

UNITED STATES BANKRUPTCY COURT
DISTRICT OF MASSACHUSETTS

In re:

TELEXFREE, LLC,
TELEXFREE, INC. and
TELEXFREE FINANCIAL, INC.,

Reorganized Debtors.

Chapter 11 Cases

14-40987-MSH
14-40988-MSH
14-40989-MSH

Substantively Consolidated

STEPHEN B. DARR, TRUSTEE
OF THE ESTATES OF TELEXFREE, LLC,
TELEXFREE, INC. and TELEXFREE
FINANCIAL, INC.,

Plaintiff,

v.
FRANZ BALAN, A REPRESENTATIVE OF A
CLASS OF DEFENDANT NET WINNERS,

Defendants.

Adversary Proceeding
No. 16-4006

STEPHEN B. DARR AS TRUSTEE
OF THE ESTATES OF TELEXFREE, LLC,
TELEXFREE, INC. and TELEXFREE
FINANCIAL, INC.,

Plaintiff,

v.
MARCO PUZZARINI AND SANDRO PAULO
FREITAS, REPRESENTATIVES OF A CLASS
OF DEFENDANT NET WINNERS,

Defendants.

Adversary Proceeding
No. 16-4007

**TRUSTEE'S MEMORANDUM IN OPPOSITION TO THE DEFENDANTS' MOTION
TO EXCLUDE TESTIMONY OF TIMOTHY MARTIN AND IN SUPPORT OF THE
ADMISSIBILITY OF TIMOTHY MARTIN'S EXPERT OPINION**

Stephen B. Darr as he is the Liquidating Trustee (the "Trustee") of the Reorganized Debtors TelexFree, LLC, TelexFree, Inc. and TelexFree Financial, Inc. (collectively, "TelexFree" or the "Debtors") submits this Post Trial Memorandum in Opposition to the Class Action Representatives' motion ("Motion") to exclude the expert opinion ("Expert Opinion") of



Timothy Martin of Huron Consulting Group LLC (“Huron”) which sets forth the methodology developed by Huron, under the supervision of Mr. Martin, to aggregate User Accounts attributable to each Participant to determine those Participants who are Net Winners and the amount of their Net Winnings. The Trustee submits his Memorandum in support of the admissibility of the methodology developed by Huron and detailed in the expert testimony of Mr. Martin and his Expert Report (the “Martin Report”) and his Reply (the “Reply Report”) as part of the Trustee’s *prima facie* case establishing the amount of the Net Winnings received by a Participant which may be recovered by the Trustee as a fraudulent transfer pursuant to Section 548 of the Bankruptcy Code.¹

INTRODUCTION

TelexFree was a massive Ponzi scheme that ensnared millions of individuals from multiple countries. When TelexFree collapsed, there were a total of approximately 17,000,000 “User Accounts” of which approximately 11,000,000 related to at least one purchase of a TelexFree voice over internet protocol (“VOIP”) plan or membership plan. (Martin Report, at p 11). These 11,000,000 User Accounts are attributable to more than 3,300,000 aggregations representing approximately \$3,000,000,000 in transactions. All of the transactions relating to these 17,000,000 User Accounts were reflected in twenty (20) terabytes² of information recorded on a system developed by TelexFree and commonly referred to as “SIG”. It was the Trustee’s duty to assemble and analyze all of this data and determine which Participants were the Net Losers and those who were the Net Winners. The Trustee’s task was made infinitely more

¹ On November 25, 2015, the Court entered an Order determining that TelexFree engaged in a Ponzi scheme, which Order was further entered as law of the case. [Docket No. 654] As a result, TelexFree is presumed to be insolvent and the Net Winnings to be fraudulent transfers. *See In re Bernard L. Madoff Inv. Sec. LLC*, 458 B.R. 87 (Bankr. S.D.N.Y. 2011).

² One terabytes equals 400,000,000 single typed written pages.

difficult by the fact that many Participants had multiple User Accounts and none of the 11,000,000 separate User Accounts were linked to their respective Participants. Accordingly, the Trustee was required to develop a methodology that he could use to link all of a Participant's User Accounts to determine whether in the aggregate a Participant received more or less than he/she invested in TelexFree. The Trustee's task was further complicated by the fact that a majority of the transactions were not direct transactions with TelexFree, but rather what has been previously described in detail as "Triangular Transactions." (Martin Report, at p. 11-12).

To address these issues and develop a methodology that permitted the Trustee to determine who were the Net Winners and Net Losers, the Trustee initially retained the services of Mesirow Financial Consulting and later Huron.³ Ultimately, after thousands of hours of analysis and testing, Huron, under the supervision of Mr. Martin, developed a methodology to link User Accounts. The methodology was modeled on a deterministic methodology, a recognized and reliable method for linking large data sets and tailored to fit the unique circumstances of the TelexFree case.

The Trustee offers Mr. Martin's Expert Opinion to establish the methodology to be applied in determining each individual Class Action Defendants' Net Winnings. The Class Action Representatives concede that Mr. Martin is qualified to render his Expert Opinion by virtue of his education, training, and experience, and that his testimony is relevant under Rule 702. They object to the admissibility of the Expert Opinion solely on reliability grounds, and have offered the Report of Joshua Dennis (the "Dennis Report"). For the reasons stated herein, the Court should overrule the objection, admit Mr. Martin's Expert Opinion, and find that the

³ The Trustee initially retained the services of Mesirow to assist him. The Trustee and several of the key people working on the TelexFree matter subsequently left Mesirow and joined Huron. Hereinafter, no distinction will be made for the work performed by those individuals while employed at Mesirow and the continuation of their work at Huron.

methodology set forth in the Martin Report and Reply Report of Timothy Martin should be applied to determine the individual Class Action Defendants' Net Winnings, subject to each individual Class Action Defendant's opportunity to offer evidence to dispute the amount of Net Winnings attributable to him/her.

FACTUAL STATEMENT

On April 13, 2014, TelexFree commenced the Chapter 11 proceedings in the United States Bankruptcy Court for the District of Nevada. Subsequently, the cases were transferred to the United States Bankruptcy Court for the District of Massachusetts, and on June 6, 2014, the Trustee was appointed. Substantially contemporaneously with TelexFree's commencement of its Chapter 11 cases, the Securities and Exchange Commission commenced a civil enforcement action against TelexFree, and the United States Attorney commenced a criminal investigation into the activities of TelexFree. In its criminal investigation, the United States, through the Department of Homeland Security, executed a search of the premises of TelexFree, seizing, among other items, computers and servers. (Martin Report, at p. 6; T. Martin, Day 1 at 32:17-24⁴). Thus, when the Trustee was appointed, he did not have access to any of the electronic records of TelexFree. The Trustee agreed to work cooperatively with various governmental agencies and departments to unravel the TelexFree Ponzi scheme. As part of their mutual cooperation, Homeland Security provided to the Trustee a forensic copy of the files located on the seized servers and computers so that the Trustee would have access to TelexFree's electronic records. (Martin Report, at p. 7; T. Martin, Day 1, at 34:14-20).⁵

⁴Reference is to transcript of testimony of trial held on November 23, 2020 and November 24, 2020.

⁵ Homeland Security seized from TelexFree 30 different servers, 20 computers and numerous laptops. The Trustee worked with Homeland Security to reassemble the TelexFree system so that the Trustee and Homeland Security could access and utilize the information contained thereon. (T. Martin, Day 1 at 36:13-20).

Based upon his investigation including interviews with interested parties, information provided by governmental authorities, and documents produced pursuant to Rule 2004 examinations, the Trustee obtained an understanding of the mechanics of the TelexFree scheme. (Martin Report, at p. 8; T. Martin, Day 1, at 37:5-13).

The Debtors purported to be in the business of providing a voice over internet protocol service. However, the actual business of the Debtors was the recruitment of new persons (“Participants”) to generate revenues for the Debtors, its principals, and existing Participants through the payment of membership fees. Each time a Participant purchased a VOIP plan or a membership plan, the Participant opened a new account (“User Account”). When opening a User Account, Participants were asked to input various categories of personal information into the TelexFree electronic system, including name, email address, physical address, cell and home phone, passwords, and similar information. (Martin Report, at p. 7).

User Accounts could be opened through Direct Transactions or Triangular Transactions. In the case of a Direct Transaction, the Participant paid their invoice for the VOIP or membership plan directly to TelexFree. In the case of a Triangular Transaction, the Participant paid their invoice to the Participant who recruited them, and the recruiting Participant would then use accumulated credits in the recruiting Participant’s accounts in satisfaction of the invoice and would retain the fee paid by the new Participant. (Martin Report, at pp. 7, 11, 12; T. Martin, Day 1 at 52:25-53:1-12).

Once a User Account was opened, Participants could receive credits based upon bonuses or commissions “earned” during their involvement in the scheme, including through the recruitment of other Participants. These credits could be redeemed for cash, transferred to

another Participant, or applied in satisfaction of an invoice as in the case of Triangular Transactions. (Martin Report, at p. 7; T. Martin, Day 1, at 49:24-50:1-2).

I. RECONSTRUCTION OF TELEXFREE'S RECORDS

Upon obtaining access to the electronically stored records, the Trustee's first objective was to obtain an understanding of the TelexFree record-keeping systems and the nature and amount of the information contained therein. The focus of the Trustee's investigation was the mechanics of SIG, which was the program used by TelexFree to track Participant activity once a User Account was opened, including the accumulation and use of credits, payments made by the Participant and amounts disbursed to Participants. Gaining an understanding of SIG was an enormous task. SIG contained more than a hundred tables containing billions of records. By running queries through SIG, Huron determined that there were four data tables in the SIG system that contained the principal information associated with the transactions related to TelexFree and Participants. (Martin Report, at p. 9). These tables were identified as follows:

1. Account Table, which contains records for each User Account registered with TelexFree;
2. Invoice Table, which contains a unique record of each Participant invoice generated by TelexFree for the purchase of a VOIP or membership plan. The invoices contain details including the type of plan purchased, the invoice amount, and how the invoice was satisfied, e.g., cash transfer to TelexFree or a credit transaction as part of a Triangular Transaction;
3. Transfer Table, which contains information about each transfer of credits within the TelexFree system, including requests by Participants to redeem credits for cash; and

4. Bonus Table, which contains information about each accretion of TelexFree credits into a Participant's User Account.

(Martin Report, at p. 9, T. Martin, Day 1, at 44:1-23, 44:9-18, and Trial Exhibit 7).

The Account Table contained 17,016,780 User Accounts. With respect to each User Account, the Account Table contained 44 fields of data. Each time a Participant bought a membership plan, a new User Account would be opened for that Participant. Thus, Participants often had multiple User Accounts. Further complicating matters, the Account Tables included User Accounts not only for Participants in TelexFree but also for Participants in Ympactus, which was a similar Ponzi scheme operated from Brazil by an affiliate of TelexFree.⁶ (Martin Report, at p. 11, T. Martin, Day 1 at 46:23-47:7, Trial Exhibit 8).

II. STEPS TO DISTINGUISH THE TELEXFREE PARTICIPANTS FROM THE YMPACTUS PARTICIPANTS

Because SIG did not distinguish between the User Accounts opened by Participants in the Ympactus Ponzi scheme from those User Accounts opened by Participants in the TelexFree Ponzi scheme, the first step was to identify and separate the Ympactus User Accounts from the TelexFree User Accounts. Huron was able to identify and separate the User Accounts by reference to the Invoice Tables. The Invoice Tables within the SIG system distinguish between invoices paid in U.S. dollars and invoices converted to U.S. dollars from Brazilian reals. (Martin Report, at p. 11). Huron determined that the real/dollar distinction was a reliable method to segregate transactions of Ympactus Participants from those of TelexFree Participants. Huron reviewed the Invoice Tables, which contained, among other fields, a "currency field" and an "exchange rate field." The currency field denoted the currency used to pay for the memberships,

⁶ Ympactus was a similar Ponzi scheme run by Messrs. Carlos Wanzeler and Carlos Costa in Brazil. When the Brazilian government shut down Ympactus in June 2013, Messrs. Wanzeler and Costa, along with James Merrill, continued the Ponzi scheme through TelexFree.

and the exchange rate field denoted the exchange rate if the currency was not in U.S. dollars. (Martin Report, at p. 11, T Martin, Day 1 at 47:8-49:1).

For 99.7% of the transactions where the currency field was noted with a “D” [denoting U.S. dollar], the exchange rate was populated with a zero. Conversely, for 99.8% of the transactions where the currency field was populated with an “R” [denoting Brazilian reals], the exchange rate was populated with a range of values from 1.98 to 2.37, which reflected exchange rates between the real and the U.S. dollar for the relevant periods. Huron concluded that the User Accounts associated with the Ympactus Participants could be separated from TelexFree Participants’ User Accounts based upon the currency field.

Huron verified the separation of the Ympactus User Accounts from the TelexFree User Accounts by comparing the payment of invoices in reals as opposed to payment in dollars and the timing of those payments. Substantially all of the invoices paid in reals were paid between February 2012 and August 2013. During that time period, substantially all of the activity was in Ympactus, and very little activity was in TelexFree. In June of 2013, Ympactus was shut down by the Brazilian authorities, and invoices paid with reals halted. Simultaneously, there was a substantial increase in invoices paid in U.S. dollars which coincided with the increase in the activity in the TelexFree business. (T. Martin, Day 1, at 48:4-49:1).

Therefore, Huron distinguished between the TelexFree Participants and the Ympactus Participants by using the currency field and eliminated approximately 4,000,000 Ympactus User Accounts from its analysis. (T. Martin, Day 1, at 48:4-25).

Even with the elimination of 4,000,000 User Accounts associated with Ympactus, there were approximately 13,000,000 User Accounts identified in SIG associated with TelexFree. Huron further reduced the 13,000,000 User Accounts to 11,000,000 by reviewing the Invoice

Tables and eliminating User Accounts for which there was not at least one paid invoice. (Martin Report, at p. 11).

III. DEVELOPMENT OF AGGREGATION METHODOLOGY BASED ON A MODIFIED DETERMINISTIC MODEL

Once the Ympactus User Accounts were identified and separated, the next step was to develop a methodology to link a Participant's User Accounts, which could range in number from one to thousands. The process of developing this methodology occurred over many months and included testing of multiple different alternatives to determine the best method in order to accomplish the linkage of these multiple accounts. The amount of data and the number of variables were substantial, and it was a daunting task presented to Huron to develop this methodology.⁷ (Martin Report, at p. 11, T. Martin, Day 1 at 54:16-58:15, and Trial Exhibit 8).

There are two widely recognized methodologies for data linkage, the deterministic and the probabilistic methods. Each methodology requires the development of identifiers, which is often a field of data (such as a person's name or phone number). The deterministic method "generates links based on the number of individual identifiers that match the available data set. Two records are considered a match under a deterministic record linkage procedure if all or a predetermined number of identifiers are identical." (Martin Report, at p. 14). "The Probabilistic method links data by determining the weighted probability of a match between two records by assigning weights to the various identifiers in the data set." (Martin Report, at p. 13; T. Martin, Day 1 at 59:1-24). The probabilistic method generally requires two sets of data for comparison, with one data set containing information known to be accurate. After extensive testing and experimentation, Huron modeled its methodology on the deterministic method, with

⁷ Huron spent over a thousand hours developing and testing its methodology in consultation with Participants, the Trustee, and other professionals.

modifications to address the unique circumstances of this case. (Reply Report, at p. 6; T. Martin, Day 1 at 58:16-61:11).

IV. EFFORTS TO DEVELOP IDENTIFIERS

The deterministic method utilizes identifiers to link data. Depending on the data, either one common identifier or a combination of identifiers can be used. Initially, Huron attempted to identify a single common identifier which could be utilized to link the User Accounts. Huron considered various Account Table fields as the common identifier. (T Martin, Day 1 at 64:2-65:8). For example, Huron at one point considered using the email address as a common identifier to link a Participant's User Accounts. However, after running numerous tests on this method, it proved to be unreliable because recruiting Participants often used their email addresses to open User Accounts for Participants whom they recruited. Accordingly, an email address alone was not sufficient because it would attribute numerous User Accounts to a recruiting Participant, as opposed to the recruited Participant. Thus, email address was rejected as a single common identifier. (T. Martin, Day 1 at 65:19-66:21).

Huron then considered using the name ascribed to the User Account as a single common identifier to link User Accounts. However, this methodology also proved inadequate. Participants would open User Accounts with variations of their names. For example, James Sample, Jim Sample, J. Sample, Sample Jim. Also, Participants did not always populate the name field when opening a User Account. Instead of a name, Participants might insert into the Account Table a series of letters, initials or fictitious names. Additionally, more than one person with the same name might have participated in the scheme. Accordingly, Huron determined that using the name field alone was not an adequate means to link User Accounts. (T. Martin, Day 1 at 66:22-67-10).

Ultimately, after running numerous tests, Huron determined that there was no one single identifier that could be used to link User Accounts and that it was necessary to develop a combination of identifiers to link the User Accounts (T. Martin, Day 1 at 69:12-72:11).

V. AGGREGATION OF ACCOUNTS THROUGH USE OF MULTI-IDENTIFIERS

Having determined that no single common identifier could be used to aggregate the User Accounts, Huron identified eight different fields to be used in combination to link the User Accounts. (Martin Report, at p. 15). Those fields are as follows:

1. Name;
2. Email address;
3. Home phone number;
4. Cellphone number;
5. Physical address, such as a street address;
6. Login, which was a unique one-word name created by Participants;
7. Password which the Participant created to access User Account details; and
8. Rep ID, or User Account identifier, which was a unique identifier generated by SIG for each User Account.

(Martin Report, at p. 15).

Using these eight data fields as identifiers, Huron developed a multi-step aggregation process which combined the different data fields, and combinations of portions of the data fields, to identify all the User Accounts associated with a Participant. The aggregation consisted of thirteen (13) independent steps that combined User Accounts through differing combinations of Participant data entered when opening the User Accounts. Each of the 13 steps aggregates User Accounts based on the respective step criteria, and the results of each step are compared to the

previously aggregated User Accounts for common identifiers (Martin Report, at pp. 17-19; T. Martin, Day 1, at 86-104, Trial Exhibits 16-23). The amount of aggregated User Accounts may increase after each step but does not decrease. An illustration of the aggregation process is set forth in Trial Exhibits 19 to 23; T. Martin, Day 1, at 85:17-105:19). Trial Exhibits 16 to 23 are attached hereto.

Step 1: Name and Email Address

Step 1 in the aggregation process used the name entered by the Participant as this was considered to be the most reliable data point. To reduce the aggregation of potentially unrelated User Accounts and to increase intended aggregations, spaces, numbers, and special characters were removed from the name column (referred to as normalizing). For example, John B. Doe would be adjusted to “johnbdoe”. A minimum number of characters (four) was required to be considered for aggregation. (Reply Report, at p. 7).

It is reasonable to assume that a Participant would want to include a valid email address in order to receive information about their User Account. Therefore, the first grouping was that of name and email address. To reduce the grouping of potentially unrelated accounts, email addresses without “@” and other necessary criteria were not considered because all valid email address require a certain format. (T. Martin, Day 1 at 76:5-79:25).

Trial Exhibit 16 of Exhibit “A” demonstrates that four User Accounts, 1, 2, 7, and 8 contain the name James Sample and the email address jsample@gmail.com, so these four User Accounts have been aggregated.⁸

Step 2: Name and Mobile Phone

⁸ There may have been other groups of User Accounts that could be separately aggregated, for example, User Accounts 3 and 9. For purposes of this example, the Trustee is selecting a particular aggregation and following only that aggregation through the 13 step process for illustrative purposes.

Step 2 combines cellular phone number with the Participant name. In the event the name and cellular phone number match those contained in two previously aggregated User Accounts (in this example, User Accounts 1, 2, 7, and 8), then those User Accounts were added to the aggregation. Trial Exhibit 17 of Exhibit “A” demonstrates that User Accounts 6, 12, and 15 contain the same name and cellular phone number of previously aggregated User Accounts 1, 2, 7, and 8 and therefore were included in the aggregation.

Step 3: Name and Home Phone

Step 3 involves comparison of the name and home telephone number. In the event the name and home phone number match those contained in two previously aggregated User Accounts, then those User Accounts were added to the aggregation. Trial Exhibit 18 of Exhibit “A” demonstrates that User Accounts 5, 11, and 14 contain the same name and home phone number of previously aggregated User Accounts 1, 2, 6, 7, 8, 12, and 15, and therefore were included in the aggregation.

Step 4: Name, Partial Cell Number, and Partial Phone Number

Step 5: Name, Login, and Physical Address

Step 4 involves comparison of the name, the final five digits of the cell phone number and the final five digits of the home telephone number (referred to as “Part Phone Key”). Huron used only the last five digits of the phone numbers for this step in order to eliminate the inconsistencies related to the inclusion or exclusion of country and area codes by a Participant. Step 5 involves the aggregation of the name, first three characters of the Participant’s login, and first five characters of their physical address (referred to as “End Key”). In the event that these combinations match those contained in two previously aggregated User Accounts, then those User Accounts were added to the aggregation. As set forth in Trial Exhibit 19 of Exhibit “A”, neither of these steps resulted in more User Accounts being added to the aggregation.

Step 6: Partial Name, Email, and Partial Phone Number

Step 6 involves comparison of a portion of a name (“Part Name Key”), the email address, and the Part Phone Key. In the event that these combinations match those contained in two previously aggregated User Accounts, then those User Accounts were added to the aggregation. As set forth in Trial Exhibit 20 of Exhibit “A”, User Accounts 4 and 10 contain the same combinations of this information as previously aggregated User Accounts 1, 2, 5, 6, 7, and 8. Similarly, User Account 13 contains the same combination of this information as previously aggregated User Accounts 14, and 15. As a result of Step 6, User Accounts 4, 10, and 13 were included in the aggregation.

Step 7: Part Name Key, Part Phone Key, Login Key, End Key

Step 8: Part Name Key, Email, Login Key, End Key

Step 9: Part Name Key, Login Key, Hash Key

Step 7 involves comparison of a combination of the Part Name Key, Part Phone Key, a portion of the login associated with the User Account (“Login Key”), and the End Key. Step 8 involves comparison of a combination of the Part Name Key, email address, Login Key, and End Key. Step 9 involves comparison of a combination of Part Name Key, Login key, and an aggregation field derived from the code generated by the encryption of the secondary password associated with the User Account (“Hash Key”). In the event that these combinations match those contained in two previously aggregated User Accounts, then those User Accounts were added to the aggregation. As set forth in Trial Exhibit 21 of Exhibit “A”, none of these steps resulted in additional User Accounts being added to the aggregation.

Step 10: Partial Name, Email, and Partial Phone Number

Step 10 involves comparison of a combination of a portion of the name (“Part Name Key2”), the email address, and the Part Phone Key. In the event that these identifiers match

those contained in two previously aggregated User Accounts, then those User Accounts were added to the aggregation. Trial Exhibit 22 of Exhibit “A” demonstrates that User Accounts 3 and 9 contain the same identifiers as previously aggregated User Accounts 6 and 12, and therefore were included in the aggregation.

Step 11: Part Name Key2, Part Phone Key, Login Key, End Key

Step 12: Part Name Key2, Email, Login Key, End Key

Step 13: Part Name Key2, Login Key, Hash Key

Steps 11 through 13 are similar to Steps 7 through 9, except that they use Part Name Key 2 rather than Part Name Key in combining fields of data. No additional aggregations result from Steps 11 to 13, and the sample aggregation process is complete. See Trial Exhibit 23 of Exhibit “A”.

VI. VERIFICATION

Having applied the aggregation algorithm based on the modified deterministic methodology to link User Accounts to ascertain the Net Losers and Net Winners, Huron then verified its results. Huron manually compared the results arrived at through the application of the aggregation algorithm to a manual review of a selected sample of User Accounts. (Martin Report, at pp. 19-20; Reply Report, at pp. 8-10). The manual review began with one randomly chosen User Account, followed by a search for other User Accounts with the same electronic mail address. Huron then searched for other User Accounts having the same phone numbers as those accounts that had a common electronic mail address. This search identified new electronic mail addresses and other identifiers for consideration, all the while entering the Participant name in a relatively consistent manner. (Martin Report, at pp.19-20). Huron also interviewed select Participants and compared the results of the aggregation algorithm with the User Account activity reported by the Participant.

After the initial testing, the aggregation algorithm was further verified by the results of the ePOC filing and claim resolution process. The aggregation algorithm developed by Huron served as the basis for the Trustee's establishment of an interactive internet portal ("Portal") for Participants to file electronic proofs of claim ("ePOCs"). The Portal was designed so that each Participant could enter their personal identifiers that were provided when establishing their User Accounts. If the personal identifiers entered by the Participant matched a portion of the personal identifiers associated with a User Account, the Portal would then present Participants with a listing of their aggregated User Accounts based upon the information input. Participants could accept or reject any of the User Accounts generated, add additional User Accounts, adjust transactions, or input additional data before submitting their claim. One of the changes that a Participant could make through the ePOC system was to add or subtract User Accounts. Approximately 132,000 claims were filed through the ePOC system and, of those claims, more than ninety six percent (96%) did not modify the User Account list provided by the algorithm. (Martin Report, at p. 20; T Martin, Day 1 at 111:12-114:5).

ARGUMENT

1. The Admissibility Standard for Expert Testimony Does Not Require the Expert's Methodology to be Infallible.

Admissibility of expert testimony is governed by Federal Rule of Evidence 702 and the Supreme Court's decision in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993). *C.W. ex rel. Wood v. Textron, Inc.*, 807 F.3d 827, 834 (7th Cir. 2015). In performing its gatekeeper role, a court should evaluate: (1) the proffered expert's qualifications; (2) the reliability of the expert's methodology; and (3) the relevance of the expert's testimony. *Gopalratnam v. Hewlett-Packard Co.*, 877 F.3d 771, 779 (7th Cir. 2017). Here, the Defendants

concede as to steps one and three that Mr. Martin is qualified and that his expert testimony is relevant.

In evaluating reliability, a court “*may* consider one or more of the more specific factors that *Daubert* mentioned,” such as testing, peer review, error rates, and acceptability in the relevant scientific community, but these factors “do not constitute a ‘definitive checklist or test.’” *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 150 (1999) (emphasis in original). The court has “considerable leeway” in both “how to determine reliability” and “its ultimate conclusion.” *Id.* at 152–53. The test of reliability is “a flexible one” and must be “tied to the facts of a particular case.” *Id.* at 150 (citations and quotations omitted); *C.W.*, 807 F.3d at 834-35 (“reliability is determined on a case-by-case basis”).

Daubert does not require that the proffering party “carry the burden of proving to the judge that the expert’s assessment of the situation is correct.” *Milward v. Acuity Specialty Products Group, Inc.*, 639 F.3d 11, 15 (1st Cir. 2011), *cert. denied*, 132 S. Ct. 1002 (2012) (citation and quotation omitted). Instead, the proponent of the expert testimony must show only “by a preponderance of proof” that the expert has used a “sound and methodologically reliable” reasoning process to reach his or her conclusion, and that the expert, “whether basing testimony on professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field.” *Kumho Tire*, 526 U.S. at 152; *Daubert*, 509 U.S. at 592 & n. 10. The First Circuit has cautioned that:

So long as an expert’s scientific testimony rests upon ‘good grounds,’ based on what is known, it should be tested by the adversarial process, rather than excluded for fear that jurors will not be able to handle the scientific complexities. Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence.

Milward, 639 F.3d at 15. “[R]ejection of expert testimony is the exception rather than the rule.” Fed. R. Evid. 702, advisory committee notes (2000 Amendments).

Upon the admission of the methodology, the Trustee can apply the methodology to determine each Class Action Defendant’s Net Winnings and that calculation, in conjunction with the Ponzi presumption, will constitute the Trustee’s *prima facie* case. The burden of production will then shift to the Class Action Defendant to offer evidence to rebut the amount of the Net Winnings attributable to him/her. However, a Class Action Defendant cannot challenge the admissibility of the methodology. The Court will then weigh all of the evidence and decide if the Trustee has satisfied his burden of proof and the amount of the judgment that should be entered in favor of the Trustee.

2. Huron’s Incorporation of the Name Field Provided by Participants to Aggregate User Accounts as Part of its Methodology is Reliable.

The Class Action Representatives acknowledge the need for an aggregation model for User Accounts to determine whether a given Participant was a Net Winner or Net Loser. (Dennis Report, at p. 16). As set forth in detail in Mr. Martin’s reports, the thirteen-step iterative process of combining data fields was developed through rational application of empirical methodology to address the unique circumstances presented. The Class Action Representatives’ criticisms of Huron’s use of the name data field as an anchoring field in its multi-step aggregation methodology pertain solely to weight and not admissibility.

Huron determined after conducting extensive analysis of the data that no one single common identifier could be reliably used to link the User Accounts. Notably, Huron concluded that using the name field ascribed to the User Account, alone as a single common identifier, was inadequate. However, Huron determined that the name field was the best indicator of a

Participant's User Accounts when analyzed in conjunction with seven other fields that could be categorized from the TelexFree data. As set forth in the Reply Report, at ¶¶ 15-16, since Participants could redeem credits for cash directly from TelexFree, it was reasonable to assume that Participants would associate their name with the User Account. A Participant's name was more likely to remain constant when compared to other identifiers over the approximately two-year operation of TelexFree, and a Participant's name remained distinct while other field information may be shared, such as addresses among family members.

Huron developed its thirteen-step aggregation methodology to identify all of the User Accounts associated with a Participant by utilizing different combinations of the eight data fields, where the results of each step were compared to the previously aggregated User Accounts for common identifiers. The amount of aggregated User Accounts could only increase after each step but not decrease. Huron also developed an algorithm that could identify "part name" matches for the name field to capture multiple variations of a Participant's name, which was incorporated into the process.

Huron tested the application of its aggregation methodology for reliability through manual reviews of sample User Accounts and through interviews of select Participants to cross-reference the aggregation results. The ePOC claim resolution process provided further verification of the reliability of the aggregation methodology, where approximately 132,000 claims were filed and more than ninety six percent (96%) of the claimants did not modify the User Account list provided by the aggregation methodology.

The Class Action Representatives concede that Huron's methodology was developed through empirical evaluation of the data and subsequent testing for reliability. Mr. Martin has offered a rational, data-driven explanation for employing Huron's multi-step aggregation

methodology that offers multiple indicia of reliability. The admissibility standard does not require more. *See Cook v. Rockwell Int’l Corp.*, 580 F. Supp. 2d 1071, 1085 (D. Colo. 2006) (“The evidentiary requirement of reliability is lower than the merits standard of correctness, . . . and gaps or inconsistencies in an expert’s reasoning may go to the weight of the expert evidence, not its admissibility” (citations omitted)). Any challenge by the Class Action Representatives to the reasonableness of Huron’s assumptions in using the name field as an anchoring field goes to weight and not admissibility. *Id.* at 1118; *United States v. Cavely*, 318 F.3d 987, 997-98 (10th Cir. 2003). In the present case, the Class Action Representatives have had an opportunity to test Mr. Martin’s assumptions through cross-examination and the admission of the Dennis Report.

3. Huron’s Development and Use of a Modified Deterministic Model is Reliable.

The Class Action Representatives concede that the deterministic model is a generally accepted methodology for linking records. Motion, at pp. 16, 20. Nevertheless, they argue that Huron could have devised a hypothetical alternative aggregation methodology based on a pure probabilistic model. This criticism is not a basis for inadmissibility because Huron’s methodology was developed through a sound and empirical process, and the Trustee need not demonstrate that Huron’s methodology was the best or only conceivable methodology.

Huron considered many variables and alternatives and performed extensive analysis and testing to develop an aggregation model that would best fit the unique circumstances presented. The thirteen-step iterative process of combining data fields was based on a deterministic model template that was tailored to provide flexibility for evaluating data at each step. Huron’s modified deterministic model incorporated elements commonly associated with a probabilistic model. For example, the multi-step process applied an aspect of “weighting” to the data fields, and Huron used “partial keys” to factor in variations in data input (e.g., “Jmple” would capture

the names “James Sample,” “James A. Sample,” and “J. Sample”). (Reply Report, at p. 6; T. Martin, Day 1, at p. 60:25-61:7). The resulting modified model also made each step reproducible, allowing Huron to demonstrate the process to Participants and allow them to challenge the inclusion or omission of a particular User Account, resulting in both increased transparency and accuracy. (T. Martin, Day 1, at p. 60:23-61:10).

The Class Action Representatives’ assertion that Huron could have developed an alternative hypothetical model based on a pure probabilistic model is not a basis for finding that Huron’s well-founded methodology was in fact unreliable. For admissibility, the Trustee is not required to prove that the proposed expert methodology is infallible; he need only show that such methodology rests on “good grounds”, “based on what is known.” *Milward*, 639 F.3d at 15. It is indisputable that Huron, faced with a monumental task, developed its aggregation methodology through a logical and data-driven reasoning process characterized by intellectual rigor. *See Kumho Tire*, 526 U.S. at 152. Although there are many reasons why a pure probabilistic model would be a poor fit under these circumstances,⁹ the Trustee need not disprove the Dennis Report, or demonstrate that Huron’s methodology is the “best or most reliable methodology” out of all conceivable alternatives, to establish the admissibility of Mr. Martin’s expert testimony. *Cook*, 580 F. Supp. 2d at 1085.

Even if the Court were to entertain the Class Action Representatives’ assertion that “missed links” in the aggregation process somehow resulted in under-aggregation (Motion, at p.

⁹ Because the probabilistic method links data by determining the weighted probability of a match between two records by assigning weights to the various identifiers, it generally requires the existence of one data set containing information known to be correct, i.e. an “answer key.” Here, there was no answer key available given that the Account Table was the single data source for 17,000,000 User Accounts. (T. Martin, Day 1, at 58:9-15). Additionally, the probabilistic method would not provide for evaluation and reproduction of multiple aggregation steps and would only provide the results of record linkage based upon a “weighting” threshold. (Martin Report, at p. 19; Reply Report, at p. 6).

19), this argument is based on the fallacious premise that User Accounts having entirely different names should be treated as belonging to a single Participant so long as there are any other common identifiers, such as a common email address.¹⁰ This alternative method of aggregation would inevitably lead to over-aggregation of User Accounts to individual Participants, leading in some cases to the perverse result of allowing Net Winners to offset their winnings with the losses of those whom they recruited into the scheme. Notwithstanding the illogicality of this alternative, at best, the Class Action Representatives have established merely a battle of contradictory expert opinions, where both experts' testimony should be admitted. *Kumho Tire*, 526 U.S. at 153 (If an expert's testimony lies within "the range where experts might reasonably differ" the factfinder should "decide among the conflicting views of different experts.").

4. The Quality of the Underlying Data and the Accuracy of the Aggregation Results are Not Appropriate Bases for Challenging Reliability.

The Class Action Representatives criticize Huron's methodology for relying on "unverified", "user entered data" (Motion, at pp. 13, 17). However, it is well-established that the reliability of an expert's methodology is not determined by the "the quality of the data used in applying the methodology." *Manpower, Inc. v. Ins. Co. of Pa.*, 732 F.3d 796, 806 (7th Cir. 2013).¹¹ "Assuming a rational connection between the data and the opinion—as there was

¹⁰ Participants often shared an email address, physical address, or phone number. The majority of cases cited in the Dennis Report reflect one of three scenarios: a) User Accounts held in separate names among an individual and separate entities, including corporations, or among multiple corporations; b) User Accounts held in separate names that appeared to involve family members sharing contact information; and c) Accounts held in separate names that shared identifying information due to the relationship between a TelexFree recruiting Participant and those whom the promoter recruited into the scheme, or among multiple Participants recruited by one or more promoters.

¹¹ Although the Trustee need not prove the accuracy of the underlying data, it bears noting that Huron undertook efforts to "normalize the data" input by Participants to increase accuracy and correct for incomplete information. (T. Martin, Day 1 at 62:16-63:22). For example, Huron ran tests on email addresses and corrected for mismatches, such as by removing a blank space. Similarly, in the context of matching names, Huron removed spaces, removed numeric characters, and established partial keys.

here—an expert’s reliance on faulty information . . . does not go to admissibility.” *Id.* at 809 (citation omitted). *See also Toney v. Quality Res., Inc.*, 323 F.R.D. 567, 579 (N.D. Ill. 2018) (where proffered expert’s methodology to determine whether phone numbers were registered to cellular phones included comparing outgoing call data to cell block identifier and ported number lists, rebuttal expert’s criticism that proffered expert had used the wrong list raised “at best” the possibility of a “flawed assumption” that goes to weight not admissibility).

Similarly, challenges to the accuracy of the aggregation results of Huron’s methodology pertain only to weight and not admissibility. “The focus” of the Court’s *Daubert* inquiry “must be solely on the principles and methodology, not on the conclusions they generate.” *Toney*, 323 F.R.D. at 579 (citation omitted); *Manpower*, 732 F.3d at 806 (“The soundness of the factual underpinnings of the expert’s analysis and the correctness of the expert’s conclusions based on that analysis are factual matters to be determined by the trier of fact . . . Rule 702’s requirement that the district judge determine that the expert used reliable methods does not ordinarily extend to the reliability of the conclusions those methods produce—that is, whether the conclusions are unimpeachable.” (internal citations omitted)). The Trustee need not demonstrate that Huron’s methodology is infallible, and the Class Action Representatives’ isolated criticisms based on anecdotal evidence are not determinative of admissibility. *Id.*; *Milward*, 639 F.3d at 15.¹²

¹² Although the Trustee need not disprove any asserted inaccurate result, the example offered by the Class Action Representatives relating to the Zagarella family is inapposite (Motion, at p. 22). The Zagarellas filed several proofs of claim through the Portal established by the Trustee, but rather than inputting personal identifying characteristics in order to access the aggregation algorithm, they manually inserted claim amounts with no documentation. The Zagarellas subsequently provided the Trustee with a manual list of several hundred User Accounts in which they asserted an interest, and Huron then used this information to locate other User Accounts through TelexFree’s electronic records. Because the Zagarellas did not attempt to reconcile their User Accounts using the aggregation methodology established by Huron, their claims dispute is not relevant to the Expert Opinion.

To the extent that the aggregated results are not 100% accurate, the Court must not let the perfect be the enemy of the good. Each individual Class Action Defendant will still have an opportunity to offer evidence to dispute the User Accounts which the Trustee asserts are linked to that individual Participant and the amount of Net Winnings attributable to him/her.

5. The Steps Taken by Huron to Verify the Aggregation Methodology, While Not Necessary to Establish Its Admissibility, Lends Further Support to the Use of the Methodology.

An examination of the rational, data-driven process through which Huron developed its aggregation methodology and its application definitively establish the methodology's reliability and the admissibility of Mr. Martin's expert testimony. The fact that Huron decided to employ additional verification methods to ensure reliability, including the ePOC claims resolution process, while not required for admissibility, lends further support as to its reliability.

Of the substantial number of Participants (more than 130,000) who filed claims through the ePOC process, 96.97% of those who matched into an aggregation by providing at least four common identifiers did not subsequently dispute the algorithm-aggregated User Accounts. To the extent that the Court considers the ePOC data for reliability purposes, the Class Action Representatives' criticism as to the sufficiency of the sample size of the ePOC Participants compared to the total pool of Participants goes to weight and not admissibility. *See Marvin Lumber and Cedar Co. v. PPG Industries, Inc.*, 401 F.3d 901, 916 (8th Cir. 2005) (arguments that sample size was too small and samples were not from representative geographical cross-section go to the credibility, not the admissibility, of expert testimony); *U.S. Info. Sys., Inc. v. Int'l Bhd. of Elec. Workers Local Union No. 3, AFL-CIO*, 313 F. Supp. 2d 213, 232 (S.D.N.Y. 2004) ("small sample size goes to the weight rather than to the reliability (and admissibility) of a study."); *A & M Records, Inc. v. Napster Inc.*, No. C9905183MHP, 2000 WL 1170106, at *3-4

(N.D. Cal. Aug.10, 2000) (error in identifying universe of target population did not affect admissibility of expert's testimony).

Huron's other verification efforts, including manual testing of the aggregation methodology and hundreds of hours' of interviews with Participants regarding their User Accounts, provide additional support for reliability. Through the interviews, Huron found several instances where Participants acknowledged ownership of User Accounts that they had not initially identified when presented with information from Huron's aggregation methodology. If anything, these verification efforts demonstrate the reliability of Huron's methodology and the thoroughness with which Huron approached its task.

6. The Exclusion of Credit Transfers from the Computation of Net Winnings/Net Losses is Consistent with the Treatment of Triangular Transactions.

In computing Net Winnings, Huron included credits redeemed with TelexFree either directly or through Triangular Transactions as well as credits purchased by a Participant from TelexFree. Huron excluded credit transfers that were solely between Participants and unrelated to the purchase of a membership or VOIP plan. This protocol is consistent with the definition of Net Equity and recognizes the difference between a credit transfer that impacted TelexFree's assets and liabilities and a credit transfer that had no impact on TelexFree's assets and liabilities because it was only between Participants.

A transaction where a Participant purchases credits directly from TelexFree is included because it is a direct exchange of property of the Participant (cash) for property of TelexFree, a credit which could subsequently be redeemed for cash, used in a Triangular Transaction or sold to another person for cash. In a Triangular Transaction, a recruited Participant purchased a membership plan and was invoiced by TelexFree for the amount of the membership fee. The

recruited Participant paid the invoice amount to the recruiting Participant, who in turn satisfied the invoice by redeeming his/her credits. (Martin Report, at p. 7). The Court recognized in prior litigation that the Triangular Transactions involved a transfer of an interest of TelexFree in property. *See Proposed Findings of Fact and Conclusions of Law on Cross-Motions for Summary Judgment, Darr v. Dos Santos*, A.P. No. 15-4055, (Bankr. D. Mass. Dec. 18, 2017) [docket no. 98, at p. 19]. These proposed findings and conclusions were accepted and adopted by the District Court, and the judgment of the District Court was affirmed on appeal. *See Judgment, Darr v. Dos Santos*, C.A. 18-40007-TSH, (D. Mass. Sep. 26, 2018) [docket no. 14]; *aff'd, In re TelexFree, LLC*, 941 F.3d 576 (1st Cir. 2019).

In affirming the District Court, the First Circuit Court of Appeals held that:

The bankruptcy court carefully evaluated the substance of the TelexFree scheme when it approved the trustee's net equity formula. The formula recognizes that membership fees paid directly to TelexFree – in which TelexFree indisputably would have had a property interest – *are functionally the same as membership fees that were paid to recruiting participants as part of a triangular transaction.* (emphasis added).

TelexFree, 941 F.3d at 584.

The First Circuit found that the Triangular Transactions were at most voidable, and that TelexFree had a property interest in funds obtained fraudulently from investors. The First Circuit further observed that the Triangular Transaction could not have occurred without TelexFree's active involvement, since a recruiting Participant had no authority to let a new Participant into the TelexFree scheme unilaterally. *Id.* It is TelexFree's indispensable participation in the Triangular Transaction that created the property interest of the estate and, hence, the transfer of that property interest.

In contrast, a transfer of credits exclusively between Participants consists merely of the transfer of accumulated credits from one Participant to another Participant. TelexFree is not a

party to the transaction and has no interest in the transaction.¹³ No membership plan or VOIP plan was purchased or sold. No funds were due to TelexFree. The property being exchanged—the buyer’s cash for the sellers’ credits—does not involve property of TelexFree. The transaction is bilateral, not triangular as suggested by the Class Action Representatives. Accordingly, Huron appropriately excluded credit transfers solely between Participants, which are distinguishable from credit transfers involving Triangular Transactions and direct purchases of credits from TelexFree. *See In re TelexFree, LLC*, 941 F.3d 576, 583 (1st Cir. 2019) (TelexFree had a property interest in funds paid to purchase a membership plan pursuant to a Triangular Transaction); *In re Trailer Park Acquisition, LLC*, A.P. No. 11-2728, 2012 Bankr. LEXIS 3389, at *12 (Bankr. S.D. Fla. 2012) (statutory requirements that an interest of the debtor in property must have been transferred in order for a trustee to maintain a claim for fraudulent transfer); *In re Phila. Entm’t & Dev. Partners, L.P.*, 611 B.R. 51, 69 (Bankr. E.D. Pa. 2019) (a threshold requirement for a fraudulent transfer claim is that the thing transferred be an interest of the debtor in property).

The exclusion of credit transfers in computing Net Winnings is consistent with the definition of Net Equity established earlier in the case in determining allowed claims:

The amount invested by the Participant into the Debtors’ scheme, including amounts paid pursuant to Triangular Transactions, less amounts received by the Participant from the Debtors’ scheme, including amounts received pursuant to Triangular Transactions.

[Docket No. 687]

Net Equity specifically includes monies received and disbursed from Triangular Transactions, as TelexFree had a property interest in these funds. Monies retained by a

¹³ TelexFree collected a *de minimus* 3-credit processing fee to record in SIG the transfer of credits between Participants.

recruiting Participant in a Triangular Transaction that otherwise should have been paid to TelexFree for the purchase of a membership plan depleted the assets of TelexFree and therefore reduces the claim of the recruiting Participant (and should correspondingly increase that Participant's Net Winnings). Conversely, monies paid by a recruited Participant to a recruiting Participant in a Triangular Transaction for the purchase of a membership plan, and retained by the recruiting Participant, increases the claim of the recruited Participant (and should correspondingly decrease that Participant's Net Winnings). This formula was the basis for the claims resolution process. By specifically referencing and including Triangular Transactions in the definition of Net Equity, the formula excluded other types of transfers in which TelexFree was not a party. *See In re Worldcom, Inc.*, No. 02-13533, 2007 Bankr. LEXIS 198 (Bankr. S.D.N.Y. 2007) (referencing standard contract maxim of *expressio unium est exclusio alterius* – the expression of one thing is the exclusion of another).

7. Huron's Assumption with Respect to Cash Transferred in Triangular Transactions was Appropriate and is Not a Basis for Challenging Reliability.

The method of purchasing membership plans through Triangular Transactions added an additional layer of complexity to the determination of Net Winners. In order to account for Triangular Transactions in calculating a Participant's Net Winnings, Huron assumed that the exchange between a recruited Participant and a recruiting Participant in a Triangular Transaction was a cash exchange. Huron based this assumption on interviews with multiple Participants who informed Huron that a recruited Participant typically paid the amount of a membership fee to a recruiting Participant in cash in exchange for the recruiting Participant's use of accumulated credits to satisfy the TelexFree invoice. This assumption comports with the economic reality, as the recruiting Participant could have otherwise redeemed his/her credits directly with TelexFree

on a dollar-for-dollar basis. Thus, a recruiting Participant's Net Winnings are increased for cash deemed to have been received in a Triangular Transaction, and a recruited Participant's Net Winnings are decreased for cash deemed to have been paid in a Triangular Transaction.

The methodology used to determine the impact of a Triangular Transaction on a Participant's Net Winnings is well-reasoned and factually supported. To the extent that the Class Action Representatives seek to challenge the reasonableness of Huron's underlying assumption, such challenge goes to the weight and not the admissibility of Mr. Martin's expert testimony. *Manpower*, 732 F.3d at 808; *Cook*, 580 F. Supp. 2d at 1117-18.

Moreover, every individual Participant will still have the opportunity to challenge the Trustee's aggregation determinations of Net Winnings by submitting evidence demonstrating that his/her Triangular Transactions were implemented on a basis other than a \$1 for 1 credit, and evidence of other User Accounts to the extent that such accounts were not already accounted for.

CONCLUSION

The Court has had the opportunity to consider the Expert Report, the Dennis Report and the Reply Report. Mr. Martin has testified as to the development of and basis for his methodology, and he has been subject to thorough cross-examination. The Class Action Representatives have had an opportunity to offer the testimony of their expert Mr. Dennis in support of their Motion. Accordingly, for the reasons set forth herein, Mr. Martin's Expert Opinion should be admitted, and the methodology as set forth in the Expert Report should be applied to determine the individual Class Action Defendants' Net Winnings, subject only to an individual Class Action Defendant offering evidence to rebut the amount of Net Winnings so calculated.

If the Court admits the methodology proposed by the Trustee and thereby allows the Trustee to utilize that methodology as evidence of the amount of each Class Action Defendant's Net Winnings, the Trustee proposes the following procedure for proceeding with the case:

1. The Trustee shall prepare in accordance with the methodology a statement for each Class Action Defendant, setting forth the User Accounts identified as belonging to each respective Class Action Defendant and the corresponding amount of Net Winnings (the "Statement"). The Statement shall be served on each Class Action Defendant against whom the Trustee seeks a judgment.
2. Each domestic Class Action Defendant shall have thirty (30) days to respond to the Statement, and each foreign Class Action Defendant shall have forty-five (45) days to respond (the "Response").
3. The Response shall set forth in detail the basis on which the respective Class Action Defendant disputes the Statement and may incorporate supporting evidence.
4. If no timely Response is filed by any particular Class Action Defendant, the Statement shall constitute conclusive evidence upon which a Judgment for the Trustee may be entered by the Court.
5. If a timely Response is filed, the Court shall determine whether Net Winnings can be calculated based on the Statement, Response, and any additional submitted evidence, or whether a further evidentiary hearing is required.

STEPHEN B. DARR,
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By his counsel,

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Dated: February 23, 2021
792600

Plaintiff's Identification No. 16

Step 1: Name Key, Email Key

| Step 1 | |
|--------------|--------------------------------|
| User Account | name_key, email_key |
| 1 | JamesSamplesample@gmail.co ✓ |
| 2 | JamesSamplesample@gmail.co ✓ |
| 3 | JimSamplesample@yahoo.com |
| 4 | JamesJSamplesample@gmail.com |
| 5 | Excluded |
| 6 | JamesSamplesample@yahoo.com |
| 7 | JamesSamplesample@gmail.co ✓ |
| 8 | JamesSamplesample@gmail.co ✓ |
| 9 | JimSamplesample@yahoo.com |
| 10 | JamesJSamplesample@gmail.com |
| 11 | Excluded |
| 12 | JamesSamplesample@yahoo.com |
| 13 | JamesJSamplesample@hotmail.com |
| 14 | JamesSamplesample@hotmail.com |
| 15 | JamesSamplesample@hotmail.com |

- **The User Accounts were first grouped by a combination of the name key and email key associated with the User Accounts.**
 - User Accounts 1,2,7 and 8 aggregated in Step 1 represented by the red checkmark.
 - For the purpose of this presentation:
 - Green highlights indicate User Accounts which match at a particular Step and will be part of the example aggregation.
 - Please note that additional User Accounts may also aggregate with each other in each step but are not highlighted for the purpose of this example.
 - Red checkmarks also indicate the step at which a User Account was aggregated with other User Accounts.

Plaintiff's Identification No. 17

Step 2: Name Key, Cel Key

| | Step 1 | Step 2 |
|--------------|-------------------------------------|---------------------------|
| User Account | name_key, email_key | name_key, cel_key |
| 1 | JamesSamplejsample@gmail.c ✓ | JamesSample16175512 |
| 2 | JamesSamplejsample@gmail.c ✓ | JamesSample16175551212 |
| 3 | JimSamplejsample@yahoo.com | JimSample6175551212 |
| 4 | JamesJSamplejsample@gmail.com | JamesJSample16175551212 |
| 5 | Excluded | JamesSample5551212 |
| 6 | JamesSamplejsample@yahoo.com | JamesSample16175 ✓ 212 |
| 7 | JamesSamplejsample@gmail.c ✓ | JamesSample16175512 |
| 8 | JamesSamplejsample@gmail.c ✓ | JamesSample16175551212 |
| 9 | JimSamplejsample@yahoo.com | JimSample6175551212 |
| 10 | JamesJSamplejsample@gmail.com | JamesJSample16175551212 |
| 11 | Excluded | JamesSample5551212 |
| 12 | JamesSamplejsample@yahoo.com | JamesSample16175 ✓ 212 |
| 13 | JamesJSamplejsample@hotmail.co m | JamesJSample16175551212 |
| 14 | JamesSamplejsample@hotmail.com | JamesSample5551212 |
| 15 | JamesSamplejsample@hotmail.com | JamesSample16175 ✓ 212 |

- The User Accounts were then independently grouped by the combined name key and cel key
 - In Step 2, User Accounts 2,6,8,12 and 15 have the same combination of name key and cel key.
 - For a new User Account to join the aggregation, the User Account group identified above must overlap with two or more previously aggregated User Accounts.
 - Because three previously unaggregated User Accounts (6,12&15) overlap with two previously aggregated User Accounts (2&8), 6,12&15 join the aggregation (indicated by the red checkmarks).
 - All User Accounts highlighted in green are now part of the aggregation.

Plaintiff's Identification No. 18

Step 3: Name Key, Fone Key

| | Step 1 | Step 2 | Step 3 |
|--------------|--------------------------------|-------------------------|------------------------|
| User Account | name_key, email_key | name_key, cel_key | name_key, fone_key |
| 1 | JamesSamplesamplemail.com ✓ | JamesSample16175512 | JamesSample121255777 |
| 2 | JamesSamplesamplemail.com ✓ | JamesSample16175551212 | JamesSample212555777 |
| 3 | JimSamplesample@yahoo.com | JimSample6175551212 | JimSample1212555777 |
| 4 | JamesJSamplesample@gmail.com | JamesJSample16175551212 | JamesJSample1212555777 |
| 5 | Excluded | JamesSample5551212 | JamesSample1215777 ✓ |
| 6 | JamesSamplesample@yahoo.com | JamesSample16175212 ✓ | JamesSample121255777 |
| 7 | JamesSamplesamplemail.com ✓ | JamesSample16175512 | JamesSample121255777 |
| 8 | JamesSamplesamplemail.com ✓ | JamesSample16175551212 | JamesSample212555777 |
| 9 | JimSamplesample@yahoo.com | JimSample6175551212 | JimSample1212555777 |
| 10 | JamesJSamplesample@gmail.com | JamesJSample16175551212 | JamesJSample1212555777 |
| 11 | Excluded | JamesSample5551212 | JamesSample1215777 ✓ |
| 12 | JamesSamplesample@yahoo.com | JamesSample16175212 ✓ | JamesSample121255777 |
| 13 | JamesJSamplesample@hotmail.com | JamesJSample16175551212 | JamesJSample1212555777 |
| 14 | JamesSamplesample@hotmail.com | JamesSample5551212 | JamesSample1215777 ✓ |
| 15 | JamesSamplesample@hotmail.com | JamesSample16175212 ✓ | JamesSample121255777 |

- The User Accounts were then independently grouped by the combined name key and fone key
- As the process continues through Step 3, User Accounts 5, 11 and 14 join the aggregation as represented by the red checkmarks.

Plaintiff's Identification No. 19

Steps 4 and 5:

| User Account | Step 1 name_key, email_key | Step 2 name_key, cel_key | Step 3 name_key, fone_key | Step 4 name_key, part_phone_key | Step 5 name_key, login_key, end_key, |
|--------------|-------------------------------------|--------------------------------|---------------------------------|---------------------------------------|-----------------------------------------------|
| 1 | JamesSamplej ple@gmail.com ✓ | JamesSample1617 5551212 | JamesSample121 2555777 | JamesSample512 1255777 | JamesSamplejs a100Ma |
| 2 | JamesSamplej ple@gmail.com ✓ | JamesSample1617 5551212 | JamesSample212 555777 | JamesSample512 1255777 | JamesSamplejs a100Ma |
| 3 | JimSamplejsam ple@yahoo.com | JimSample617555 1212 | JimSample12125 55777 | JimSample51212 55777 | JimSamplejsa10 0Ma |
| 4 | JamesJSamplejsam ple@gmail.com | JamesJSample161 75551212 | JamesJSample12 12555777 | JamesJSample51 21255777 | JamesJSamples am100Ma |
| 5 | Excluded | JamesSample5551 212 | JamesSample ✓ 2555777 | JamesSample512 1255777 | JamesSamplesa m10Mai |
| 6 | JamesSamplejsam ple@yahoo.com | JamesSample1 ✓ 5551212 | JamesSample121 2555777 | JamesSample512 1255777 | JamesSamplesa m100Ma |
| 7 | JamesSamplejs ✓ ple@gmail.com | JamesSample1617 551212 | JamesSample121 2555777 | JamesSample512 1255777 | JamesSamplejs a100Ma |
| 8 | JamesSamplejs ✓ ple@gmail.com | JamesSample1617 5551212 | JamesSample212 555777 | JamesSample512 1255777 | JamesSamplejs a100Ma |
| 9 | JimSamplejsam ple@yahoo.com | JimSample617555 1212 | JimSample12125 55777 | JimSample51212 55777 | JimSamplejsa10 0Ma |
| 10 | JamesJSamplejsam ple@gmail.com | JamesJSample161 75551212 | JamesJSample12 12555777 | JamesJSample51 21255777 | JamesJSamples am100Ma |
| 11 | Excluded | JamesSample5551 212 | JamesSample ✓ 2555777 | JamesSample512 1255777 | JamesSamplesa m10Mai |
| 12 | JamesSamplejsam ple@yahoo.com | JamesSample1 ✓ 5551212 | JamesSample121 2555777 | JamesSample512 1255777 | JamesSamplesa m100Ma |
| 13 | JamesJSamplejsam ple@hotmail.com | JamesJSample161 75551212 | JamesJSample12 12555777 | JamesJSample51 21255777 | JamesJSamples am100Ma |
| 14 | JamesSamplejsam ple@hotmail.com | JamesSample5551 212 | JamesSample ✓ 2555777 | JamesSample512 1255777 | JamesSamplesa m10Mai |
| 15 | JamesSamplejsam ple@hotmail.com | JamesSample ✓ 5551212 | JamesSample121 2555777 | JamesSample512 1255777 | JamesSamplesa m100Ma |

- **No User Accounts were added to the aggregation in Step 4 or Step 5.**
- Because neither step resulted in groupings which overlapped with two previously aggregated User Accounts, no additional User Accounts joined the aggregation.

Plaintiff's Identification No. 20

Step 6: Part Name Key, Email Key, Part Phone Key

| User Account | Step 1 name_key, email_key | Step 2 name_key, cel_key | Step 3 name_key, fone_key | Step 4 name_key, part_phone_key | Step 5 name_key, login_key, end_key, | Step 6 part_name_key, email_key, part_phone_key |
|--------------|-------------------------------------|--------------------------------|---------------------------------|---------------------------------------|-----------------------------------------------|----------------------------------------------------------|
| 1 | JamesSamplejsa le@gmail.com ✓ | JamesSample1 617551212 | JamesSample12 12555777 | JamesSample512 1255777 | JamesSamplejs a100Ma | Jamejsample@gmail .com5121255777 |
| 2 | JamesSamplejsa le@gmail.com ✓ | JamesSample1 6175551212 | JamesSample21 2555777 | JamesSample512 1255777 | JamesSamplejs a100Ma | Jamejsample@gmail .com5121255777 |
| 3 | JimSamplejsample @yahoo.com | JimSample617 5551212 | JimSample1212 555777 | JimSample51212 55777 | JimSamplejsa10 0Ma | JimSjsample@yahoo .com5121255777 |
| 4 | JamesJSamplejsam ple@gmail.com | JamesJSample 16175551212 | JamesJSample1 212555777 | JamesJSample51 21255777 | JamesJSamples am100Ma | Jamejsample@g ✓ .com5121255777 |
| 5 | Excluded | JamesSample5 551212 | JamesSamp ✓ 12555777 | JamesSample512 1255777 | JamesSamplesa m10Mai | Excluded |
| 6 | JamesSamplejsamp le@yahoo.com | JamesSam ✓ 6175551212 | JamesSample12 12555777 | JamesSample512 1255777 | JamesSamplesa m100Ma | Jamejsample@yaho o.com5121255777 |
| 7 | JamesSamplejsa le@gmail.com ✓ | JamesSample1 617551212 | JamesSample12 12555777 | JamesSample512 1255777 | JamesSamplejs a100Ma | Jamejsample@gmail .com5121255777 |
| 8 | JamesSamplejsa le@gmail.com ✓ | JamesSample1 6175551212 | JamesSample21 2555777 | JamesSample512 1255777 | JamesSamplejs a100Ma | Jamejsample@gmail .com5121255777 |
| 9 | JimSamplejsample @yahoo.com | JimSample617 5551212 | JimSample1212 555777 | JimSample51212 55777 | JimSamplejsa10 0Ma | JimSjsample@yahoo .com5121255777 |
| 10 | JamesJSamplejsam ple@gmail.com | JamesJSample 16175551212 | JamesJSample1 212555777 | JamesJSample51 21255777 | JamesJSamples am100Ma | Jamejsample@g ✓ .com5121255777 |
| 11 | Excluded | JamesSample5 551212 | JamesSamp ✓ 12555777 | JamesSample512 1255777 | JamesSamplesa m10Mai | Excluded |
| 12 | JamesSamplejsamp le@yahoo.com | JamesSam ✓ 6175551212 | JamesSample12 12555777 | JamesSample512 1255777 | JamesSamplesa m100Ma | Jamejsample@yaho o.com5121255777 |
| 13 | JamesJSamplejsam ple@hotmail.com | JamesJSample 16175551212 | JamesJSample1 212555777 | JamesJSample51 21255777 | JamesJSamples am100Ma | Jamejsample@h ✓ ail.com5121255777 |
| 14 | JamesSamplejsamp le@hotmail.com | JamesSample5 551212 | JamesSamp ✓ 12555777 | JamesSample512 1255777 | JamesSamplesa m10Mai | Jamejsample@hotm ail.com5121255777 |
| 15 | JamesSamplejsamp le@hotmail.com | JamesSam ✓ 6175551212 | JamesSample12 12555777 | JamesSample512 1255777 | JamesSamplesa m100Ma | Jamejsample@hotm ail.com5121255777 |

- Three User Accounts were added to the aggregation in Step 6
- User Accounts 4, 10 and 13 were added to the aggregation in Step 6 as represented by the red checkmarks.
- User Accounts 4 and 10 joined the aggregation because they grouped with User Accounts 1, 2, 7 and 8 which were part of a prior aggregation.
- User Account 13 joined the aggregation because it grouped with User Accounts 14 and 15, which were also part of a prior step aggregation.

Plaintiff's Identification No. 21

Steps 7, 8 and 9:

| User Account | Step 1 name_key, email_key | Step 2 name_key, cel_key | Step 3 name_key, fone_key | Step 4 name_key, part_phone_key | Step 5 name_key, login_key, end_key | Step 6 part_name_key, email_key, part_phone_key | Step 7 part_name_key, part_phone_key, login_key, end_key | Step 8 part_name_key, email_key, login_key, end_key | Step 9 part_name_key, login_key, hash_key |
|--------------|----------------------------------|--------------------------------|---------------------------------|---------------------------------------|----------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------|
| 1 | JamesSample@gmail.com ✓ | JamesSample1617551212 | JamesSample1e1212555777 | JamesSample5121255777 | JamesSamplejsa100Ma | Jamejsample@gmail.com5121255777 | Jame5121255777jsa100Ma | Jamejsample@gmail.comjsa100Ma | Jamejsa5f4dcc3b5aa765d61d8327deb882cf99 |
| 2 | JamesSample@gmail.com ✓ | JamesSample16175551212 | JamesSamplee212555777 | JamesSample5121255777 | JamesSamplejsa100Ma | Jamejsample@gmail.com5121255777 | Jame5121255777jsa100Ma | Jamejsample@gmail.comjsa100Ma | Jamejsa5f4dcc3b5aa765d61d8327deb882cf99 |
| 3 | JimSamplejsample@yahoo.com | JimSample617551212 | JimSample1212555777 | JimSample5121255777 | JimSamplejsa100Ma | JimSjsample@yahoo.com5121255777 | Jim5121255777jsa100Ma | JimSjsample@yahoo.comjsa100Ma | JimSjsa5f4dcc3b5aa765d61d8327deb882cf99 |
| 4 | JamesJSample@gmail.com | JamesJSample16175551212 | JamesJSamplee1212555777 | JamesJSample5121255777 | JamesJSamplesam100Ma | Jamejsamp@gmail.com5121255777 ✓ | Jame5121255777sam100Ma | Jamejsample@gmail.comsam100Ma | Jamesam6cb75f652a9b52798eb6cf2201057c73 |
| 5 | Excluded | JamesSample5551212 | JamesSa ✓e1212555777 | JamesSample5121255777 | JamesSamplesam100Ma | Excluded | Jame5121255777sam100Ma | Excluded | Jamesam6cb75f652a9b52798eb6cf2201057c73 |
| 6 | JamesSamplejsample@yahoo.com | JamesSam ✓6175551212 | JamesSamplee1212555777 | JamesSample5121255777 | JamesSamplesam100Ma | Jamejsample@yahoo.com5121255777 | Jame5121255777sam100Ma | Jamejsample@yahoo.comsam100Ma | Jamesam6cb75f652a9b52798eb6cf2201057c73 |
| 7 | JamesSample@gmail.com ✓ | JamesSample1617551212 | JamesSamplee1212555777 | JamesSample5121255777 | JamesSamplejsa100Ma | Jamejsample@gmail.com5121255777 | Jame5121255777jsa100Ma | Jamejsample@gmail.comjsa100Ma | Jamejsa5f4dcc3b5aa765d61d8327deb882cf99 |
| 8 | JamesSample@gmail.com ✓ | JamesSample16175551212 | JamesSamplee212555777 | JamesSample5121255777 | JamesSamplejsa100Ma | Jamejsample@gmail.com5121255777 | Jame5121255777jsa100Ma | Jamejsample@gmail.comjsa100Ma | Jamejsa5f4dcc3b5aa765d61d8327deb882cf99 |
| 9 | JimSamplejsample@yahoo.com | JimSample617551212 | JimSample1212555777 | JimSample5121255777 | JimSamplejsa100Ma | JimSjsample@yahoo.com5121255777 | Jim5121255777jsa100Ma | JimSjsample@yahoo.comjsa100Ma | JimSjsa5f4dcc3b5aa765d61d8327deb882cf99 |
| 10 | JamesJSample@gmail.com | JamesJSample16175551212 | JamesJSamplee1212555777 | JamesJSample5121255777 | JamesJSamplesam100Ma | Jamejsamp@gmail.com5121255777 ✓ | Jame5121255777red100Ma | Jamejsample@gmail.comred100Ma | Jamered6cb75f652a9b52798eb6cf2201057c73 |
| 11 | Excluded | JamesSample5551212 | JamesSa ✓e1212555777 | JamesSample5121255777 | JamesSamplesam100Ma | Excluded | Jame5121255777sam100Ma | Excluded | Jamesam6cb75f652a9b52798eb6cf2201057c73 |
| 12 | JamesSamplejsample@yahoo.com | JamesSam ✓6175551212 | JamesSamplee1212555777 | JamesSample5121255777 | JamesSamplesam100Ma | Jamejsample@yahoo.com5121255777 | Jame5121255777sam100Ma | Jamejsample@yahoo.comsam100Ma | Jamesam6cb75f652a9b52798eb6cf2201057c73 |
| 13 | JamesJSamplejsample@hotmail.com | JamesJSample16175551212 | JamesJSamplee1212555777 | JamesJSample5121255777 | JamesJSamplesam100Ma | Jamejsamp@hotmail.com5121255777 ✓ | Jame5121255777red100Ma | Jamejsample@hotmail.comred100Ma | Jamered819b0643d6b89dc9b579fdcf9094f28e |
| 14 | JamesSamplejsample@hotmail.com | JamesSample5551212 | JamesSa ✓e1212555777 | JamesSample5121255777 | JamesSamplesam100Ma | Jamejsample@hotmail.com5121255777 | Jame5121255777sam100Ma | Jamejsample@hotmail.comsam100Ma | Jamesam819b0643d6b89dc9b579fdcf9094f28e |
| 15 | JamesSamplejsample@hotmail.com | JamesSam ✓6175551212 | JamesSamplee1212555777 | JamesSample5121255777 | JamesSamplesam100Ma | Jamejsample@hotmail.com5121255777 | Jame5121255777sam100Ma | Jamejsample@hotmail.comsam100Ma | Jamesam819b0643d6b89dc9b579fdcf9094f28e |

- No User Accounts were added to the aggregation in Steps 7, 8 or 9.
- Because no step resulted in groupings which overlapped with two previously aggregated User Accounts, no additional User Accounts joined the aggregation.

Plaintiff's Identification No. 22

Step 10: Part Name Key2, Email Key, Part Phone Key

| User Account | Step 1 name_key, email_key | Step 2 name_key, cel_key | Step 3 name_key, fone_key | Step 4 name_key, part_phone_key | Step 5 name_key, login_key, end_key | Step 6 part_name_key , email_key, part_phone_key | Step 7 part_name_key, part_phone_key, login_key, end_key | Step 8 part_name_key , email_key, login_key, end_key | Step 9 part_name_key, login_key, hash_key | Step 10 part_name_key2, email_key, part_phone_key |
|--------------|----------------------------------|--------------------------------|---------------------------------|---------------------------------------|----------------------------------------------|-----------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------|----------------------------------------------------|------------------------------------------------------------|
| 1 | JamesSample@gmail.com ✓ | JamesSample1617551212 | JamesSample1e1212555777 | JamesSample5121255777 | JamesSamplejsa100Ma | Jamejsample@gmail.com5121255777 | Jame5121255777jsa100Ma | Jamejsample@gmail.comjsa100Ma | Jamejsa5f4dcc3b5a765d61d8327deb882cf99 | Jamplejsample@gmail.com5121255777 |
| 2 | JamesSample@gmail.com ✓ | JamesSample1617551212 | JamesSample1e1212555777 | JamesSample5121255777 | JamesSamplejsa100Ma | Jamejsample@gmail.com5121255777 | Jame5121255777jsa100Ma | Jamejsample@gmail.comjsa100Ma | Jamejsa5f4dcc3b5a765d61d8327deb882cf99 | Jamplejsample@gmail.com5121255777 |
| 3 | JimSamplejsample@yahoo.com | JimSample617551212 | JimSample1212555777 | JimSample5121255777 | JimSamplejsa100Ma | JimSjsample@yahoo.com5121255777 | JimS5121255777jsa100Ma | JimSjsample@yahoo.comjsa100Ma | JimSjsa5f4dcc3b5a765d61d8327deb882cf99 | Jamplejsample@yahoo.com5121255777 ✓ |
| 4 | JamesJSamplejsample@gmail.com | JamesJSample1617551212 | JamesJSample1e1212555777 | JamesJSample5121255777 | JamesJSamplesam100Ma | Jamejsample@gmail.com5121255777 ✓ | Jame5121255777sam100Ma | Jamejsample@gmail.comsam100Ma | Jamesam6cb75f652a9b52798eb6cf2201057c73 | Jamplejsample@gmail.com5121255777 |
| 5 | Excluded | JamesSample551212 | JamesSa ✓e1212555777 | JamesSample5121255777 | JamesSamplesam100Ma | Excluded | Jame5121255777sam100Ma | Excluded | Jamesam6cb75f652a9b52798eb6cf2201057c73 | Excluded |
| 6 | JamesSamplejsample@yahoo.com | JamesSam ✓617551212 | JamesSample1e1212555777 | JamesSample5121255777 | JamesSamplesam100Ma | Jamejsample@yahoo.com5121255777 | Jame5121255777sam100Ma | Jamejsample@yahoo.comsam100Ma | Jamesam6cb75f652a9b52798eb6cf2201057c73 | Jamplejsample@yahoo.com5121255777 |
| 7 | JamesSample@gmail.com ✓ | JamesSample1617551212 | JamesSample1e1212555777 | JamesSample5121255777 | JamesSamplejsa100Ma | Jamejsample@gmail.com5121255777 | Jame5121255777jsa100Ma | Jamejsample@gmail.comjsa100Ma | Jamejsa5f4dcc3b5a765d61d8327deb882cf99 | Jamplejsample@gmail.com5121255777 |
| 8 | JamesSample@gmail.com ✓ | JamesSample1617551212 | JamesSample1e1212555777 | JamesSample5121255777 | JamesSamplejsa100Ma | Jamejsample@gmail.com5121255777 | Jame5121255777jsa100Ma | Jamejsample@gmail.comjsa100Ma | Jamejsa5f4dcc3b5a765d61d8327deb882cf99 | Jamplejsample@gmail.com5121255777 |
| 9 | JimSamplejsample@yahoo.com | JimSample617551212 | JimSample1212555777 | JimSample5121255777 | JimSamplejsa100Ma | JimSjsample@yahoo.com5121255777 | JimS5121255777jsa100Ma | JimSjsample@yahoo.comjsa100Ma | JimSjsa5f4dcc3b5a765d61d8327deb882cf99 | Jamplejsample@yahoo.com5121255777 ✓ |
| 10 | JamesJSamplejsample@gmail.com | JamesJSample1617551212 | JamesJSample1e1212555777 | JamesJSample5121255777 | JamesJSamplesam100Ma | Jamejsamp ✓gmail.com5121255777 | Jame5121255777red100Ma | Jamejsample@gmail.comred100Ma | Jamered6cb75f652a9b52798eb6cf2201057c73 | Jamplejsample@gmail.com5121255777 |
| 11 | Excluded | JamesSample551212 | JamesSa ✓e1212555777 | JamesSample5121255777 | JamesSamplesam100Ma | Excluded | Jame5121255777sam100Ma | Excluded | Jamesam6cb75f652a9b52798eb6cf2201057c73 | Excluded |
| 12 | JamesSamplejsample@yahoo.com | JamesSam ✓617551212 | JamesSample1e1212555777 | JamesSample5121255777 | JamesSamplesam100Ma | Jamejsample@yahoo.com5121255777 | Jame5121255777sam100Ma | Jamejsample@yahoo.comsam100Ma | Jamesam6cb75f652a9b52798eb6cf2201057c73 | Jamplejsample@yahoo.com5121255777 |
| 13 | JamesJSamplejsample@hotmail.com | JamesJSample1617551212 | JamesJSample1e1212555777 | JamesJSample5121255777 | JamesJSamplesam100Ma | Jamejsamp ✓hotmail.com5121255777 | Jame5121255777red100Ma | Jamejsample@hotmail.comred100Ma | Jamered819b0643d6b89dc9b579fdcf9094f28e | Jamplejsample@hotmail.com5121255777 |
| 14 | JamesSamplejsample@hotmail.com | JamesSample551212 | JamesSa ✓e1212555777 | JamesSample5121255777 | JamesSamplesam100Ma | Jamejsample@hotmail.com5121255777 | Jame5121255777sam100Ma | Jamejsample@hotmail.comsam100Ma | Jamesam819b0643d6b89dc9b579fdcf9094f28e | Jamplejsample@hotmail.com5121255777 |
| 15 | JamesSamplejsample@hotmail.com | JamesSam ✓617551212 | JamesSample1e1212555777 | JamesSample5121255777 | JamesSamplesam100Ma | Jamejsample@hotmail.com5121255777 | Jame5121255777sam100Ma | Jamejsample@hotmail.comsam100Ma | Jamesam819b0643d6b89dc9b579fdcf9094f28e | Jamplejsample@hotmail.com5121255777 |

- Two User Accounts were added to the aggregation in Step 10.
- User Accounts 3 and 9 join the aggregation
- Steps 11 through 13 are similar to Steps 7 through 9, except that they use Part Name Key 2 rather than Part Name Key in combining fields of data.
- No additional aggregations result from Steps 11 through 13 and the aggregation is now complete.

Plaintiff's Identification No. 23

Complete Aggregation

| User Account | Step 1 name_key, email_key | Step 2 name_key, cel_key | Step 3 name_key, fone_key | Step 4 name_key, part_phone_key | Step 5 name_key, login_key, end_key | Step 6 part_name_key, email_key, part_phone_key | Step 7 part_name_key, part_phone_key, login_key, end_key | Step 8 part_name_key, email_key, login_key, end_key | Step 9 part_name_key, login_key, hash_key | Step 10 part_name_key2, email_key, part_phone_key | Step 11 part_name_key2, part_phone_key, login_key, end_key | Step 12 part_name_key2, email_key, login_key, end_key | Step 13 part_name_key2, login_key, hash_key |
|--------------|-----------------------------------|--------------------------------|---------------------------------|---------------------------------------|----------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------|------------------------------------------------------|
| 1 | JamesSample1 jsample@gmail.com | JamesSample1 617551212 | JamesSample1 e1212555777 | JamesSample12 1255777 | JamesSample1 a100Ma | Jamejsample@gmail.com5121255777 | JamesSample1255777 sa100Ma | Jamejsample@gmail.comjsa100Ma | Jamejsa5f4dcc3b5aa765d61d8327deb882cf99 | Jamplejsample@gmail.com5121255777 | Jample5121255777jsa100Ma | Jamplejsample@gmail.comjsa100Ma | Jamplejsa5f4dcc3b5aa765d61d8327deb882cf99 |
| 2 | JamesSample1 jsample@gmail.com | JamesSample1 6175551212 | JamesSample1 e212555777 | JamesSample12 1255777 | JamesSample1 a100Ma | Jamejsample@gmail.com5121255777 | JamesSample1255777 sa100Ma | Jamejsample@gmail.comjsa100Ma | Jamejsa5f4dcc3b5aa765d61d8327deb882cf99 | Jamplejsample@gmail.com5121255777 | Jample5121255777jsa100Ma | Jamplejsample@gmail.comjsa100Ma | Jamplejsa5f4dcc3b5aa765d61d8327deb882cf99 |
| 3 | JimSamplejsample@yahoo.com | JimSample617551212 | JimSample1212555777 | JimSample5121255777 | JimSamplejsa100Ma | JimSjsample@yahoo.com5121255777 | JimS5121255777jsa100Ma | JimSjsample@yahoo.comjsa100Ma | JimSjsa5f4dcc3b5aa765d61d8327deb882cf99 | Jamplejsample@gmail.com5121255777 | Jample5121255777jsa100Ma | Jamplejsample@yahoo.comjsa100Ma | Jamplejsa5f4dcc3b5aa765d61d8327deb882cf99 |
| 4 | JamesJSamplejsample@gmail.com | JamesJSample16175551212 | JamesJSample1e1212555777 | JamesJSample5121255777 | JamesJSamplesam100Ma | Jamejsamp@gmail.com5121255777 | JamesSample1255777 am100Ma | Jamejsample@gmail.comsam100Ma | Jamesam6cb75f652a9b52798eb6cf2201057c73 | Jamplejsample@gmail.com5121255777 | Jample5121255777sam100Ma | Jamplejsample@gmail.comsam100Ma | Jamplesam6cb75f652a9b52798eb6cf2201057c73 |
| 5 | Excluded | JamesSample5551212 | JamesSa1e1212555777 | JamesSample5121255777 | JamesSamplesam100Ma | Excluded | JamesSample1255777 am100Ma | Excluded | Jamesam6cb75f652a9b52798eb6cf2201057c73 | Excluded | Jample5121255777sam100Ma | Excluded | Jamplesam6cb75f652a9b52798eb6cf2201057c73 |
| 6 | JamesSamplejsample@yahoo.com | JamesSam16175551212 | JamesSample1e1212555777 | JamesSample5121255777 | JamesSamplesam100Ma | Jamejsample@yahoo.com5121255777 | JamesSample1255777 am100Ma | Jamejsample@yahoo.comsam100Ma | Jamesam6cb75f652a9b52798eb6cf2201057c73 | Jamplejsample@yahoo.com5121255777 | Jample5121255777sam100Ma | Jamplejsample@yahoo.comsam100Ma | Jamplesam6cb75f652a9b52798eb6cf2201057c73 |
| 7 | JamesSamplejsample@gmail.com | JamesSample1617551212 | JamesSample1e1212555777 | JamesSample5121255777 | JamesSamplejsa100Ma | Jamejsample@gmail.com5121255777 | JamesSample1255777 sa100Ma | Jamejsample@gmail.comjsa100Ma | Jamejsa5f4dcc3b5aa765d61d8327deb882cf99 | Jamplejsample@gmail.com5121255777 | Jample5121255777jsa100Ma | Jamplejsample@gmail.comjsa100Ma | Jamplejsa5f4dcc3b5aa765d61d8327deb882cf99 |
| 8 | JamesSamplejsample@gmail.com | JamesSample16175551212 | JamesSample1e212555777 | JamesSample5121255777 | JamesSamplejsa100Ma | Jamejsample@gmail.com5121255777 | JamesSample1255777 sa100Ma | Jamejsample@gmail.comjsa100Ma | Jamejsa5f4dcc3b5aa765d61d8327deb882cf99 | Jamplejsample@gmail.com5121255777 | Jample5121255777jsa100Ma | Jamplejsample@gmail.comjsa100Ma | Jamplejsa5f4dcc3b5aa765d61d8327deb882cf99 |
| 9 | JimSamplejsample@yahoo.com | JimSample617551212 | JimSample1212555777 | JimSample5121255777 | JimSamplejsa100Ma | JimSjsample@yahoo.com5121255777 | JimS5121255777jsa100Ma | JimSjsample@yahoo.comjsa100Ma | JimSjsa5f4dcc3b5aa765d61d8327deb882cf99 | Jamplejsample@gmail.com5121255777 | Jample5121255777jsa100Ma | Jamplejsample@yahoo.comjsa100Ma | Jamplejsa5f4dcc3b5aa765d61d8327deb882cf99 |
| 10 | JamesJSamplejsample@gmail.com | JamesJSample16175551212 | JamesJSample1e1212555777 | JamesJSample5121255777 | JamesJSamplesam100Ma | Jamejsamp@gmail.com5121255777 | JamesSample1255777 ed100Ma | Jamejsample@gmail.comred100Ma | Jamered6cb75f652a9b52798eb6cf2201057c73 | Jamplejsample@gmail.com5121255777 | Jample5121255777red100Ma | Jamplejsample@gmail.comred100Ma | Jamlered6cb75f652a9b52798eb6cf2201057c73 |
| 11 | Excluded | JamesSample5551212 | JamesSa1e1212555777 | JamesSample5121255777 | JamesSamplesam100Ma | Excluded | JamesSample1255777 am100Ma | Excluded | Jamesam6cb75f652a9b52798eb6cf2201057c73 | Excluded | Jample5121255777sam100Ma | Excluded | Jamplesam6cb75f652a9b52798eb6cf2201057c73 |
| 12 | JamesSamplejsample@yahoo.com | JamesSam16175551212 | JamesSample1e1212555777 | JamesSample5121255777 | JamesSamplesam100Ma | Jamejsample@yahoo.com5121255777 | JamesSample1255777 am100Ma | Jamejsample@yahoo.comsam100Ma | Jamesam6cb75f652a9b52798eb6cf2201057c73 | Jamplejsample@yahoo.com5121255777 | Jample5121255777sam100Ma | Jamplejsample@yahoo.comsam100Ma | Jamplesam6cb75f652a9b52798eb6cf2201057c73 |
| 13 | JamesJSamplejsample@hotmail.com | JamesJSample16175551212 | JamesJSample1e1212555777 | JamesJSample5121255777 | JamesJSamplesam100Ma | Jamejsamp@hotmail.com5121255777 | JamesSample1255777 ed100Ma | Jamejsample@hotmail.comred100Ma | Jamered819b0643d6b89dc9b579fdcf9094f28e | Jamplejsample@hotmail.com5121255777 | Jample5121255777red100Ma | Jamplejsample@hotmail.comred100Ma | Jamlered819b0643d6b89dc9b579fdcf9094f28e |
| 14 | JamesSamplejsample@hotmail.com | JamesSample5551212 | JamesSa1e1212555777 | JamesSample5121255777 | JamesSamplesam100Ma | Jamejsample@hotmail.com5121255777 | JamesSample1255777 am100Ma | Jamejsample@hotmail.comsam100Ma | Jamesam819b0643d6b89dc9b579fdcf9094f28e | Jamplejsample@hotmail.com5121255777 | Jample5121255777sam100Ma | Jamplejsample@hotmail.comsam100Ma | Jamplesam819b0643d6b89dc9b579fdcf9094f28e |
| 15 | JamesSamplejsample@hotmail.com | JamesSam16175551212 | JamesSample1e1212555777 | JamesSample5121255777 | JamesSamplesam100Ma | Jamejsample@hotmail.com5121255777 | JamesSample1255777 am100Ma | Jamejsample@hotmail.comsam100Ma | Jamesam819b0643d6b89dc9b579fdcf9094f28e | Jamplejsample@hotmail.com5121255777 | Jample5121255777sam100Ma | Jamplejsample@hotmail.comsam100Ma | Jamplesam819b0643d6b89dc9b579fdcf9094f28e |