶¶ 226-228.

e. a processor network executing a program system comprised of program steps residing in memory accessibly coupled to at least one computer in said processor network

Murdock's remote server computer includes "CPU 406" and "memory 404." Murdock at 4:65-5:2, Fig. 4. "The memory 404 stores a speech recognition module 410 that, when retrieved and executed by the CPU 406, causes the remote server computer 130 to operate as a speech recognition server." *Id*. at 5:4-7. Murdock also discloses that "the service provider may also use separate computers to implement these functions." *Id*. at 5:35-38; *see also id*. at 3:38-41. Thus, Murdock discloses "executing a program system" that resides "in memory" on the remote server computer which is "at least one computer" in the "processor network." Schmandt Decl. ¶¶ 232-233.

f. wherein said program system is comprised of the program steps of: processing said multiplicity of said received identified speech channels to create a multiplicity of identified speech content;

This element of claim 27 simply recites the same "processing" step of claim 1. Schmandt Decl. ¶ 59. Murdock discloses it for the reasons discussed in connection with claim 1. *See* Section VII.A.1.d, above; Schmandt Decl. ¶ 237.

g. responding to said identified speech content to create an identified speech content response, for each of said multiplicity of said identified speech contents; and

This element of claim 27 recites the same "responding" step of claim 1. Schmandt Decl. ¶ 59. Murdock discloses it for the same reasons discussed in

connection with claim 1. *See* Section VII.A.1.e, above; Murdock at 3:13-17, 3:28-31, 5:11-14; Schmandt Decl. ¶ 239.

h. wherein said network supports at least one of the collection comprising: cable television delivery to said multiplicity of user sites; and video delivery to said multiplicity of user sites.

The Murdock system may be used to distribute "video-on-demand" and "cable television programming, and the like." Murdock at 2:18-31, 5:26-29. Thus, the network supports both "cable television delivery" and "video delivery" to a "multiplicity of user sites" (i.e., local processing units), as claimed. Schmandt Decl. ¶ 241.

7. Claim 28

Claim 28 is identical to claim 2 except that claim 28 refers to "program steps" while claim 2 refers to "steps." Schmandt Decl. ¶ 60. The limitations of claim 28 are disclosed by Murdock alone or in combination with Nazarathy or Quigley for the reasons discussed in connection with claim 2. *See* Section VII.A.2, above; Schmandt Decl. ¶¶ 243-253.

8. Claim 30

Claim 30 is identical to claim 4 except that claim 30 refers to "program steps" while claim 4 refers to "steps." Schmandt Decl. ¶ 61. The limitations of claim 30 are disclosed by Murdock alone or in combination with Nazarathy or

Quigley for the reasons discussed in connection with claim 4. *See* Section VII.A.3, above; Schmandt Decl. ¶ 255.

9. Claim 38

Other than a minor difference in the preamble, claim 38 is essentially identical to claim 12 except that claim 38 refers to "program steps" while claim 12 refers to "steps." Schmandt Decl. ¶ 64. The limitations of claim 38 are disclosed by Murdock alone or in combination with Nazarathy or Quigley for the reasons discussed in connection with claim 12. *See* Section VII.A.4, above; Schmandt Decl. ¶ 278.

10. Claim 39

Claim 39 is identical to claim 13 except that claim 39 refers to "program steps" while claim 13 refers to "steps." Schmandt Decl. ¶ 65. The limitations of claim 39 are disclosed by Murdock alone or in combination with Nazarathy or Quigley for the reasons discussed in connection with claim 13. *See* Section VII.A.5, above; Schmandt Decl. ¶ 280.

11. Claim 40

Dependent claim 40 reads:

> **The system of claim 28, wherein said network includes a wired residential broadband network servicing at least part of said multiplicity of user sites.**

Murdock discloses a two-way cable television network. Murdock at 1:15-20, 2:26-31, 2:44-47, 4:13-15, Fig. 1. A person of ordinary skill in the art would have known that the cable network disclosed by Murdock is "a wired residential broadband network," as recited in claim 40. Schmandt Decl. ¶ 283; *see also* '196 Patent at 2:51-54 (admitting broadband cable networks existed in prior art). Both Nazarathy and Quigley also disclose two-way cable television networks that a person of ordinary skill in the art would have known constitute "a wired residential broadband network," as claimed. Nazarathy at Abstract, 9:25-26; Quigley at 8:55-60, 10:41-11:3; Schmandt Decl. ¶ 285. A skilled artisan would have known that Murdock's voice control system could be implemented in such a prior art network and would have been able to do so. *Id*. Thus, Murdock alone or combined with either Nazarathy or Quigley discloses the limitation added by claim 40 and renders the claim obvious. *Id*. ¶¶ 282-283, 285.

12. Claim 41

Dependent claim 41 reads:

The system of claim 40, wherein said wired residential broadband network is a fiber-to-the-curb residential broadband network.

Murdock discloses a two-way cable television network. Murdock at 1:15-20, 2:26-31, 2:44-47, 4:13-15, Fig. 1. A person of ordinary skill in the art would have known that the cable network disclosed by Murdock is "a wired residential

broadband network" that was implemented in some prior art systems in a "fiber-to-the-curb" design, as recited in claim 41. Schmandt Decl. ¶ 287; *see also* '196 Patent at 2:51-54, 3:44-52 (admitting "hybrid-fiber-coaxial (HFC)" cable networks existed in the prior art). Both Nazarathy and Quigley also disclose two-way cable television networks implemented in a "hybrid-fiber-coaxial (HFC)" design. Nazarathy at Abstract, 9:25-26; Quigley at 8:55-60, 10:41-11:3. A person of ordinary skill in the art would have known that a "fiber-to-the-curb" design was a particular implementation of a "hybrid-fiber-coaxial" network. Schmandt Decl. ¶¶ 287-288, 290. A skilled artisan would have known that Murdock's voice control system could be implemented in such a prior art network and would have been able to do so. Schmandt Decl. ¶ 290. Thus, Murdock alone or combined with either Nazarathy or Quigley discloses the limitation added by claim 41 and renders the claim obvious. *Id*. ¶¶ 287-288, 290.

13. Claim 42

Dependent claim 42 reads as follows:

The system of claim 40, wherein said wired residential broadband network is a fiber-to-the-home residential broadband network.

Murdock discloses a two-way cable television network. Murdock at 1:15-20, 2:26-31, 2:44-47, 4:13-15, Fig. 1. A person of ordinary skill in the art would have known that the cable network disclosed by Murdock is "a wired residential

broadband network" that was implemented in some prior art systems in a "fiber-to-the-home" design, as recited in claim 42. Schmandt Decl. ¶¶ 292-293; *see also* '196 Patent at 2:51-54, 3:44-52 (admitting "hybrid-fiber-coaxial (HFC)" cable networks existed in the prior art). Both Nazarathy and Quigley also disclose two-way cable television networks implemented in a "hybrid-fiber-coaxial (HFC)" design. Nazarathy at Abstract, 9:25-26; Quigley at 8:55-60, 10:41-11:3. A person of ordinary skill in the art would have known that a "fiber-to-the-home" design was a particular implementation of a "hybrid-fiber-coaxial" network. Schmandt Decl. ¶¶ 292-293. A skilled artisan would have known that Murdock's voice control system could be implemented in such a prior art network and would have been able to do so. Schmandt Decl. ¶ 293. Thus, Murdock alone or combined with either Nazarathy or Quigley discloses the limitation added by claim 42 and renders the claim obvious. *Id*. ¶¶ 292-293.

14. Motivation to Combine Murdock with Nazarathy or Quigley

The '196 Patent, Murdock, Nazarathy, and Quigley are all in the same field of interactive television networks and cable networks in particular. '196 Patent at 22:8-25:64; Murdock at 1:49-55, 2:11-3:41; Nazarathy at Abstract, 13:7-9, 14:50-54, Fig. 9; Quigley at Abstract, 8:46-48, 8:55-62, 9:18-25; Schmandt Decl. ¶¶ 294-296 (identifying additional similarities).

A person of ordinary skill in the art would have naturally considered

Nazarathy and Quigley in connection with the system disclosed by Murdock. Schmandt Decl. ¶ 297. Murdock explicitly discloses a system that multiplexes voice commands from multiple users for transmission to a remote server computer, but is not limited to any particular multiplexing or demultilexing techniques or to a particular physical network architecture used to implement its system. *Id.* Nazarathy and Quigley both describe particular upstream communication techniques and physical network implementations. Nazarathy at Abstract, 13:64-14:46, Quigley at 9:65-10:3; Schmandt Decl. ¶ 297. A skilled artisan would have known that Murdock's voice control system could be implemented using those techniques and networks. Schmandt Decl. ¶ 297.

Further, a person of ordinary skill in the art would also have recognized the benefits of combining Murdock with the teachings of Nazarathy and Quigley, as discussed above. Schmandt Decl. ¶ 298. The Murdock network would reap the benefits of Nazarathy (e.g., increased bandwidth) or Quigley (e.g., avoiding collisions between multiple upstream signals). *Id.* Implementing Murdock's voice control system on the networks of Nazarathy or Quigley would improve the user interface for those systems. *Id.* Combining them would have been no more than combining prior art elements according to known methods to yield predictable results for a person of ordinary skill in the art. *Id.*; *see KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007). Additionally, the discussion of

multiplexing in Murdock suggests techniques like those disclosed in Nazarathy or Quigley. *KSR*, 550 U.S. 398 at 418-19.

B. Claims 5-6 and 31-32 Are Obvious in Light of Murdock Alone or Further in Light of Either Banker or Gordon

Claims 5-6 and 31-32 depend from claims 2 and 28, respectively. They are rendered obvious by Murdock alone (Ground 1), as discussed in more detail below. They are also obvious over Murdock combined with Nazarathy or Quigley to the extent those two references apply to claims 2 and 28 (Ground 2). Claims 5-6 and 31-32 are also rendered obvious by the additional teaching of either Banker or Gordon (Ground 3), as discussed in more detail below.

1. Claim 5

Claim 5 begins as follows:

> **The method of claim 2, wherein the step responding to said identified speech contents from said associated user site is comprised of the steps of:**
> **assessing said speech content response identified as to said user site to create a financial consequence identified as to said user site; and . . .**

Murdock discloses this limitation. Schmandt Decl. ¶ 179. In particular, Murdock states that the user's "input command signal may comprise a verbal request of programming content from a service provider" including "video-on-demand." Murdock at 2:24-31; *see also id.* at 1:16-37 (in "current television systems" a user

"may order programming content" such as "a pay-per-view cable program"). A user could verbally request an on-demand video or pay-per-view cable program using the Murdock system, and the remote server would process the request and retrieve the content. *Id*. at 2:11-3:41. A person of ordinary skill in the art would have known that ordering pay-per-view programming and certain on-demand videos would require a purchase (i.e., "a financial consequence"). Schmandt Decl. ¶ 179. Thus, Murdock discloses to a skilled artisan the step of "assessing said speech content response identified as to said user site" (i.e., the recognized voice command) to "create a financial consequence" (i.e., purchasing a pay-per-view program or movie), as recited in the claim. *Id*. ¶ 179.

Claim 5 then states:

billing said user site based upon said financial consequence.

A person of ordinary skill in the art would also have known that ordering pay-per-view programming and certain on-demand videos would require a purchase leading to a bill. Schmandt Decl. ¶ 182. Thus, Murdock discloses to a skilled artisan the step of "billing" the requesting user "based upon said financial consequence" (i.e., the pay-per-view purchase). Murdock alone therefore renders claim 5 obvious. *Id*. ¶ 182.

In addition, Murdock can be combined with either Banker or Gordon to disclose the "assessing" and "billing" steps. Schmandt Decl. ¶¶ 183-185. Banker

discloses a system in which the user can purchase a pay-per-view movie by pressing the "BUY key" on the television remote control and then entering a code provided by the system to begin a purchase sequence. Banker at 16:43-50, 16:62-7:1, Figs. 6F; *see also id*. 16:51-55 ("When the terminal of FIG. 3 is in the On mode and tuned to a pay-per-view channel showing an event with its purchase time window open, the user by actuating the BUY key initiates a buy sequence. Consequently, this key is used to purchase an event."). Once entered by the user, the "code is checked with the code stored in memory" (i.e., "assessing said speech content response identified as to said user site"). *Id*. at 16:67-17:1. "If correctly entered, the subscriber is asked to press the BUY key again … and the subscriber is thanked …." *Id*. at 17:1-3. The user is then billed for the purchase. *Id*. at 7:60-63 ("Billing computer 101 includes a subscriber database and ***generates a monthly bill*** for the subscribers in the system based on level of service and ***any pay-per-view and impulse pay-per-view purchases***."). Thus, Banker discloses the "assessing" and "billing" steps. Schmandt Decl. ¶ 184.

The Gordon system offers the subscriber an option to purchase an on-demand program subscription. Gordon at 9:64-10:9, Figs. 3B, 8. If the user elects to make a purchase, the system requests a "master PIN" as a confirmation. *Id*. at 10:16-27. Once the PIN number is validated, the "interactive information distribution system's billing system is updated with the new subscriber's account

number." *Id*. at 10:43-46; *see also id*. at 2:60-63 ("As such, through manipulation of the menus, the consumer selects a programming package, becomes a subscriber to that package and ***is billed accordingly***."). Thus, Gordon discloses the "assessing" and "billing" steps as well. Schmandt Decl. ¶ 185.

2. Claim 6

Claim 6 begins as follows:

> **The method of claim 2, wherein the step responding to said identified speech contents from said associated user site is comprised of the steps of:**
> **assessing said speech response to create a financial consequence identified with said user site;**

As discussed in connection with claim 5, Murdock discloses using voice commands to order on-demand movies (e.g., pay-per-view). Murdock at 1:8-11, 2:24-31. A person of ordinary skill in the art would have known that ordering on-demand or pay-per-view programming requires a purchase. Schmandt Decl. ¶ 188. Thus, Murdock discloses to a skilled artisan the step of "assessing said speech response" (i.e., the recognized voice command) to "create a financial consequence" (i.e., purchasing a pay-per-view program or movie), as recited in the claim. *Id.* Banker and Gordon also disclose the "assessing" step of claim 6 for the reasons discussed in connection with the corresponding step of claim 5. *See* Section VII.B.1, above; Schmandt Decl. ¶¶ 190-191.

Claim 6 then states:

displaying said financial consequence to create a displayed financial consequence at said user site;

A person of ordinary skill in the art would know that a pay-per-view movie purchase involves informing the user that he or she is making a purchase. Schmandt Decl. ¶ 194. For example, the Banker patent describes displaying screen stating: "NEXT, PLEASE PRESS [BUY] TO PURCHASE THIS EVENT" to confirm the viewer's intent to accept the purchase (i.e., the "financial consequence"). Banker at 16:62-17:3, Fig. 6F. Similarly, Gordon discloses querying the user, after a title is selected, to determine if the user wants to pay "a la carte" to view the selection. Gordon at 9:56-63 ("video session manager sends … an applet for a second type of title information screen" and "the terminal creates a screen informing the subscriber of the reason for the non-zero price and also presents the user with an 'a la carte' purchase option"). Thus, either Murdock alone or combined with either Banker or Gordon discloses this limitation of claim 6. Schmandt Decl. ¶¶ 193-194.

Claim 6 then states:

confirming said displayed financial consequence from said user site to create a financial commitment; and ….

A person of ordinary skill would also know that a pay-per-view movie purchase involves informing the user that he or she is making a purchase and confirming the user's intent to do so. Schmandt Decl. ¶ 197. For example, in the Banker system the user can press the BUY key and enter a system provided code, and will then be asked to "press the BUY key again" to confirm the intent to purchase (i.e., the "financial consequence") to "create a financial commitment," as claimed. Banker at 16:62-17:3, Fig. 6F. Similarly, Gordon allows a viewer to pay "a la carte" to view a selection. Gordon at 9:56-63. Figure 8 in Gordon illustrates a screen that gives the viewer the option to purchase a program subscription by clicking on-screen buttons. *Id.* at 6:43-47, Fig. 8. Thus, either Murdock alone or combined with Banker or Gordon discloses this limitation of claim 6. Schmandt Decl. ¶¶ 196-199.

Claim 6 then recites the following final limitation:

billing said user site based upon said financial commitment.

As discussed in connection with claim 5, a person of ordinary skill in the art would know that a pay-per-view purchase involves billing the user. Schmandt Decl. ¶ 201. Banker also discloses billing the subscriber for a pay-per-view purchase. Banker at 7:60-63, 16:62-17:3. Gordon also discloses billing the subscriber for a pay-per-view purchase. Gordon at 2:60-63, 10:39-47. Thus, either Murdock alone

or combined with Banker discloses this limitation of claim 6. Schmandt Decl. ¶¶ 201-202.

3. Claim 31

Claim 31 is identical to claim 5 except that claim 31 refers to "program steps" while claim 5 refers to "steps." Schmandt Decl. ¶ 62. The limitations of claim 31 are disclosed by Murdock alone or further in light of Banker or Gordon for the reasons discussed in connection with claim 5. *See* Section VII.B.1, above; Schmandt Decl. ¶¶ 257-260.

4. Claim 32

Claim 32 is identical to claim 6 except that claim 32 refers to "program steps" while claim 6 refers to "steps." Schmandt Decl. ¶ 63. The limitations of claim 32 are disclosed by Murdock alone or further in light of Banker or Gordon for the reasons discussed in connection with claim 6. *See* Section VII.B.2, above; Schmandt Decl. ¶¶ 261-276.

5. Motivation to Combine Murdock with Banker or Gordon

Murdock, Banker, and Gordon are all in the same field as the '196 Patent (i.e., interactive television networks and cable networks in particular). Murdock at 1:16-37, 2:24-31; Banker at Abstract; Gordon at 1:8-14, 2:41-63. All also discuss implementing pay-per-view functionality. '196 Patent at 17:35-37, 28:54-60; Murdock at 2:28-31; Banker at 16:51-55; Gordon at 1:8-13; *see also* Schmandt Decl. ¶ 300. A person of ordinary skill in the art would have naturally considered

Banker or Gordon in connection with the system disclosed by Murdock. Schmandt Decl. ¶¶ 300-301.

Further, a person of ordinary skill in the art would have recognized the benefits of combining Murdock with Banker and Gordon as discussed above. Murdock discloses that its voice-controlled system for retrieving digital programming can be used in video-on-demand applications. Murdock at 2:22-31. Banker and Gordon both teach user interfaces for implementing video-on-demand systems on cable networks. Banker at 16:43-50, 16:51-55, 16:62-17:3, Figs. 6F; Gordon at 2:60-63, 3:61-63, 8:66-10:9, 10:43-46, Fig. 3B, 8; Schmandt Decl. ¶ 301. The user interfaces disclosed in Banker and Gordon also minimize the chances of accidental or unauthorized purchase. Schmandt Decl. ¶ 301. Further, a skilled artisan would have been capable of combining the teachings of Banker and Gordon in the Murdock system. *Id.* Such a combination would have been no more than combining prior art elements according to known methods to yield predictable results. *Id.*; see *KSR*, 550 U.S. at 416. Additionally, the discussion of pay-per-view functionality in Murdock suggests systems like those disclosed in Banker or Gordon. *KSR*, 550 U.S. 398 at 418-19.

VIII. THE CHALLENGED CLAIMS ARE OBVIOUS BASED ON JULIA AS THE PRIMARY PRIOR ART REFERENCE

As discussed in detail below, the combination of Julia with the teachings of either Nazarathy or Quigley discloses every element of the challenged claims.

Schmandt Decl. ¶ 302 . Because a person of ordinary skill in the art would have been motivated to combine these references, as discussed below, the combination of Julia with either Nazarathy or Quigley renders the challenged claims obvious (Ground 4). *Id*. ¶¶ 302-303, 440-445.

The section that follows addresses claims 1-2, 4, 12-13, 27-28, 30, and 38-42 in light of Julia combined with Nazarathy or Quigley. *See* Section VIII.A, below. Claims 5-6 and 31-32, which recite additional "financial" elements that are suggested by Julia and explicitly disclosed by Banker and Gordon, are addressed separately in the next section. *See* Section VIII.B, below.

A. Claims 1-2, 4, 12-13, 27-28, 30, and 38-42 Are Obvious in Light of Julia Combined with the Teaching of Nazarathy or Quigley

1. Claim 1

a. A method of using a back channel containing a multiplicity of identified speech channels from a multiplicity of user sites presented to a speech processing system at a wireline node in a network supporting at least one of cable television delivery and video delivery, comprising the steps of

Julia discloses a method of using a back channel containing a multiplicity of identified speech channels as recited in claim 1. Schmandt Decl. ¶¶ 307-309. In particular, Julia discloses a voice control system that can be implemented in an interactive cable television network. Julia at 1:29-34, 4:31-35. Multiple users can issue voice commands requesting television and other video content from a remote server computer (e.g., "a wireline node"). *Id*. at 6:12-26. The remote server

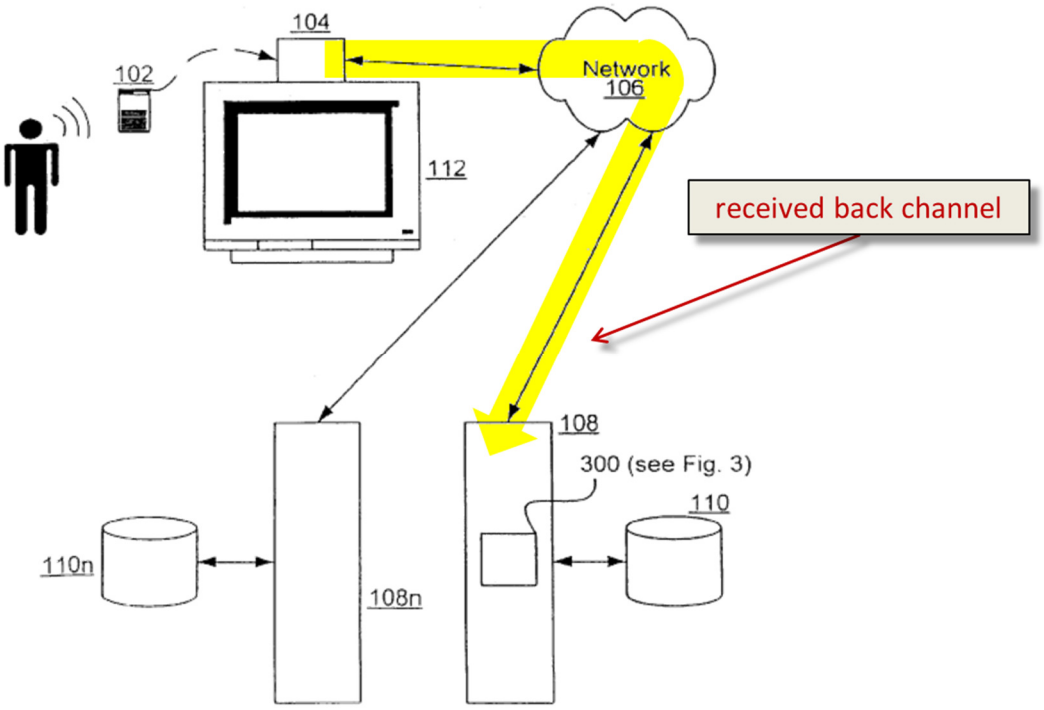
performs speech recognition processing to identify the spoken request and then sends the requested content to the particular user. *Id*. at 3:61-4:20.

b. receiving said back channel to create a received back channel

Julia discloses this step. Schmandt Decl. ¶¶ 311-312. In Julia, the viewer issue voice command using "voice input device 102," which transmits the voice command to "communications box 104." Julia at 3:39-54. The communications box transmits the voice command signal over "network 106" to "remote server or servers 108." *Id*. at 3:54-55. Julia states that network 106 "is a two-way electronic communications network and may be embodied in electronic communication infrastructure including coaxial (cable television) lines …." *Id*. at 4:31-35. Julia also explains that "multiple users" each having their own input device can issue voice commands for processing by the central server. *Id*. at 6:12-26 ("preferably designed and implemented to support queuing and multi-tasking of requests from multiple simultaneous network users").

A person of ordinary skill in the art would have known that upstream data transmissions in the cable television network disclosed Julia are transmitted on the "back channel" (i.e., "upstream communication channel delivering signals from multiple user sites to a central wireline node"). Schmandt Decl. ¶¶ 307, 311; *see also* Section V.B, above. Further, both Nazarathy and Quigley disclose prior art interactive cable networks with upstream data transmissions (i.e., a "back

channel"). *See, e.g.*, Nazarathy at 2:8-35, 9:54-65; Quigley at Abstract, 9:1-10:37. Thus, a person of ordinary skill in the art would recognize that remote server 108 receives the "back channel to create a received back channel," as recited in claim 1. Schmandt Decl. ¶¶ 311-312.



Julia Fig. 1a (annotated)

Thus, Julia alone or combined with Nazarathy or Quigley disclose the "receiving" step of claim 1.

c. partitioning said received back channel into a multiplicity of received identified speech channels

Julia states that "multiple users, each having their own client input device, may issue requests, simultaneously or otherwise, for navigation of data source 210" and that existing systems had "already been constructed to support access

requests from simultaneous multiple network users, as known by practitioners of ordinary skill in the art." Julia at 6:13-21. For instance, both Nazarathy and Quigley disclose prior art cable networks in which multiple users could issue requests "simultaneously or otherwise" to a central information source. Schmandt Decl. ¶¶ 316-320.

Nazarathy and Quigley both disclose techniques for "partitioning" an upstream data channel carrying multiple user signals at a central cable headend. *Id.* Nazarathy describes a "hybrid coaxial cable network" where data signals in the "return path" (i.e., the back channel) are multiplexed using, for example, time division multiplexing (TDM) and wavelength division multiplexing (WDM) for transmission to the cable headend. Nazarathy at Abstract, 13:64-14:46. Nazarathy explicitly teaches that these multiplexed signals are demultiplexed at the cable headend. *Id*. at 14:62-64 ("Any operations of TDM and/or WDM multiplexing are undone at the HE [cable headend] by corresponding WDM and TDM demultiplexers."). Quigley similarly describes a cable network in which the "upstream channel" is "partitioned" into a plurality of time intervals. Quigley at 46:32-40. This partitioning is necessary to use "TDMA [i.e., time division multiple access] for upstream communication." *Id*. at 9:56-10:3. The techniques taught by Nazarathy and Quigley constitute "partitioning" as that term is used in the '196 Patent. Schmandt Decl. ¶¶ 316-317, 319; *see* Section V.C, above. Thus,

the combination of Julia with either of these references discloses the "partitioning" step of claim 1. Schmandt Decl. ¶¶ 316-320.

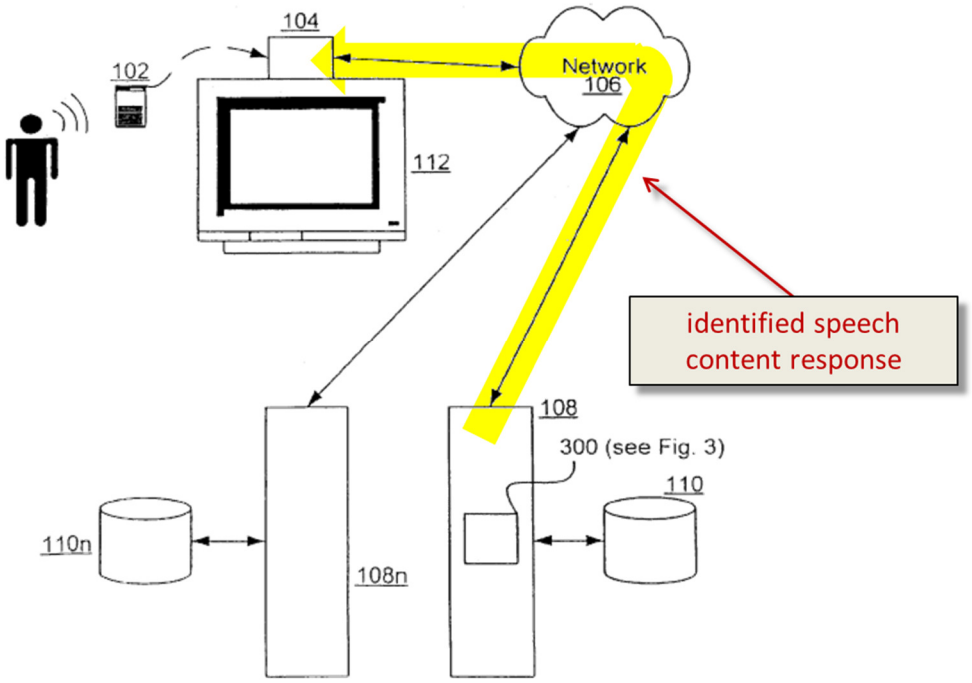
d. processing said multiplicity of said received identified speech channels to create a multiplicity of identified speech content

Julia explains that "[a]t remote server 108, the voice data is ***processed*** by request processing logic 300 in order to understand the user's request and construct an appropriate query or request for navigation of remote data source 110 …." Julia at 3:61-65. The "voice data received from the user is interpreted in order to understand the user's request for information." *Id*. at 7:5-7. Thus, Julia discloses "processing said multiplicity of said received identified speech channels" (i.e., voice command signals) "to create a multiplicity of identified speech content" (i.e., each user's specific command), as recited in the claim. Schmandt Decl. ¶¶ 322-328.

e. responding to said identified speech content to create an identified speech content response that is unique, for each of said multiplicity of identified speech contents

After identifying the information requested by a particular viewer, "[t]he retrieved information is transmitted across the network and presented to the user on a suitable client display device." Julia at 2:65-67; *see also id*. at 4:18-20 ("Once the desired information has been retrieved from data source 110, it is electronically transmitted via network 106 to the user for viewing on client display device 112."),

11:60-67. The requested information (i.e., "identified speech content response") is transmitted to the requesting user, as illustrated below.



Julia Fig. 1 (annotated)

Thus, the remote server performs the step of "responding to said identified speech content" (i.e., recognized voice command) "to create an identified speech content response" (i.e., requested information) "that is unique, for each of said multiplicity of identified speech contents" (i.e., the information is delivered to the viewer who requested it), as recited in the claim. Schmandt Decl. ¶ 330.

2. Claim 2

Dependent claim 2 begins as follows:

The method of claim 1, wherein at least one of said identified speech channels has an associated user site; and

As discussed in connection with claim 1, Julia discloses that each voice command is "processed … in order to understand the user's request" and then the requested information is transmitted back to the user. Julia at 3:61-66, 4:18-20; *see* Sections VIII.A.1.d-VIII.A.1.e, above. Thus, Julia discloses that "at least one of the identified speech channels" (i.e., voice command signals) "has an associated user site," as recited in the claim. Schmandt Decl. ¶ 332.

Claim 2 then states:

> **wherein the step partitioning said received back channel is further comprised of the step of:**
> **partitioning said received back channel into a multiplicity of said received identified speech channels from said associated user site;**

This limitation of claim 2 is essentially the same as the "partitioning" step of claim 1 but adds the further limitation that the "received identified speech channels" are "from said associated user site." '196 Patent at 51:3-4, 51:16-18. Julia in combination with Nazarathy or Quigley discloses "partitioning said received back channel" as discussed in connection with claim 1. *See* Section VIII.A.1.c, above. Further, Julia discloses interpreting each particular user's request in order to transmit the requested information back to the requesting user. Julia at 4:18-20. Thus, Julia in combination with Nazarathy or Quigley discloses "partitioning the received back channel" into "received identified speech channels" from particular "associated user site[s]," as recited in claim 2. Schmandt Decl. ¶ 334; *see also id.*

¶¶ 335-337 (describing further partitioning of individual viewers' voice commands).

Claim 2 then states:

> **wherein the step processing said multiplicity of said received identified speech channels is further comprised the step of: processing said multiplicity of said received identified speech channels from said associated user site to create a multiplicity of said identified speech contents**

This limitation of claim 2 is essentially the same as the "processing" step of claim 1 but adds the further limitation that the "received identified speech channels" are "from said associated user site." '196 Patent at 51:5-7, 51:22-25. Julia discloses "processing said received identified speech channels" (i.e., voice command signals) to create "identified speech contents" (i.e., recognized commands), as discussed in connection with claim 1. *See* Section VIII.A.1.d, above. Julia also discloses that the voice command signals are "from said associated user site," (i.e., the particular viewer's communications box 104). Julia at 3:37-55. Thus, Julia discloses this limitation of claim 2. Schmandt Decl. ¶ 339.

The final limitation of step 2 reads as follows:

> **wherein the step responding to said identified speech content is further comprised the step of:**
> **responding to said identified speech content from said associated user site to create said identified speech content response for said**

associated user site.

This limitation of claim 2 is essentially the same as the "responding" step of claim 1 but adds the further limitation that the "identified speech content" is "from said associated user site" and the "identified speech content response" is "for said associated user site." '196 Patent at 51:8-10, 51:28-30. As discussed in connection with claim 1, Julia discloses transmitting requested information to the communications box of the requesting viewer (i.e., "said associated user site"). Julia at 2:65-67, 4:18-20, 11:60-67, Fig. 1a; *see* Section VIII.A.1.e, above. Thus, Julia discloses this limitation of claim 2. Schmandt Decl. ¶ 341.

3. Claim 4

Dependent claim 4 reads as follows:

The method of claim 2, wherein the step responding to said identified speech contents from said associated user site is comprised of the steps of:
processing said identified speech content response to create said identified user site response; and
sending said identified user site response to said identified user site.

Julia explains that "[t]he voice data is processed … in order to understand the user's request." Julia at 3:61-66. Then, "[o]nce the desired information has been retrieved from data source 110, it is electronically transmitted … to the user for viewing …." *Id.* at 4:18-20. Thus, Julia discloses processing the "identified

speech content response to create said identified user site response" (*i.e.*, retrieving requested information) and then "sending said identified user site response to said identified user site" (*i.e.*, transmitting the requested information to communications box 104 for display), as recited in the claim. Schmandt Decl. ¶ 343.

4. Claim 12

Dependent claim 12 is the same as the "responding" step of claim 2 but additionally recites that the speech recognition is "based upon natural language." '196 Patent at 51:28-30, 52:52-55. Julia expressly states that "the present invention relates generally to the navigation of electronic data by means of spoken ***natural language*** requests …." Julia at 1:16-20; *see also id.* at 3:37-39 ("FIG. 1a is an illustration of a data navigation system driven by spoken natural language input, in accordance with one embodiment of the present invention."), *id.* at 7:1-8:32 (section entitled "Interpreting Spoken Natural Language Requests"). Thus, Julia discloses "responding to said speech content identified as to said user site based upon natural language to create a speech content response of said speech content identified with said user site," as recited in claim 12. Schmandt Decl. ¶¶ 363-366; *see* Sections VIII.A.1.e and VIII.A.2, above.

5. Claim 13

Dependent claim 13 is the same as the "processing" step of claim 2 but additionally recites that the speech recognition is "based upon natural language."

'196 Patent at 51:28-30, 52:52-55. As discussed above, Julia expressly discloses "a data navigation system driven by spoken ***natural language*** input …." Julia at 3:37-39; see also id. at 1:16-20, 7:1-8:32. Thus, Julia discloses "processing said received speech channels from said user site based upon natural language for said user site to create said speech content identified as to said user site," as recited in claim 13. Schmandt Decl. ¶¶ 368-369; *see* Sections VIII.A.1.d and VIII.A.2, above.

6. Claim 27

a. A system supporting speech recognition in a network, said system comprising:

As discussed in connection with claim 1, Julia discloses a system supporting speech recognition in a cable network. *See* Section VIII.A.1.a, above; Schmandt Decl. ¶ 371.

b. a speech recognition system coupled to a wireline node in said network for receiving a back channel from a multiplicity of user sites coupled to said network, further comprising

In Julia, speech recognition processing is performed by remote server 108, which constitutes "a wireline node" in the network. Schmandt Decl. ¶¶ 373-375; *see* Section V.A, above. The remote server receives "a back channel from a multiplicity of user sites" coupled to the network, as discussion in connection with claims 1 and 2. *See* Sections VIII.A.1.b and VIII.A.2, above. Thus, Julia discloses this element of claim 27. Schmandt Decl. ¶ 373.

c. a back channel receiver, for receiving said back channel to create a received back channel;

As explained in connection with claim 1, remote server 108 receives a back channel containing the voice requests issued by multiple users via their local communications boxes to create a "received back channel." *See* Section VIII.A.1.b, above. The remote server 108 therefore includes "a back channel receiver," as claimed. Schmandt Decl. ¶ 377.

d. a speech channel partitioner, for partitioning said received back channel into a multiplicity of received identified speech channels; and

As discussed in connection with claim 1, Julia's remote server receives voice command signals from multiple users processes the received signals to identify individual voice commands. *See* Section VIII.A.1.c, above. Combined with the teaching of either Nazarathy or Quigley, Julia discloses "partitioning" the "received back channel," as discussed above. Both Nazarathy and Quigley expressly disclose demultiplexers used to decompose combined signals to identify specific upstream signals. Nazarathy at 14:62-42; Quigley at 51:31-35. Thus, Julia combined with Nazarathy or Quigley discloses a "speech channel partitioner" to partition the "back channel into a multiplicity of received identified speech channels" (i.e., voice command signals), as claimed. Schmandt Decl. ¶¶ 379-380.

e. a processor network executing a program system comprised of program steps residing in memory

accessibly coupled to at least one computer in said processor network;

Julia's remote server performs speech recognition by executing "request processing logic 300 which is composed of "functional modules including speech recognition engine 310 …." Julia at 3:66-4:4. Julia states that "[a] variety of commercial quality, speech recognition engines are readily available on the market, as practitioners will know" including products from Nuance and IBM. *Id.* at 7:12-22. A person of ordinary skill in the art would have known that these type of products include software that would reside "in memory accessibly coupled to at least one computer" (i.e., remote server 108). Schmandt Decl. ¶ 384; *see also* Julia at 6:47-59. Julia also discloses "a processor network" of multiple server computers. Julia at 3:54-55 ("server or servers 108"), 4:4-13, Fig. 1a. Thus, Julia discloses "executing a program system" that resides "in memory" on the remote server which is "at least one computer" in the "processor network." Schmandt Decl. ¶¶ 382-386.

f. wherein said program system is comprised of the program steps of: processing said multiplicity of said received identified speech channels to create a multiplicity of identified speech content;

This element of claim 27 simply recites the same "processing" step of claim 1. Schmandt Decl. ¶ 59. Julia discloses it for the reasons discussed in connection with claim 1. *See* Section VIII.A.1.d, above; Schmandt Decl. ¶ 388.

g. responding to said identified speech content to create an identified speech content response, for each of said multiplicity of said identified speech contents; and

This element of claim 27 recites the same "responding" step of claim 1. Schmandt Decl. ¶ 59. Julia discloses it for the same reasons discussed in connection with claim 1. *See* Section VIII.A.1.e, above; Schmandt Decl. ¶ 390.

h. wherein said network supports at least one of the collection comprising: cable television delivery to said multiplicity of user sites; and video delivery to said multiplicity of user sites.

Julia discloses delivering both cable television programs and videos to multiple user sites. Julia at 4:31-35, 6:12-26, 10:9-18, 10:44-55, 11:16-45. Thus, the network supports both "cable television delivery" and "video delivery" to a "multiplicity of user sites" (i.e., communications boxes), as claimed. Schmandt Decl. ¶ 392.

7. Claim 28

Claim 28 is identical to claim 2 except that claim 28 refers to "program steps" while claim 2 refers to "steps." Schmandt Decl. ¶ 60. The limitations of claim 28 are disclosed by Julia alone or in combination with Nazarathy or Quigley for the reasons discussed in connection with claim 2. *See* Section VIII.A.2, above; Schmandt Decl. ¶¶ 393-402.

8. Claim 30

Claim 30 is identical to claim 4 except that claim 30 refers to "program steps" while claim 4 refers to "steps." Schmandt Decl. ¶ 61. The limitations of claim 30 are disclosed by Julia alone or in combination with Nazarathy or Quigley for the reasons discussed in connection with claim 4. *See* Section VIII.A.3, above; Schmandt Decl. ¶ 404.

9. Claim 38

Other than a minor difference in the preamble, claim 38 is essentially identical to claim 12 except that claim 38 refers to "program steps" while claim 12 refers to "steps." Schmandt Decl. ¶ 64. The limitations of claim 38 are disclosed by Julia alone or in combination with Nazarathy or Quigley for the reasons discussed in connection with claim 12. *See* Section VIII.A.4, above; Schmandt Decl. ¶ 427.

10. Claim 39

Claim 39 is identical to claim 13 except that claim 39 refers to "program steps" while claim 13 refers to "steps." Schmandt Decl. ¶ 65. The limitations of claim 39 are disclosed by Julia alone or in combination with Nazarathy or Quigley for the reasons discussed in connection with claim 13. *See* Section VIII.A.5, above; Schmandt Decl. ¶ 429.

11. Claim 40

Dependent claim 40 reads:

The system of claim 28, wherein said network includes a wired residential broadband network servicing at least part of said multiplicity of user sites.

Julia discloses this limitation. Schmandt Decl. ¶¶ 431-432. A person of ordinary skill in the art would understand a "broadband network" to refer to networks capable of transmitting data at high speeds, such as networks made up of coaxial or fiber-optic cables. Schmandt Decl. ¶ 431. Network 106 of Julia "may be embodied in electronic communication infrastructure including coaxial (cable television) lines, DSL, fiber-optic cable, traditional copper wire (twisted pair), or any other type of hardwired connection." Julia at 4:31-35. Network 106 of Julia is therefore a "wired . . . broadband network" as required by this claim. Moreover, as discussed in connection with claim 2, the network 106 connects the remote server of Julia with multiple communications boxes 104 (set-top boxes), which are traditionally found in residential homes. Network 106 is thus a "residential broadband network" serving a "multiplicity of user sites" as recited in the claim.

12. Claim 41

Dependent claim 41 reads:

The system of claim 40, wherein said wired residential broadband network is a fiber-to-the-curb residential broadband network.

Julia alone discloses this limitation. Schmandt Decl. ¶¶ 434-436. As explained with respect to claim 41 in the Murdock discussion, one example of a fiber-to-the-

curb network is an HFC network. *See* Section VII.A.12. Network 106 of Julia "may be embodied in electronic communication infrastructure including coaxial (cable television) lines, DSL, fiber-optic cable, traditional copper wire (twisted pair), or any other type of hardwired connection." Julia at 4:31-35. A person of ordinary skill in the art reading Julia would understand that HFC networks were another type of "hardwired connection" that could be used to implement network 106, as HFC networks were the most common type of cable network at the time of the '196 Patent. Schmandt Decl. ¶ 435; '196 Patent at 2:51-54, Quigley at 10:45-48. Julia alone therefore discloses this element.

Quigley and Nazarathy also disclose HFC networks. Quigley at 8:55-60, 10:41-11:3; Nazarathy at Abstract, 9:25-26. Because Julia states that network 106 can be implemented in any type of "hardwired connection," and HFC networks were the most common type of cable network at the time of the '196 Patent, it would have been natural for a person of ordinary skill in the art to implement Julia in an HFC network. Schmandt Decl. ¶ 435. Julia combined with either Quigley or Nazarathy therefore also discloses this limitation.

13. Claim 42

Dependent claim 42 reads:

The system of claim 40, wherein said wired residential broadband network is a fiber-to-the-home residential broadband network.

Julia discloses this limitation. Schmandt Decl. ¶¶ 438-439. A person of ordinary skill in the art would understand a "fiber-to-the-home" network to mean a network that runs fiber-optic cables from a central server or headend to a home, such as a user site. As shown in Figure 1a, the network 106 of Julia connects remote server 108 to communications boxes 104 (e.g., set-top boxes located at users' homes). Julia Fig. 1a; *see also id.* Julia at 6:12-26 (noting that the system of Julia can support multiple users). Julia also discloses that network 106 can consist entirely of "fiber-optic cable". Julia at 4:31-35.

14. Motivation to Combine Julia with Nazarathy or Quigley

Julia, Nazarathy, and Quigley are all in the same field as the '196 Patent (i.e., interactive television networks and cable networks in particular). Julia at 4:31-35, 6:12-27; Nazarathy at Abstract, 13:7-9, 14:50-54, Fig. 9; Quigley at Abstract, 8:46-48, 8:55-62, 9:18-25; Schmandt Decl. ¶¶ 440-442 (identifying additional similarities).

A person of ordinary skill in the art would have naturally considered Nazarathy and Quigley in connection with the system disclosed by Julia. Schmandt Decl. ¶ 443. Julia discloses a system that transmits voice commands from multiple users to a central remote server computer, but is not limited to any particular techniques or to a particular physical network architecture used to implement its system. *Id.*; Julia at 6:47-59. Nazarathy and Quigley both describe

particular upstream communication techniques and physical network implementations. Nazarathy at Abstract, 13:64-14:46, Quigley at 9:65-10:3; Schmandt Decl. ¶ 443. A skilled artisan would have known that Julia's voice control system could be implemented using those techniques and networks. *Id.*

Further, a person of ordinary skill in the art would also have recognized the benefits of combining Julia with the teachings of Nazarathy and Quigley, as discussed above. Schmandt Decl. ¶ 444. The Julia network would reap the benefits of Nazarathy (e.g., increased bandwidth) or Quigley (e.g., avoiding collisions between multiple upstream signals). *Id.* Implementing Julia's voice control system on the networks of Nazarathy or Quigley would improve the user interface for those systems. *Id.* Combining them would have been no more than would have been no more than combining prior art elements according to known methods to yield predictable results for a person of ordinary skill in the art. *Id.*; *see KSR*, 550 U.S. at 416. Additionally, Julia's disclosure of multiple cable subscribers accessing a central remote server (i.e., cable headend) suggests techniques like those disclosed in Nazarathy or Quigley. *KSR*, 550 U.S. 398 at 418-19.

B. Claims 5-6 and 31-32 Are Obvious in Light of Murdock Alone or Further in Light of Banker or Gordon

Claims 5-6 and 31-32 depend from claims 2 and 28, respectively. The limitations of these claims are disclosed by Julia alone, as discussed below, and are

rendered obvious by Julia combined with Nazarathy or Quigley to the extent those two references apply to claims 2 and 28 (Ground 4). Claims 5-6 and 31-32 are also rendered obvious by the additional teaching of either Banker or Gordon (Ground 5), as discussed in more detail below.

1. Claim 5

Claim 5 begins as follows:

> **The method of claim 2, wherein the step responding to said identified speech contents from said associated user site is comprised of the steps of:**
> **assessing said speech content response identified as to said user site to create a financial consequence identified as to said user site; and . . .**

Julia discloses this limitation. Schmandt Decl. ¶ 345. In particular, Julia discloses that its system can be implemented on video on-demand systems, such as the "Diva Systems video-on-demand system." Julia at 1:30-43, 3:61-4:17, 6:47-59. A person of ordinary skill in the art knows that the Diva System provided pay-per-view functionality. Schmandt Decl. ¶ 345. Thus, Julia discloses to one of ordinary skill in the art requesting pay-per-view or video-on-demand content by issuing voice requests, which the system would process, and providing responsive content. A person of ordinary skill would also understand that pay-per-view and video-on-demand functionality, such as that provided by the Diva system, would require a

purchase, resulting in a bill. *Id.* Thus, Julia discloses "assessing said speech response" (i.e., assessing the content requested by the user) associated with a particular "user site" (i.e., the location of the communications box 104) to "create a financial consequence" (i.e., payment for a video-on-demand movie), as recited in the claim. *Id.*

Claim 5 then states:

billing said user site based upon said financial consequence.

Julia discloses this limitation. Schmandt Decl. ¶¶ 347-348. As discussed with respect to the previous limitation, the speech recognition system of Julia can be implemented in video-on-demand and pay-per-view systems. *Id*. ¶ 345; Julia at 1:30-43, 3:61-4:17, 6:47-59. Persons of ordinary skill in the art understood that viewing content from video-on-demand or pay-per-view systems requires a purchase, which results in the generation of a bill. Schmandt Decl. ¶¶ 345, 347. Thus, Julia discloses to a skilled artisan the step of "billing" the requesting user "based upon said financial consequence" (i.e., the pay-per-view purchase). Julia alone therefore renders claim 5 obvious. In addition, Julia can be combined with either Banker or Gordon to disclose the "assessing" and "billing" steps, as discussed above in connection with Murdock. *See* Section VII.B.1, above; Schmandt Decl. ¶¶ 348-349.

2. Claim 6

Claim 6 begins as follows:

> **The method of claim 2, wherein the step responding to said identified speech contents from said associated user site is comprised of the steps of:**
> **assessing said speech response to create a financial consequence identified with said user site;**

As discussed in connection with claim 5, Julia discloses "assessing said speech response" (i.e., assessing the content requested by the user) identified with a particular "user site" (i.e., the location of the communications box 104) to "create a financial consequence" (i.e., payment for a video-on-demand movie), as recited in the claim. *See* Section VIII.B.1, above; Schmandt Decl. ¶ 351. In addition, as discussed in connection with claim 6 and Murdock, both Banker and Gordon also disclose "assessing" a response to "create a financial consequence." *See* Section VII.B.2, above; Schmandt Decl. ¶¶ 352-353.

Claim 6 then states:

> **displaying said financial consequence to create a displayed financial consequence at said user site;**

A person of ordinary skill in the art would know that a pay-per-view movie purchase involves informing the user that they are making a purchase, such as by displaying the price of the requested programming (i.e., "financial consequence")

to the user. Schmandt Decl. ¶ 355. In addition, as discussed in connection with claim 6 and Murdock, both Banker and Gordon also disclose displaying a "financial consequence" as required by this claim. *See* Section VII.B.2, above.

Claim 6 then states:

confirming said displayed financial consequence from said user site to create a financial commitment; and ….

A person of ordinary skill in the art would know that a pay-per-view movie purchase involves informing the user that they are making a purchase and confirming their intent to do so. Schmandt Decl. ¶ 357. In addition, as discussed in connection with claim 6 and Murdock, both Banker and Gordon also disclose confirming the " displayed financial consequence" to "create a financial commitment" as recited by the claim. *See* Section VII.B.2, above.

Claim 6 then recites the following final limitation:

billing said user site based upon said financial commitment.

As discussed in connection with claim 5, a person of ordinary skill in the art would know that a pay-per-view purchase involves billing the user. Schmandt Decl. ¶ 361. In addition, as discussed in connection with claim 5 and Murdock, both Banker and Gordon also disclose billing the subscriber for a pay-per-view purchase. *See* Section VII.B.1, above; Schmandt Decl. ¶ 361.

3. Claim 31

Claim 31 is identical to claim 5 except that claim 31 refers to "program steps" while claim 5 refers to "steps." Schmandt Decl. ¶ 62. The limitations of claim 31 are disclosed by Julia alone or further in light of Banker or Gordon for the reasons discussed in connection with claim 5. *See* Section VIII.B.1, above; Schmandt Decl. ¶¶ 405-409.

4. Claim 32

Claim 32 is identical to claim 6 except that claim 32 refers to "program steps" while claim 6 refers to "steps." Schmandt Decl. ¶ 63. The limitations of claim 32 are disclosed by Julia alone or further in light of Banker or Gordon for the reasons discussed in connection with claim 6. *See* Section VIII.B.2, above; Schmandt Decl. ¶¶ 410-425.

5. Motivation to Combine Julia with Banker and Gordon

Julia, Banker, and Gordon are all in the same field as the '196 Patent (i.e., interactive television networks and cable networks in particular). Julia at 1:30-38, 3:36-60, Fig. 1a; Banker at Abstract; Gordon at 1:8-14, 2:41-63. All also discuss implementing pay-per-view and on-demand video functionality. '196 Patent at 17:35-37, 28:54-60; Julia at 1:30-43, 6:47-59; Banker at 16:51-55; Gordon at 1:8-13; *see also* Schmandt Decl. ¶ 446. A person of ordinary skill in the art would have naturally considered Banker or Gordon in connection with the system disclosed by Julia. Schmandt Decl. ¶ 447.

Further, a person of ordinary skill in the art would have recognized the benefits of combining Julia with Banker and Gordon as discussed above. Julia discloses that its voice-controlled system for retrieving digital programming can be used in video-on-demand applications. Julia at 6:47-59. Banker and Gordon both teach user interfaces for implementing video-on-demand systems on cable networks. Banker at 16:43-50, 16:51-55, 16:62-17:3, Figs. 6F; Gordon at 2:60-63, 3:61-63, 8:66-10:9, 10:43-46, Fig. 3B, 8; Schmandt Decl. ¶ 447. The user interfaces disclosed in Banker and Gordon also minimize the chances of accidental or unauthorized purchase. Schmandt Decl. ¶ 447. Further, a skilled artisan would have been capable of combining the teachings of Banker and Gordon in the Julia system. *Id.* Such a combination would have been no more than combining prior art elements according to known methods to yield predictable results. *Id.*; see *KSR*, 550 U.S. at 416. Additionally, the disclosure of on-demand video functionality in Julia suggests systems like those disclosed in Banker or Gordon. *KSR*, 550 U.S. 398 at 418-19. Indeed, Julia's disclosure of implementation on "the Diva Systems video-on-demand system" specifically suggests Gordon, which is a Diva Systems patent. Julia at 6:47:59; Gordon at cover.

IX. CONCLUSION

The challenged claims of the '196 Patent are unpatentable and *inter partes* review should be instituted to cancel the challenged claims.

Respectfully submitted,

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Attorney for the Petitioner

CERTIFICATE OF COMPLIANCE

This petition complies with the 14,000 word count limit under 37 C.F.R. § 42.24(a)(1)(i). The petition contains 13,980 words, excluding the parts exempted by 37 C.F.R. § 42.24(a)(1) (i.e., table of contents, table of authorities, mandatory notices under § 42.8, certificate of service, word count certificate, and appendix of exhibits), as determined by the word count feature of Microsoft Word, which was used to prepare this petition.

/s/ *James L. Day*
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CERTIFICATE OF SERVICE

I hereby certify that on December 19, 2017, I caused a complete and entire copy of this Petition for *Inter Partes* Review and all supporting exhibits to be served by express mail, or means at least as fast and reliable as express mail, on the following counsel of record identified on U.S. PAIR:

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Courtesy copies were also sent by electronic means to the Patent Owner's litigation counsel at the following addresses:

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