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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD

|                        |                                                                                                                                                                                     |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Proceeding             | 91193335                                                                                                                                                                            |
| Party                  | Plaintiff<br>Embarcadero Technologies, Inc.                                                                                                                                         |
| Correspondence Address | MARTIN R GREENSTEIN<br>TECHMARK A LAW CORPORATION<br>4820 HARWOOD RD, 2ND FLOOR<br>SAN JOSE, CA 95124-5273<br>UNITED STATES<br>MRG@TechMark.com, MPV@TechMark.com, AMR@TechMark.com |
| Submission             | Plaintiff's Notice of Reliance                                                                                                                                                      |
| Filer's Name           | Martin R. Greenstein                                                                                                                                                                |
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| Signature              | /Martin R Greenstein/                                                                                                                                                               |
| Date                   | 03/01/2011                                                                                                                                                                          |
| Attachments            | Exh B.PDF ( 51 pages )(1172158 bytes )<br>RSTUDIO-91193335-Embarcadero Notice of Reliance.pdf ( 3 pages )(43370 bytes )<br>Exh E.PDF ( 7 pages )(942726 bytes )                     |

# Exhibit B



Page 5

1 Exhibit 12, One-page printout from Web 91  
 2 with "Dana Gardner's Instablog" at the  
 3 top  
 4  
 5 Original exhibits returned to Attorney Greenstein on  
 6 10/22/10  
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1 PROCEEDINGS  
 2 MR. GREENSTEIN: Why don't you go ahead  
 3 and premark these. They're the notices of  
 4 deposition.  
 5 (Marked, Exhibit 1, Notice of deposition  
 6 of Joseph J. Allaire.)  
 7 (Marked, Exhibit 2, Rule 30(b)(6) notice  
 8 of deposition of RSTUDIO, Inc.)  
 9 Joseph J. Allaire, Sworn  
 10 DIRECT EXAMINATION  
 11 BY MR. GREENSTEIN:  
 12 Q. Would you state your name, please.  
 13 A. **Joseph Allaire.**  
 14 Q. Do you go by "J.J. Allaire"?  
 15 A. **I do.**  
 16 Q. And Mr. Allaire, you're testifying here  
 17 both individually and as a 30(b)(6) representative  
 18 of RSTUDIO, Inc.?  
 19 A. **That's correct.**  
 20 Q. I show you the -- I marked the two notices  
 21 of deposition. I'll ask you if you're familiar with  
 22 those. Have you seen those before?  
 23 A. **(Witness reviews documents.) Yes.**  
 24 Q. And with respect to the 30(b)(6) notice,

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1 there's a list of categories in there.  
 2 MS. HUSTON: Mr. Greenstein, I believe  
 3 you may have made two copies of the same document.  
 4 (Discussion off the record.)  
 5 Q. Can you take a look at the list of the  
 6 categories for the 30(b)(6) deposition and tell me  
 7 if you're an appropriate person to testify as to  
 8 each of those categories?  
 9 A. **Yes.**  
 10 Q. And if there's anything you do not know the  
 11 answer to or that someone else would have more  
 12 information, I'd ask you to so indicate during the  
 13 deposition.  
 14 We're going to do the depositions  
 15 simultaneously here; so if there's some point where  
 16 you are testifying in your personal capacity but you  
 17 don't feel competent to testify for the company,  
 18 please let me know, and we can mark that.  
 19 Have you ever given or been to a  
 20 deposition before?  
 21 A. **Yes.**  
 22 Q. Have you given a deposition?  
 23 A. **Yes.**  
 24 Q. You've been deposed?

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1 A. **Yes.**  
 2 Q. As opposed to just viewing one?  
 3 A. **(Nodding.)**  
 4 Q. What was that in connection with?  
 5 A. **One deposition was given as part of an**  
 6 **employment case in 19 -- I'm not sure of the years,**  
 7 **late '90s, '98, '99. Another deposition was in**  
 8 **relation to a patent litigation, and then a**  
 9 **subsequent deposition related to the same patent**  
 10 **litigation.**  
 11 Q. Okay. Were you the defendant in the  
 12 employment case or --  
 13 A. **We were the defendant -- I was a defendant**  
 14 **in the employment case. I was not in the patent**  
 15 **litigation case.**  
 16 Q. What was your role in the patent litigation  
 17 case?  
 18 A. **One of the products that I developed was**  
 19 **prior art.**  
 20 Q. So you understand how a deposition works.  
 21 I will ask you questions, and you will answer them  
 22 as truthfully and completely as you can unless your  
 23 attorney instructs you not to answer.  
 24 A. **I do.**

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1 Q. And your testimony is under oath.  
 2 **A. Yes.**  
 3 Q. Is there any reason why you cannot or  
 4 should not sit for a deposition today, health,  
 5 illness or any condition?  
 6 **A. No.**  
 7 Q. If there's anything you don't understand,  
 8 then please feel free to ask, stop the deposition,  
 9 ask your attorney, ask me.  
 10 There were a number of documents  
 11 produced today in connection with the document  
 12 production request. Have you seen those? Are you  
 13 familiar with those documents that were produced?  
 14 MS. HUSTON: Objection.  
 15 **A. If you could show me the documents, I could**  
 16 **let you know.**  
 17 Q. I didn't bring all the documents with me.  
 18 Did you produce documents in connection with the  
 19 deposition?  
 20 MS. HUSTON: Objection.  
 21 **A. Yes.**  
 22 Q. Okay. What's your current business  
 23 address?  
 24 **A. 581 Boylston Street, Suite 701, Boston,**

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1 **Massachusetts 02116.**  
 2 Q. And what's the office telephone number  
 3 there?  
 4 **A. I don't know offhand.**  
 5 Q. So it's --  
 6 **A. I can find out.**  
 7 Q. Do you have a cell phone?  
 8 **A. Yes.**  
 9 Q. What number is that?  
 10 **A. 617-699-5585.**  
 11 Q. And e-mail address?  
 12 **A. jj.allaire@gmail.com.**  
 13 Q. And that's a business e-mail also; you  
 14 don't have rstudio.com or anything?  
 15 MS. HUSTON: Objection.  
 16 **A. I may have it -- I use that for my personal**  
 17 **and business correspondence.**  
 18 Q. Okay.  
 19 MR. GREENSTEIN: Can I ask what the  
 20 objection is? I asked him whether they have  
 21 rstudio.com as an e-mail address.  
 22 MS. HUSTON: Well, I would have to hear  
 23 the question back again, but it was vague and  
 24 ambiguous with respect to whether he has that as a

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1 domain name versus uses it as an e-mail account.  
 2 Q. And what's your home address?  
 3 **A. 62 Prince Street, Newton, Massachusetts**  
 4 **02465.**  
 5 Q. Do you have a home phone number?  
 6 **A. 617-559-9719.**  
 7 Q. Where is Prince Street?  
 8 **A. West Newton Hill.**  
 9 Q. Aside from the employment case in which you  
 10 were a defendant, have you ever sued or been sued by  
 11 anyone personally?  
 12 **A. No.**  
 13 Q. Have you ever been arrested?  
 14 **A. No.**  
 15 Q. Or ever convicted?  
 16 **A. No.**  
 17 Q. Companies with which you have been  
 18 associated, have they sued or been sued in matters  
 19 in which you were involved?  
 20 **A. One company that I was involved with, which**  
 21 **I started, I'm sure had a number of lawsuits. It**  
 22 **was a large company. I wasn't aware of every detail**  
 23 **of every lawsuit, so I don't recall the specifics,**  
 24 **but I'm certain that Allaire Corp. had some**

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1 **lawsuits.**  
 2 Q. Okay. Aside from the patent case you  
 3 mentioned and the employment case earlier in the  
 4 '90s, you were not directly involved with any of  
 5 these?  
 6 **A. No -- you know what? Let me qualify that.**  
 7 **I do recall specifically that Allaire Corporation**  
 8 **had a -- there was a class action lawsuit that I was**  
 9 **a party to, so I do recall that.**  
 10 Q. And what is your current employment?  
 11 **A. I work for RSTUDIO.**  
 12 Q. In what capacity?  
 13 **A. I'm the CEO.**  
 14 Q. And we'll get more into RSTUDIO later.  
 15 Beginning with college, what is your educational  
 16 background, majors?  
 17 **A. I went to Macalester College in St. Paul,**  
 18 **Minnesota. I majored in economics and political**  
 19 **science.**  
 20 Q. And did you have any graduate school  
 21 education beyond college?  
 22 **A. I attended the University of Wisconsin,**  
 23 **Madison, for one semester.**  
 24 Q. Did you have a target major when you

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1 started there?

2 **A. That was a political science graduate**

3 **program.**

4 Q. Did you have any formal training in the

5 computer software industry?

6 **A. No.**

7 Q. How did you get into that business?

8 **A. I was -- I've been interested in software**

9 **for a long time, all the way back to high school.**

10 **And then after I attended graduate school for a**

11 **period of time, I decided I liked software a lot**

12 **better and wanted to do that for a career; and so I**

13 **left graduate school in order to pursue software as**

14 **a career.**

15 Q. And when you left, you went to work where?

16 **A. I went to work for the Minnesota Department**

17 **of Revenue.**

18 Q. As?

19 **A. I was an intern working for the -- in the**

20 **CFO's office.**

21 Q. And that was a software-related position?

22 **A. It was a financial job that used a lot of**

23 **software tools.**

24 Q. So you were a user, not a developer, at

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1 that point?

2 **A. I was developing, I was developing things**

3 **for them.**

4 Q. What kind of things?

5 **A. Excel spreadsheets, some modeling using**

6 **SAS, statistical modeling for business. That was**

7 **principally what I was doing.**

8 Q. "SAS" being?

9 **A. Statistical analysis software.**

10 Q. In contrast to the software SaaS, which is

11 Software as a Server?

12 **A. Right.**

13 Q. And then from the Minnesota Department of

14 Revenue you were doing what?

15 **A. I became an independent contractor,**

16 **independent contract programmer.**

17 Q. And when was the Department of Revenue,

18 Minnesota Department of Revenue job, what years?

19 **A. It was -- immediately after I graduated**

20 **from college, I went there in the summer of 1991. I**

21 **worked there for approximately one year. Then I**

22 **attended graduate school, and then when I left**

23 **graduate school -- it would be January of 1993 -- I**

24 **went back to the Minnesota Department of Revenue and**

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1 **worked there for approximately eight months before I**

2 **left to become an independent contractor.**

3 Q. And as an independent contractor, what

4 field did you specialize in, work in?

5 **A. I worked for two companies principally.**

6 **One was MTS Systems in Prairie, Minnesota, and they**

7 **did testing systems for manufacturing. MTS stood**

8 **for Manufacturing Test Systems.**

9 **I also worked for a company called**

10 **Virtual University Enterprises in Bloomington,**

11 **Minnesota, which did software to assist computer**

12 **companies with -- in administering their training**

13 **businesses.**

14 Q. And how long did the independent contractor

15 role last, approximately?

16 **A. I don't recall exactly, but I believe MTS**

17 **was about 18 months to two years. Virtual**

18 **University Enterprises, I believe I started that**

19 **later, I don't remember exactly when; and that was**

20 **for a year to 15 months, something like that. I**

21 **don't remember the exact dates.**

22 Q. These were sequential assignments, not

23 in --

24 **A. They were first MTS, and then I overlapped.**

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1 **I actually worked for both firms for a time. Then I**

2 **worked exclusively for the VUE, so they were**

3 **sequential and I think overlapping.**

4 Q. When you ended the independent contractor

5 role, what did you then do?

6 **A. I began working on a software product**

7 **called ColdFusion to help develop software for the**

8 **Web.**

9 Q. Bear with me on some of the technical

10 stuff, but what do you mean by "to help develop

11 software for the Web"?

12 **A. ColdFusion was a programming language that**

13 **allowed you to write dynamic Web applications.**

14 Q. And is that what became Allaire Co.?

15 **A. Yes, that was -- I started that, and I**

16 **believe it was originally Allaire, LLC, and then**

17 **evolved to become Allaire Corp.**

18 Q. And is that still around?

19 **A. No.**

20 Q. What happened with that?

21 **A. Allaire Corp. was acquired by Macromedia**

22 **in -- I believe it was in the year 2000. I'm not --**

23 **I could be wrong.**

24 Q. And how many years after you started it did

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1 that happen?  
 2 **A. I started it in 1995, so approximately five**  
 3 **years.**  
 4 Q. Was that a public company, Allaire Corp.?  
 5 **A. Yes.**  
 6 Q. You had a substantial interest in that?  
 7 **A. Yes.**  
 8 Q. And did you stay on and work for Macromedia  
 9 when Allaire Corp. was acquired?  
 10 **A. I did not.**  
 11 Q. Does Macromedia still sell ColdFusion?  
 12 **A. Macromedia was subsequently acquired by**  
 13 **Adobe. Adobe still sells ColdFusion.**  
 14 Q. And so what is a programming language for  
 15 the Web like? Who were your competitors in that?  
 16 Can you identify them?  
 17 **A. Competitors would have been --**  
 18 MS. HUSTON: Objection. You can answer.  
 19 **A. Microsoft Active Server Pages, JavaServer**  
 20 **Pages; PHP would be three, three competitors that we**  
 21 **had.**  
 22 Q. After you sold Allaire Corp. -- strike  
 23 that.  
 24 Did Allaire Corp. have products other

Page 18

1 than ColdFusion?  
 2 **A. Yes.**  
 3 Q. What else did it have?  
 4 **A. We had a product called JRun, which was a**  
 5 **Java Web application server. We had a product**  
 6 **called HomeSite, which was a Website design and**  
 7 **development tool. We also had products -- as part**  
 8 **of the ColdFusion and JRun product families, we had**  
 9 **a product called ColdFusion Studio, and we had a**  
 10 **product called JRun Studio.**  
 11 Q. And those all went to Macromedia with  
 12 Allaire Corp.?  
 13 **A. Yes, yes. And I'm sorry, we had one other**  
 14 **product, Spectra.**  
 15 Q. So what was the difference between JRun and  
 16 JRun Studio?  
 17 **A. JRun Studio was a set of tools used to**  
 18 **build JRun applications.**  
 19 Q. And what was the other one, ColdFusion  
 20 Studio?  
 21 **A. Yes.**  
 22 Q. And what was that?  
 23 **A. That was a set of tools used to build**  
 24 **ColdFusion applications.**

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1 Q. So after you sold Allaire Corp. and  
 2 finished celebrating, what did you move on to?  
 3 **A. The next thing I did in software was I**  
 4 **started a company called Onfolio, and I started that**  
 5 **in 2002.**  
 6 Q. And what did Onfolio do?  
 7 **A. Onfolio built tools to help people collect**  
 8 **information from the Web and publish information to**  
 9 **the Web.**  
 10 Q. And is that still around?  
 11 **A. Onfolio was acquired by Microsoft in -- I**  
 12 **think it was early 2006, and our Web publishing**  
 13 **tools are still around. They're known as Windows**  
 14 **Live Writer, which is a product that Microsoft now**  
 15 **ships.**  
 16 Q. Was Onfolio its own programming language  
 17 also?  
 18 **A. No, Onfolio was an end user tool used for**  
 19 **collecting information from the Web and publishing**  
 20 **information to the Web.**  
 21 Q. That was written in some other programming  
 22 language?  
 23 **A. Yes.**  
 24 Q. What was that?

Page 20

1 **A. C#.**  
 2 Q. And ColdFusion was its own language? You  
 3 developed the language, I think you said?  
 4 **A. Yes.**  
 5 Q. Okay. This is probably more information  
 6 than I can absorb. Can you tell me about the  
 7 structure of RSTUDIO and the history? When did you  
 8 decide to start it, and how is it structured?  
 9 **A. I decided to start RSTUDIO in late 2008.**  
 10 **I'm the sole owner of the company.**  
 11 Q. Between 2006 and 2008, did you stay on with  
 12 Onfolio for a while with Microsoft?  
 13 **A. I worked for Microsoft for about 18 months,**  
 14 **so from I believe it was January 2006 through**  
 15 **September of 2007.**  
 16 Q. Okay.  
 17 **A. Yeah.**  
 18 Q. So you have no investors or other  
 19 stakeholders in RSTUDIO?  
 20 **A. No.**  
 21 Q. Are there employers that have stock options  
 22 or --  
 23 **A. No.**  
 24 Q. What was the goal in starting RSTUDIO?

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1 What were you trying to develop?  
 2 **A. To build tools to make users of the R**  
 3 **programming language more effective.**  
 4 Q. Now, had you used this R programming  
 5 language in other job applications or projects  
 6 you've had?  
 7 **A. I had not used it in a project; I was**  
 8 **simply aware of it.**  
 9 Q. I know about C. I don't know much about  
 10 it, but I know about C. Is there a whole string of  
 11 programming languages that go from A to R?  
 12 **A. No.**  
 13 Q. What does the R stand for in the R  
 14 programming language?  
 15 **A. R was based on another language called S;**  
 16 **and R was, I believe -- I'm not intimately familiar**  
 17 **with the circumstances, but it was simply used as**  
 18 **the name because it was adjacent to the letter S in**  
 19 **the alphabet, similar to how C was used because it**  
 20 **was adjacent to B in the alphabet and C was based on**  
 21 **B.**  
 22 Q. Okay. Let me just jump back for a minute.  
 23 Specifically excluding any conversation with your  
 24 attorneys, who have you discussed this opposition

Page 22

1 with, employees or --  
 2 **A. I haven't.**  
 3 Q. Okay. Do you have employees?  
 4 **A. I do.**  
 5 Q. How many?  
 6 **A. Two.**  
 7 Q. Two?  
 8 **A. (Nodding.)**  
 9 Q. Who is that?  
 10 **A. I have an employee named Joe Cheng, and I**  
 11 **have an employee named Josh Paulson.**  
 12 Q. And what does Mr. Cheng do?  
 13 **A. Mr. Cheng is a software engineer.**  
 14 Q. And Mr. Paulson?  
 15 **A. Product manager.**  
 16 Q. Is there a product on the market now called  
 17 RSTUDIO?  
 18 MS. HUSTON: Objection.  
 19 MR. GREENSTEIN: Sorry?  
 20 MS. HUSTON: Objection.  
 21 MR. GREENSTEIN: What's the objection  
 22 for that?  
 23 MS. HUSTON: Well, it's unclear what you  
 24 mean by "on the market."

Page 23

1 **A. Yeah, if you could clarify your question a**  
 2 **little bit, I'll be happy to --**  
 3 Q. Are you selling a product called RSTUDIO?  
 4 **A. We are not selling a product called**  
 5 **RSTUDIO.**  
 6 Q. Giving it away?  
 7 **A. We're in beta test right now.**  
 8 Q. I guess the purpose of the question was, I  
 9 was just wondering what it is Mr. Paulson manages.  
 10 You said you have a beta product?  
 11 **A. Yes.**  
 12 Q. And do you have a release date estimate?  
 13 **A. We don't have a specific release date**  
 14 **estimate.**  
 15 Q. Is this a product that would be sold?  
 16 **A. Yes.**  
 17 Q. The R language is a free language, right?  
 18 **A. It's -- yes, correct.**  
 19 Q. Okay. And you have beta licenses with  
 20 people who are testing the product?  
 21 **A. We do.**  
 22 Q. And approximately how many of those?  
 23 **A. We have about 20 -- around 20 different**  
 24 **institutions, and we have about 350 end users.**

Page 24

1 Q. What does the beta test cycle involve? How  
 2 often do you talk to these people? How often do you  
 3 do new revisions of the software and provide them  
 4 with updates and stuff?  
 5 **A. Well, the beta software is deployed on our**  
 6 **servers, and we do frequent updates to the servers;**  
 7 **so depending on the phase of development, we might**  
 8 **put out three or four updates a week or we might,**  
 9 **you know, wait two or three weeks between updates,**  
 10 **but we have frequent updates to the product.**  
 11 Q. Do you have to ship out to people, or do  
 12 they come to your server and use it?  
 13 **A. They come to our server and use it.**  
 14 Q. So they don't actually get a physical  
 15 product ever shipped to them?  
 16 **A. No, they just access the product on our**  
 17 **server.**  
 18 Q. And what is it that they do with the  
 19 product? What kind of applications are they  
 20 building?  
 21 **A. They principally do statistical analysis.**  
 22 Q. And that includes what?  
 23 **A. Analyzing data to look for trends either**  
 24 **through running linear regressions or visual -- or**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| <p style="text-align: right;">Page 25</p> <p>1 <b>running plots to visualize the data, running</b><br/> 2 <b>analyses of variance tests, you know, the whole</b><br/> 3 <b>gamut of statistical analysis techniques.</b><br/> 4 Q. And there was a CD, I guess, that your<br/> 5 attorneys were kind enough to provide that had a<br/> 6 couple of overviews of the product -- I assume you<br/> 7 are familiar with it -- and one of them was used car<br/> 8 analysis or automobile sales --<br/> 9 <b>A. It may have been, it may have been.</b><br/> 10 Q. What do you learn from doing that kind of<br/> 11 an analysis on used cars?<br/> 12 <b>A. Well, I don't remember the specifics of</b><br/> 13 <b>that example.</b><br/> 14 Q. Okay. If you don't remember, you don't<br/> 15 remember. Another one was something about volcanic<br/> 16 interactions. Do you remember that one?<br/> 17 <b>A. I believe there's a plot about -- yes, yes.</b><br/> 18 Q. What does that one tell you?<br/> 19 <b>A. Well, I'm not a volcanic scientist, but</b><br/> 20 <b>presumably they're trying to forecast time and</b><br/> 21 <b>frequency of -- and intensity of eruptions, would be</b><br/> 22 <b>what I'd imagine they're doing.</b><br/> 23 Q. So these applications look at some data<br/> 24 collected by some other source and run some</p> | <p style="text-align: right;">Page 27</p> <p>1 RSTUDIO do now?<br/> 2 <b>A. RSTUDIO provides a set of tools, again, to</b><br/> 3 <b>make it easy to learn, understand and use the</b><br/> 4 <b>product; and I would say that customers are pleased</b><br/> 5 <b>with the results. They find that they are</b><br/> 6 <b>productive and it is more straightforward to use R</b><br/> 7 <b>when they use RSTUDIO.</b><br/> 8 Q. And the R language doesn't have these tools<br/> 9 in it?<br/> 10 <b>A. The R language includes very barebones</b><br/> 11 <b>tools, and so it's -- I think for adoption by a</b><br/> 12 <b>wider audience, they require -- the product really</b><br/> 13 <b>requires additional tools.</b><br/> 14 Q. Okay. And what do you plan for the product<br/> 15 to do that it doesn't do now? What future plans do<br/> 16 you have for the product?<br/> 17 <b>A. I would say that we've built a product that</b><br/> 18 <b>achieves the goal of making users more productive</b><br/> 19 <b>with R than they are with the barebones tools. What</b><br/> 20 <b>we'll do is, as more users use the product and give</b><br/> 21 <b>us feedback, we'll extend and enhance upon that</b><br/> 22 <b>theme of making the users of the R programming</b><br/> 23 <b>language more productive, and I can't predict the</b><br/> 24 <b>ways that will go.</b></p>                                                                   |
| <p style="text-align: right;">Page 26</p> <p>1 algorithms on them?<br/> 2 <b>A. Correct, they -- correct.</b><br/> 3 Q. Mathematical algorithms?<br/> 4 <b>A. A huge variety of algorithms, yeah.</b><br/> 5 Q. Do you provide the algorithms or they come<br/> 6 up with their own algorithms?<br/> 7 <b>A. I don't provide the algorithms. The</b><br/> 8 <b>R programming language includes a huge variety of</b><br/> 9 <b>algorithms. There are third-party packages that</b><br/> 10 <b>provide algorithms, and then customers may also</b><br/> 11 <b>provide their own algorithms.</b><br/> 12 Q. Do you have -- in Silicon Valley they call<br/> 13 it an elevator pitch -- a one- or two-minute pitch<br/> 14 for RSTUDIO?<br/> 15 <b>A. Not really.</b><br/> 16 Q. Can you give me as concisely in layman's<br/> 17 terms as possible what you would tell someone who<br/> 18 wanted to buy or use the product?<br/> 19 <b>A. I would say if you are using the R</b><br/> 20 <b>programming language to do statistical analysis,</b><br/> 21 <b>RSTUDIO will make it easier to learn and more</b><br/> 22 <b>productive to work with.</b><br/> 23 Q. And how far along the way with your beta<br/> 24 test are you to accomplishing that? What does</p>                                                                                         | <p style="text-align: right;">Page 28</p> <p>1 Q. Okay. Do you ever see the end application<br/> 2 that the user -- the users use this to build<br/> 3 applications, correct?<br/> 4 <b>A. They use it to do statistical analysis.</b><br/> 5 Q. They do the analysis or they build an<br/> 6 application to do the analysis?<br/> 7 <b>A. They write code that performs an analysis.</b><br/> 8 <b>They can do that interactively. They can type in</b><br/> 9 <b>their commands at a console where they essentially</b><br/> 10 <b>ask a question and get an answer, so that's the</b><br/> 11 <b>typical work flow. And then they can also automate</b><br/> 12 <b>those command sequences by putting them in a script</b><br/> 13 <b>file that they execute in batch.</b><br/> 14 Q. So if they want do this analysis once, they<br/> 15 just do it in realtime, and if they want do it every<br/> 16 week or every month, they build a script or --<br/> 17 <b>A. Typically, I think that's an accurate</b><br/> 18 <b>characterization, that they would work ad hoc at the</b><br/> 19 <b>command line, asking questions and getting answers;</b><br/> 20 <b>and then if they want to automate or run an</b><br/> 21 <b>analysis, frequently they will put in a script file.</b><br/> 22 Q. Is a script like an application?<br/> 23 <b>A. The term "application" is maybe a little</b><br/> 24 <b>bit vague. I would say the script file is a</b></p> |

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1 **program.**

2 Q. It's a program that accomplishes a

3 predefined function every time you run it?

4 **A. Yes, yes.**

5 Q. It will do that on a different set of data

6 or an updated set of data?

7 **A. It could be written to do that, yes.**

8 Q. So if I want do some kind of analysis on

9 monthly payroll, and I want do it every month, I

10 would write a script file?

11 **A. Typically you would. If you wanted to**

12 **automate your work and make it repeatable, you would**

13 **write a script file, yes. I don't know that**

14 **everyone does that. They may just get in there and**

15 **do it ad hoc every month.**

16 Q. Now, the people that use RSTUDIO or any of

17 the R language functions, would you necessarily know

18 what it is they're doing?

19 **A. I wouldn't always know what they're doing,**

20 **no.**

21 Q. I mean, just like if I buy a program to

22 write a Web program, you don't -- and you had that

23 when you had ColdFusion or Onfolio; you didn't know

24 what they actually did with the program, did you?

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1 **A. Well, we talk to customers and survey**

2 **customers, and so we can gain an understanding of**

3 **the types of things they're doing; so I would say at**

4 **an aggregate level we do know what people are doing**

5 **with it, but at an instance level, we don't always**

6 **know what an individual --**

7 Q. You don't necessarily know the specific

8 programs they are writing; you just know kind of the

9 stuff that they are doing so you can improve your

10 product?

11 **A. Yeah, we can characterize generally the**

12 **types of applications people build and certainly**

13 **have lots of examples of those; but obviously, as**

14 **you point out, we don't know what every single**

15 **individual customer is doing or what the content of**

16 **their program is.**

17 Q. I've never been a programmer, so bear with

18 me as I try to understand. Does RSTUDIO have

19 competitors that do the same or similar things with

20 the R language?

21 **A. Yes, there are a number of competing**

22 **products.**

23 Q. Who are your competitors right now?

24 **A. There's a module for the Emacs editor**

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1 **called Emacs Speaks Statistics.**

2 Q. E-m-a-c-s?

3 **A. E-m-a-c-s is the name -- it's a**

4 **programmer's editor; and then there's a module for**

5 **that called ESS or Emacs Speaks Statistics that is**

6 **used frequently with R.**

7 Q. You say "frequently." Is it used with

8 other stuff also?

9 **A. Well, Emacs is used for many things. I**

10 **actually don't know all the details of Emacs Speaks**

11 **Statistics, but I imagine it's also used with the S**

12 **programming language, for example, and perhaps**

13 **others than I'm not aware of.**

14 Q. Do you have other competitors?

15 **A. There's a module for -- let's see. There's**

16 **a module for -- there's a product called**

17 **Notepad++ --**

18 Q. Sorry?

19 **A. Notepad++, which is an editor for Windows.**

20 **There's a module -- there's an R module for**

21 **Notepad++. There's a product called TextMate, which**

22 **is a text editor for the Macintosh; and there's an R**

23 **bundle for TextMate. There's also a product called**

24 **R Productivity Environment by a company called**

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1 **Revolution Computing or -- no. Revolution**

2 **Analytics, I'm sorry, is the name of the company.**

3 **And then there's a Windows editor called**

4 **Tinn-R or there's a product called Tinn-R. It's**

5 **again based on an editor called Tinn, T-i-n-n. And**

6 **then there's an R module for that, and there may be**

7 **others. There's a theme of people extending**

8 **programmers' editors with R modes, so there may be**

9 **ten other ones I'm not aware of, but those are ones**

10 **that we hear about frequently.**

11 Q. So these modules, Emacs, Notepad++,

12 TextMate and Tinn have these R modules, do they also

13 have modules for other programming languages?

14 **A. Yes.**

15 Q. So will you have modules for other

16 programming languages or --

17 **A. We don't plan to.**

18 Q. -- applications?

19 So what does yours do that these others

20 don't do, or what will yours do that the others

21 don't do?

22 **A. I would characterize it as users of R doing**

23 **a set of fairly complex analyses where they're**

24 **moving between, you know, script files, the console,**

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1 **graphics, their file system, the objects that**  
 2 **they're working with in memory; and I think what our**  
 3 **product does best is it ties all of those work**  
 4 **processes and information sources together in a**  
 5 **single environment.**  
 6 Q. If I asked the TextMate people or the  
 7 Revolution Analysis -- Analytics people, or  
 8 something, whether theirs is as good as yours, what  
 9 would they tell me?  
 10 MS. HUSTON: Objection.  
 11 MR. GREENSTEIN: Pardon?  
 12 MS. HUSTON: Objection.  
 13 **A. They almost certainly haven't seen it,**  
 14 **haven't seen RSTUDIO, so they probably wouldn't have**  
 15 **an opinion.**  
 16 Q. Would they identify shortcomings in their  
 17 products?  
 18 MS. HUSTON: Objection.  
 19 **A. Just clarify your question.**  
 20 Q. Would they admit or identify shortcomings  
 21 in their products? I mean, you appear to believe  
 22 that there are shortcomings in their products and  
 23 you can provide a better product.  
 24 MS. HUSTON: Objection.

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1 **A. Every single product has shortcomings.**  
 2 **Whether a given vendor would own up to those, I**  
 3 **don't know.**  
 4 Q. What price point would you plan to put  
 5 RSTUDIO out in?  
 6 **A. We don't know what the pricing's going to**  
 7 **be yet.**  
 8 Q. I think you mentioned that a number of  
 9 users are institutions or educational institutions?  
 10 **A. Yes. It's almost all educational**  
 11 **institutions, yeah.**  
 12 Q. Is that typically a good market in which to  
 13 sell software?  
 14 **A. A lot of software does get sold to**  
 15 **educational institutions, so I think it's a good**  
 16 **market, yes.**  
 17 Q. Usually at discount prices, though, right?  
 18 **A. I don't know what the license agreements**  
 19 **look like. I don't know, honestly.**  
 20 Q. Now, is everything done in the R language a  
 21 complex analysis? Do they do -- can you do a more  
 22 simple analysis?  
 23 **A. You can add 1 plus 1 in the R language, so**  
 24 **to that extent you can do very simple analyses. The**

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1 **motivation for using the R language is that you want**  
 2 **to do sophisticated analysis, so I would say the**  
 3 **reason people use it is because they want to do**  
 4 **sophisticated analysis, not to add 1 plus 1, even**  
 5 **though you can do that.**  
 6 Q. So if someone was an R language specialist  
 7 and wanted to do almost any kind of analysis, they  
 8 could do it in R?  
 9 **A. There's a huge variety of packages that**  
 10 **offer lots of statistical techniques. I'm not going**  
 11 **to say that they could do anything, but it has deep**  
 12 **support for a wide variety of analytic techniques.**  
 13 Q. "It" being the R language?  
 14 **A. The R language and the packages that are**  
 15 **available with it.**  
 16 Q. How does that differ from a regular  
 17 database package that looks in a database and comes  
 18 up with reports and summaries and trends and stuff?  
 19 **A. Ours is not a database package. It doesn't**  
 20 **manage data. It doesn't even really consume**  
 21 **relational databases. It works with raw data, and**  
 22 **people will do -- a lot of what they're trying to do**  
 23 **is build models, so they're trying to understand**  
 24 **what variables cause another -- what independent**

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1 **variables contribute to a dependent variable.**  
 2 **So they're doing like a regression**  
 3 **analysis, a multiple regression analysis. They're**  
 4 **doing -- they're trying to understand the dynamics**  
 5 **of systems, not so much trying to, even though it's**  
 6 **possible, to simply aggregate and count things in R.**  
 7 **That's not really why people use it. There are more**  
 8 **straightforward ways to do that.**  
 9 Q. (Nodding.) When I nod or say "okay," don't  
 10 misunderstand that to mean I understand what you're  
 11 saying.  
 12 Do you have any written materials that  
 13 you give to prospective investors or clients, an  
 14 executive summary or something like that?  
 15 **A. We don't have anything like that. For**  
 16 **customers it's really the contents of our Web -- the**  
 17 **product online, and that includes some written**  
 18 **documentation and a couple of introductory videos.**  
 19 Q. Okay.  
 20 MR. GREENSTEIN: I don't think we got  
 21 the documentation.  
 22 MS. HUSTON: We'll take that up with you  
 23 at a break.  
 24 Q. Okay. Do you have a written business

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| <p style="text-align: right;">Page 37</p> <p>1 plan --</p> <p>2 <b>A. No.</b></p> <p>3 Q. -- for the company?</p> <p>4 So do any of the large companies like</p> <p>5 Sybase and Computer Associates or anything like that</p> <p>6 have -- do anything in the R language, any products</p> <p>7 or packages that work in the R language?</p> <p>8 <b>A. Specifically Sybase and Computer</b></p> <p>9 <b>Associates, not that I'm aware of.</b></p> <p>10 Q. Any other large companies? The ones you</p> <p>11 mentioned, they're not companies that -- but IBM?</p> <p>12 <b>A. I don't believe so. IBM acquired a company</b></p> <p>13 <b>called SPSS, and it's possible that SPSS has some</b></p> <p>14 <b>features related to R. I'm not certain of that. It</b></p> <p>15 <b>may be that they do.</b></p> <p>16 Q. It's fair to say they're trying to do</p> <p>17 complex analysis and models between data and</p> <p>18 elements of data? Maybe I misunderstood --</p> <p>19 <b>A. It was the concept of independent and</b></p> <p>20 <b>dependent variables, so they're trying to understand</b></p> <p>21 <b>what causes another value to change, you know, what</b></p> <p>22 <b>causes a volcano to erupt or how can you predict a</b></p> <p>23 <b>volcano is going to erupt, that sort of thing.</b></p> <p>24 Q. Walk me through how someone would use the R</p>                                                                                                                                                                                                                                               | <p style="text-align: right;">Page 39</p> <p>1 <b>I am not an expert. The lm function would sort of</b></p> <p>2 <b>be the most primitive version of that.</b></p> <p>3 Q. And what is there besides linear models?</p> <p>4 What other kinds of models?</p> <p>5 <b>A. Again, I'm not a graduate level</b></p> <p>6 <b>statistician. So are there nonlinear models?</b></p> <p>7 <b>Probably, I'm not sure. But there's lots of</b></p> <p>8 <b>different types of models that incorporate lots of</b></p> <p>9 <b>different ways of looking at -- of analyzing</b></p> <p>10 <b>phenomena.</b></p> <p>11 Q. And I know the terms, but I'm not sure I</p> <p>12 know the details of flat file databases and</p> <p>13 relational databases. Does that tie into linear</p> <p>14 models?</p> <p>15 <b>A. It doesn't, not really.</b></p> <p>16 Q. So is a model how one develops the</p> <p>17 application?</p> <p>18 <b>A. Again, someone is trying to understand the</b></p> <p>19 <b>phenomena and the cause of the phenomena, and they</b></p> <p>20 <b>run a series of analyses, some models, some data</b></p> <p>21 <b>visualizations; and they put together an analysis</b></p> <p>22 <b>based on that. That's my understanding of how the</b></p> <p>23 <b>process goes.</b></p> <p>24 <b>It's hard for me to characterize since,</b></p> |
| <p style="text-align: right;">Page 38</p> <p>1 language and the RSTUDIO tools to do that.</p> <p>2 <b>A. So I'm not an expert data analyst, but I</b></p> <p>3 <b>can give you how I understand it to go. As a really</b></p> <p>4 <b>straightforward example, there's a function in R</b></p> <p>5 <b>called lm which does linear models; so what you</b></p> <p>6 <b>would do is you would take some data, and you would</b></p> <p>7 <b>run a linear model to know where you postulate a</b></p> <p>8 <b>potential relationship between variables, for</b></p> <p>9 <b>example, Variable A and Variable B predict Variable</b></p> <p>10 <b>C in some fashion. And they would -- in running the</b></p> <p>11 <b>linear model, they would get correlation</b></p> <p>12 <b>coefficients that would indicate the strength of the</b></p> <p>13 <b>relationship. That's a really simple, boiled-down</b></p> <p>14 <b>version of it.</b></p> <p>15 <b>What I understand that the -- to be the</b></p> <p>16 <b>case -- and again, we're getting beyond where I'm an</b></p> <p>17 <b>expert -- the real world is very complicated, and a</b></p> <p>18 <b>simple linear model is often not enough to explain.</b></p> <p>19 <b>So people -- there's entire fields -- you know,</b></p> <p>20 <b>biometrics -- not biometrics -- bioinformatics,</b></p> <p>21 <b>econometrics, advanced techniques for doing clinical</b></p> <p>22 <b>trials. There's all kinds of advanced analytical</b></p> <p>23 <b>techniques to try to better understand the</b></p> <p>24 <b>relationship between variables that are also used.</b></p> | <p style="text-align: right;">Page 40</p> <p>1 <b>again, I'm not an advanced statistician myself; so I</b></p> <p>2 <b>can really only characterize at kind of a general</b></p> <p>3 <b>level how these people work.</b></p> <p>4 Q. You said data visualization?</p> <p>5 <b>A. Yes.</b></p> <p>6 Q. What does that mean?</p> <p>7 <b>A. Just graphs.</b></p> <p>8 Q. Meaning the output of data, data trends and</p> <p>9 stuff?</p> <p>10 <b>A. It would be more like graphs like you see</b></p> <p>11 <b>in Microsoft Excel.</b></p> <p>12 Q. So when RSTUDIO is used to create these</p> <p>13 applications either on the fly or through scripts or</p> <p>14 application programs, how does it know where to go</p> <p>15 in the database to find the data?</p> <p>16 MS. HUSTON: Objection. You can answer.</p> <p>17 <b>A. Typically, in R there's a thing called a</b></p> <p>18 <b>data frame. A data frame is a two-dimensional -- it</b></p> <p>19 <b>would be like a spreadsheet, so it has rows and</b></p> <p>20 <b>columns; and so a data frame is just a 2D grid of</b></p> <p>21 <b>data.</b></p> <p>22 <b>When you run an analysis, you indicate</b></p> <p>23 <b>which of the columns you want to analyze. So you</b></p> <p>24 <b>might say Column A and Column B attempt to predict</b></p>                                |

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| <p style="text-align: right;">Page 41</p> <p>1 the value of Column C. So you might say data dollar<br/>2 sign A, data dollar sign B, data dollar sign C to<br/>3 reference those data elements.<br/>4 Q. Are there also 3D --<br/>5 A. Not that I'm aware of.<br/>6 Q. So the data frames are also grids?<br/>7 A. Yes, a data frame is a two-dimensional grid<br/>8 of data, yes.<br/>9 Q. Does R work on relational databases at all?<br/>10 A. There's no native capability to interact<br/>11 with relational databases in R. I believe some<br/>12 people may have developed packages to do that, but<br/>13 it's not part of the base R system.<br/>14 Q. Are these -- would you have a package that<br/>15 looks into a relational database to get the data?<br/>16 A. We wouldn't, no.<br/>17 Q. Why don't you need information that's in a<br/>18 relational database?<br/>19 A. Well, we're -- the base R package is sort<br/>20 of the definition of what's generally useful to R<br/>21 programmers, so we work with that as our baseline.<br/>22 We take their baseline as our baseline, so it's<br/>23 not -- they don't have an intrinsic capability to<br/>24 look at relational databases because it's not</p> | <p style="text-align: right;">Page 43</p> <p>1 columns of data that they want to analyze. So they<br/>2 have to explicitly say Column A or Column B or<br/>3 Column C or what have you.<br/>4 Q. And they do a chart to depict that?<br/>5 A. Typically they just type it in.<br/>6 Q. Okay. And if it's very complex, how would<br/>7 they know to type it in? Do they need a chart to<br/>8 tell them where to go?<br/>9 A. They would probably view the data. So our<br/>10 product allows you to -- first of all, they could<br/>11 view it using a text editor or they could view it --<br/>12 they could import it on a spreadsheet, view it on a<br/>13 spreadsheet. Our product also allows you to view<br/>14 the two-dimensional data frame and look at it.<br/>15 Q. When you say "view it," are you viewing the<br/>16 actual data, or are you viewing the identifications<br/>17 of the columns that tell you what's in them?<br/>18 A. The data.<br/>19 Q. The data?<br/>20 A. Yeah.<br/>21 Q. But if it's a huge spreadsheet of data, do<br/>22 you have to view all of it?<br/>23 A. The way our product works is it allows you<br/>24 to view the -- it will view the first thousand rows</p>                                  |
| <p style="text-align: right;">Page 42</p> <p>1 generally useful, so it's just not something that we<br/>2 would do on top of what they do.<br/>3 Q. So your package would never work with a<br/>4 package that one of these other companies has as an<br/>5 add-on to R?<br/>6 A. RSTUDIO can work with any R package that's<br/>7 developed, so we don't specifically exclude any<br/>8 third-party packages. So it's compatible with all<br/>9 third-party packages no matter what their intended<br/>10 use.<br/>11 Q. So if a third-party package had relational<br/>12 database features, then RSTUDIO could work with<br/>13 that?<br/>14 A. It could work with any third-party package,<br/>15 yes.<br/>16 Q. Now, a lot of stuff your attorneys were<br/>17 kind enough to give me talked about database<br/>18 modeling. Does RSTUDIO model these 2D databases?<br/>19 A. No.<br/>20 Q. How does it know where to get the<br/>21 information in the databases?<br/>22 A. So the way R works is that when a user has<br/>23 imported the data frame, the user needs to tell the<br/>24 analytic function which column of data, column or</p>                                                                            | <p style="text-align: right;">Page 44</p> <p>1 of the data set, but they would be free to use the<br/>2 data again using a text editor or importing it into<br/>3 a spreadsheet if they wanted to see all of it.<br/>4 Q. What is an IDE?<br/>5 A. IDE is an acronym that stands for<br/>6 "integrated development environment."<br/>7 Q. And what does that mean?<br/>8 A. I think the term originated to describe a<br/>9 product that integrated, for example, a programmer's<br/>10 editor and debugger together into a single<br/>11 environment.<br/>12 Q. Okay. And RSTUDIO is or has an IDE?<br/>13 A. We refer to it as an IDE because it -- in<br/>14 the same way as I said before, the notion of RSTUDIO<br/>15 is to bring a set of tools together to help you<br/>16 work; so we don't have a debugger, for example, but<br/>17 we do have a console and an editor and a means of<br/>18 viewing help and a means of viewing plots. So we in<br/>19 a similar way sort of take a set of tools and bring<br/>20 them together, which I think is the notion of what<br/>21 IDE really means.<br/>22 Q. So RSTUDIO does have an IDE or integrated<br/>23 development environment?<br/>24 A. RSTUDIO -- I would say RSTUDIO is an</p> |

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1 **integrated development environment, yes.**  
 2 Q. One of the e-mails talked about the fact  
 3 that all R functions have a built-in facility like a  
 4 database of R commands or something like that?  
 5 **A. I don't -- maybe if you could refresh my**  
 6 **recollection, I could probably speak to that**  
 7 **specifically.**  
 8 Q. Sure, I'd be glad to. This is an e-mail  
 9 from -- RS504. It has notes on it -- from Daniel  
 10 Kaplan at Macalester to you. Let's see, "One  
 11 feature I like is that the graphs/plots have their  
 12 own tab -- it is very convenient. All the R  
 13 functions have a built-in facility (a database of R  
 14 commands or functions is how I view it.) It seems  
 15 that there are more potions in this version and it's  
 16 easier to use."  
 17 **A. I --**  
 18 MS. HUSTON: Wait for a question. Is  
 19 there a question?  
 20 Q. Well, the question was before it. What  
 21 does it mean that "the R functions have a built-in  
 22 facility, a database of R commands or functions"?  
 23 **A. It would be most helpful if I could see the**  
 24 **language he actually wrote. I don't know what's**

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1 **being referred to there; but if I could see the**  
 2 **language, I would probably make a better answer.**  
 3 MR. GREENSTEIN: I don't have a clean  
 4 copy. This has notes on it. This is page 504.  
 5 MR. RUFO: From the first production.  
 6 All right.  
 7 MS. HUSTON: Let's go off the record.  
 8 (Discussion off the record and recess.)  
 9 BY MR. GREENSTEIN:  
 10 Q. Did you have a chance to look at 504? It's  
 11 sort of at the end of the paragraph that begins with  
 12 "We had Chuck Green."  
 13 MS. HUSTON: Marty, would you like to  
 14 mark this as an exhibit?  
 15 MR. GREENSTEIN: Pardon?  
 16 MS. HUSTON: Would you like to mark this  
 17 as an exhibit?  
 18 MR. GREENSTEIN: No, I trust him.  
 19 **A. (Witness reviews document.) Okay. So this**  
 20 **is a -- actually, a comment that a student made --**  
 21 Q. Right.  
 22 **A. -- that Danny was passing on to us. I**  
 23 **believe he's referencing -- when he says "all the R**  
 24 **functions have a built-in facility (a database of R**

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1 **commands or functions is how I view it)," I believe**  
 2 **he's referring to the help tab in our environment,**  
 3 **which basically provides help on the whole R**  
 4 **language and provides documentation on all the**  
 5 **different commands.**  
 6 Q. Okay. Do you know what UML is?  
 7 **A. I do.**  
 8 Q. What is that?  
 9 **A. It stands for "Unified Modeling Language,"**  
 10 **I believe.**  
 11 Q. Does RSTUDIO have or support that in some  
 12 way?  
 13 **A. No.**  
 14 Q. That's not part of a linear model?  
 15 **A. No.**  
 16 Q. Does RSTUDIO use dimensional data models?  
 17 **A. Could you define that?**  
 18 Q. Probably not. (Examining document) This is  
 19 a document, RS912, which you guys were kind enough  
 20 to provide me with. Is that a linear model?  
 21 **A. (Witness reviews document.) No.**  
 22 Q. That's not a linear model?  
 23 **A. No. A linear model refers to a linear**  
 24 **regression or linear regression model.**

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1 Q. Turning to the applications you filed or  
 2 that were filed on your behalf, the three RSTUDIO  
 3 marks, Classes 9, 41 and 42, did you sign those by  
 4 pen or electronically? Do you remember how you  
 5 signed those?  
 6 **A. I believe I signed them electronically, I**  
 7 **believe I did.**  
 8 Q. And the Class 9 application, 77691980  
 9 application, was filed for two types of products,  
 10 computer software for statistical computing and  
 11 computer software for applications development.  
 12 First off, what is statistical computing?  
 13 **A. That's conducting statistical analysis.**  
 14 Q. Any type of statistical analysis can be  
 15 statistical computing?  
 16 **A. Again, I'm not an expert in terms of what**  
 17 **that whole domain implies, but statistical analysis**  
 18 **is a -- you know, taught in universities at various**  
 19 **levels, from basic to intermediate and advanced; and**  
 20 **it encompasses those things that are taught as part**  
 21 **of statistics and beyond, so...**  
 22 Q. So it runs the spectrum from the most  
 23 simple, say the average of two numbers, to highly  
 24 complex analyses?

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1     **A. It's not typically, for example, in an**  
2 **Introduction to Statistics course. They might spend**  
3 **one day discussing the concept of a mean, but the**  
4 **course is about more sophisticated stuff.**  
5     Q. So there's a range. The more interesting  
6 stuff is the more complex stuff?  
7     MS. HUSTON: Objection.  
8     **A. Well, there's a range, and the domain**  
9 **itself is very deep and complex, yes.**  
10    Q. What is computer software for applications  
11 development?  
12    MS. HUSTON: Objection.  
13    MR. GREENSTEIN: What's the objection?  
14    MS. HUSTON: Well, I think it's  
15 ambiguous whether you are referring to what does  
16 that refer to in the application or what is the  
17 general meaning of those terms or both.  
18    Q. You signed an application that claimed use  
19 on or "intend to use on computer software for  
20 applications development." What did you mean?  
21    **A. Our product is intended to be used with the**  
22 **R programming language to do statistical analysis.**  
23 **Some of the things that people do when they do**  
24 **statistical analysis is to compile their analysis**

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1 **into a program that they can run again, so...**  
2    Q. Okay. Computer software for statistical  
3 computing, is that the same as computer software for  
4 statistical analysis?  
5    MS. HUSTON: Objection.  
6    **A. Statistical computing and statistical**  
7 **analysis are -- probably overlap. Computing might**  
8 **imply data visualization and analysis, but data**  
9 **visualization can also be construed as analysis, so**  
10 **they are overlapping terms.**  
11    Q. I'm not trying to be tricky. I asked you  
12 what computer software for statistical computing  
13 was, and you answered what computer software for  
14 statistical analysis was. So computer software for  
15 statistical computing, if I understand what you just  
16 said, includes some statistical analysis, some data  
17 visualization, maybe some other things?  
18    **A. You know, maybe I can explain it to say**  
19 **statistical analysis could be performed without**  
20 **computing. It could be performed by -- on graph**  
21 **paper with a pencil --**  
22    Q. And was --  
23    **A. -- and paper.**  
24    Q. -- for thousands of years.

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1     **A. So statistical computing I think refers to**  
2 **the automation of statistical analysis using**  
3 **computers.**  
4     Q. Okay. So does it also include  
5 visualization or not?  
6     **A. As part of the statistical analysis, people**  
7 **do visualize data, yes.**  
8     Q. And what is computer software for  
9 applications development? You told me people  
10 sometimes automate their statistical analysis, but  
11 there's no limit here, it just said computer  
12 software for applications development.  
13     **A. My intent is to build products that support**  
14 **statistical computing. Part of that is creating**  
15 **applications in the form of programs that compile a**  
16 **set of statistical operations together.**  
17     Q. Okay. A regular database analysis and  
18 reporting program, and there are thousands out  
19 there. Will they also give you some level of  
20 statistical analysis on a database?  
21     **A. They may -- I'm familiar, for example, with**  
22 **the Crystal Reports, which gives you, I think -- I**  
23 **used it a long time ago. You could do means and**  
24 **medians, sort of simple aggregate level analyses. I**

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1 **don't know about other techniques.**  
2     Q. What's IBM's big database program?  
3     **A. You might be referring to DB2.**  
4     Q. DB2, yeah.  
5     **A. Okay.**  
6     Q. Now, does that have reports that tell you  
7 various statistical summaries, reports, functions,  
8 graphs?  
9     **A. I'm not -- I don't know DB2.**  
10    Q. Okay. Is there any other database program  
11 that you work with? Microsoft has one, I think.  
12    **A. Yeah, I last worked with database programs,**  
13 **you know, in the '90s; and the only reporting tool**  
14 **I'm familiar with is Crystal Reports.**  
15    Q. Okay. And the data that RSTUDIO gets,  
16 that's in the form of a database, right?  
17    **A. RSTUDIO -- R analyzes data in data frames.**  
18 **The data frame is typically read from a text file or**  
19 **a spreadsheet or, you know, something produced by a**  
20 **volcanic activity sensor. So the data is analyzed**  
21 **in the form of a data frame which is a two-**  
22 **dimensional data grid, and where it comes from is a**  
23 **variety of sources.**  
24    Q. Isn't a two-dimensional data grid a type of

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| Page 53                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Page 55                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <p>1 database?</p> <p>2 <b>A. It's certainly a collection of data. I'm</b></p> <p>3 <b>not going to define what a database is. But it's</b></p> <p>4 <b>called a data frame. It's a collection of data.</b></p> <p>5 Q. Okay. When you were working with databases</p> <p>6 in the '90s, were those databases collections of</p> <p>7 data?</p> <p>8 <b>A. Yes.</b></p> <p>9 Q. Again, I'm not trying to be tricky. I'm</p> <p>10 just trying to understand what the difference is.</p> <p>11 <b>A. R works with what is conventionally known</b></p> <p>12 <b>as a flat file database. It's a simple database</b></p> <p>13 <b>that has no relational structure. It's just a</b></p> <p>14 <b>simple, flat two-dimensional table.</b></p> <p>15 Q. So to use RSTUDIO for statistical computing</p> <p>16 and to use RSTUDIO for applications development,</p> <p>17 what is the difference, and what do you do</p> <p>18 differently to use it for one versus the other?</p> <p>19 <b>A. I would go back to the characterization I</b></p> <p>20 <b>made before of there's an interactive mode of</b></p> <p>21 <b>working where you simply ask questions of the system</b></p> <p>22 <b>and then receive answers, you know, perform an</b></p> <p>23 <b>analysis, plot some data. And then if you want to</b></p> <p>24 <b>automate a sequence of those commands, then you'd</b></p>                                                          | <p>1 <b>in those things.</b></p> <p>2 Q. Do you also provide training in the use of</p> <p>3 statistical methods?</p> <p>4 <b>A. We don't currently. We plan to.</b></p> <p>5 Q. And how would you do that?</p> <p>6 <b>A. We would, for example, have a course,</b></p> <p>7 <b>Analyzing Medical Images, for example; and we would</b></p> <p>8 <b>have to teach both the statistical techniques, the</b></p> <p>9 <b>core statistical techniques required to analyze</b></p> <p>10 <b>medical images, as well as teach the operation of</b></p> <p>11 <b>the software. So they are sort of inseparable.</b></p> <p>12 Q. Okay. So does that go beyond the function</p> <p>13 of the tools to make the R programming language</p> <p>14 easier and more friendly to use?</p> <p>15 <b>A. The training?</b></p> <p>16 Q. Yes.</p> <p>17 <b>A. I think it's part of the mission. Part of</b></p> <p>18 <b>the mission is to help people use the R programming</b></p> <p>19 <b>language and make it easier to learn, easier to use.</b></p> <p>20 <b>We want to do that by providing products; and to the</b></p> <p>21 <b>extent people also need training, we want do that as</b></p> <p>22 <b>well.</b></p> <p>23 Q. So you don't presume that people using</p> <p>24 RSTUDIO or the R programming language are already</p> |
| Page 54                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Page 56                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <p>1 <b>compile them into a single script file, which is</b></p> <p>2 <b>like a program that would then automate your</b></p> <p>3 <b>analysis; for example, I want to build an</b></p> <p>4 <b>application that runs an analysis of the volcanic</b></p> <p>5 <b>data that comes in once a week. So now I can run it</b></p> <p>6 <b>every week with different data sets, would be an</b></p> <p>7 <b>example.</b></p> <p>8 Q. So that's the application versus the</p> <p>9 on-the-fly calculation?</p> <p>10 <b>A. Yes, yes.</b></p> <p>11 Q. Look at your Class 41 application,</p> <p>12 77691984. One of the services is providing training</p> <p>13 in the use of computer software. How do you provide</p> <p>14 training or how will you provide training in the use</p> <p>15 of computer software?</p> <p>16 <b>A. If we want to train people to use RSTUDIO,</b></p> <p>17 <b>we'll need to obviously train them in how to use our</b></p> <p>18 <b>environment, but we may also need to point out, you</b></p> <p>19 <b>know, how to upload a file using a Web browser or</b></p> <p>20 <b>how to save a -- print a pdf from their native</b></p> <p>21 <b>operating system. So we'll certainly train people</b></p> <p>22 <b>in the use of RSTUDIO; and then if there are related</b></p> <p>23 <b>things that aren't literally RSTUDIO but that are</b></p> <p>24 <b>required to work with it, we would also train them</b></p> | <p>1 well versed in statistics; you're ready to give them</p> <p>2 the basic statistics training or intend do that?</p> <p>3 <b>A. We intend to do that. I would say today</b></p> <p>4 <b>they are versed as to statistics already, but...</b></p> <p>5 Q. Your future intent is to be able to give</p> <p>6 people the basic statistical training, as well as</p> <p>7 the tools?</p> <p>8 <b>A. Well, it may be specialized. The</b></p> <p>9 <b>statistical training oftentimes will need to go</b></p> <p>10 <b>alongside the training in the use of the tools. So</b></p> <p>11 <b>we anticipate that.</b></p> <p>12 Q. And the training you plan to provide is not</p> <p>13 limited in any way to RSTUDIO? I mean, there's no</p> <p>14 limitation on the application; you are providing</p> <p>15 training in the use of computer software?</p> <p>16 <b>A. Our intention is to provide training</b></p> <p>17 <b>related to RSTUDIO, and that's what we plan on</b></p> <p>18 <b>doing.</b></p> <p>19 Q. The application, though, is much broader</p> <p>20 than that. The application was just providing</p> <p>21 training in the use of computer software, period.</p> <p>22 So are there other types of computer software you</p> <p>23 provide training in the use of?</p> <p>24 MS. HUSTON: Objection.</p>     |

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1     **A. As I said before, when you are using**  
2 **RSTUDIO, you might need to use, for example, a Web**  
3 **browser or a program that prints pdf documents.**  
4 **You -- the entire universe is not inside RSTUDIO.**  
5 **Oftentimes there are things that are related to that**  
6 **which we're going to also potentially train users**  
7 **in.**  
8     Q. You mentioned the S programming language.  
9 That's a statistical specialty language also?  
10    **A. Yes.**  
11    Q. And does RSTUDIO operate on the S language  
12 or utilize the S language at all?  
13    **A. It does not.**  
14    Q. That's a totally separate language?  
15    **A. It -- I don't know a lot about the S**  
16 **language. I know that RSTUDIO does not work with**  
17 **the S language.**  
18    Q. How long has the R language been around; do  
19 you know?  
20    **A. I believe it's somewhere between 15 and 20**  
21 **years.**  
22    Q. Are there any new languages like that on  
23 the horizon that people are developing that you are  
24 aware of?

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1     **A. Are you referring to a statistical analysis**  
2 **language or --**  
3     Q. Anything that fits whatever the description  
4 of the R language is.  
5     **A. Not that I'm aware of.**  
6     Q. Okay. Turning to your Class 42  
7 application, 77691987, you have services of  
8 application service provider, ASP, featuring  
9 software for statistical computing. How is that  
10 different than the Class 9 software for statistical  
11 computing?  
12    **A. Just remind me briefly what the -- the**  
13 **Class 9 was the first one we discussed, not the**  
14 **training one?**  
15    Q. Right, Class 9 was the computer software  
16 for statistical computing.  
17        MS. HUSTON: If you don't remember or  
18 you need to see the documents, please let us know.  
19        THE WITNESS: Okay. I'm good.  
20    **A. The application service provider refers to**  
21 **providing the product over the Internet as a service**  
22 **as distinct from delivering a product physically or**  
23 **digitally to an end user's site that they would**  
24 **install on their own computer. So application**

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1     **service provider means we are going to provide the**  
2 **product as a service.**  
3     Q. Okay. If I understood you correctly, and  
4 maybe I didn't, the only way you now provide RSTUDIO  
5 is Web-based?  
6     **A. We currently only provide it Web-based. We**  
7 **are planning to provide it as well as something that**  
8 **we can ship to end users and they can install.**  
9     Q. So it's not only intended to be used on the  
10 Web?  
11    **A. That's correct.**  
12    Q. And what is the computer software  
13 consultation listed in Class 42 intended to cover?  
14    **A. That would be if we had a customer who's**  
15 **deployed our product or thinking about deploying our**  
16 **product that has a particular problem to solve and**  
17 **they want our assistance not only with installing**  
18 **the software, but also potentially helping them**  
19 **solve the problem, understanding which analytic**  
20 **techniques are most appropriate, that sort of thing.**  
21    Q. You do that on a fee basis?  
22    **A. We would do that on a fee basis, yes.**  
23    Q. And then you also have design and  
24 development of computer software. Is that just

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1     design and development of RSTUDIO, or is that design  
2 and development of other types of software?  
3     **A. That refers to design and development of**  
4 **RSTUDIO.**  
5     Q. You don't intend to design and develop  
6 software for other people, other types of software?  
7     **A. No.**  
8     Q. Technical support services are support of  
9 RSTUDIO software that people are installing and  
10 using?  
11    **A. That's correct.**  
12    Q. How did you come up with the RSTUDIO name?  
13    **A. We wanted to build tools related to the R**  
14 **programming language, so we included R in the name.**  
15 **And then we wanted to represent the notion of an**  
16 **artist's studio or a recording studio, a place where**  
17 **all the tools that you need are put together in one**  
18 **place.**  
19    Q. Is the term "studio" descriptive in that  
20 sense?  
21    **A. No. It -- as I said, it's -- it's sort of**  
22 **a metaphor for an artist's studio or a recording**  
23 **studio, a place where the tools you need are**  
24 **assembled together in one place.**

| Page 61                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Page 63                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| <p>1 Q. Okay. So it's -- you don't consider the<br/>2 word "studio" descriptive in a software context?<br/>3 <b>A. No.</b><br/>4 Q. Is R -- you or your company don't have<br/>5 rights to the term "R" as a trademark, do you?<br/>6 <b>A. We do not have the R trademark, no.</b><br/>7 Q. Do you have permission from the R language<br/>8 people, whoever they are, to use R in the name of<br/>9 your product?<br/>10 <b>A. We don't have explicit individual<br/>11 permission to use it.</b><br/>12 Q. Has anyone ever talked to you about that or<br/>13 have you ever asked them or --<br/>14 <b>A. No. There are a wide variety of products<br/>15 that relate to R that in some way incorporate that<br/>16 into their name.</b><br/>17 Q. Were you aware of Embarcadero Technologies<br/>18 before this opposition?<br/>19 <b>A. I don't think I was.</b><br/>20 Q. Have you ever heard of their ER/STUDIO<br/>21 product? That's ER, slash, STUDIO.<br/>22 <b>A. I don't think so.</b><br/>23 Q. When you did your database work back in the<br/>24 '90s, did you ever use data modeling products from</p> | <p>1 Q. That's a form of promotional activity?<br/>2 <b>A. Yeah, yeah.</b><br/>3 Q. Any other schools beyond that?<br/>4 <b>A. We visited Smith College.</b><br/>5 Q. Did they become a beta customer?<br/>6 <b>A. Yes.</b><br/>7 Q. And are there any RSTUDIO users groups that<br/>8 have formed?<br/>9 <b>A. No.</b><br/>10 Q. What's your association with the R Project?<br/>11 Is that the name of the group that runs the R<br/>12 language?<br/>13 <b>A. Yeah. I have no formal association with<br/>14 the R Project.</b><br/>15 Q. Are they aware of what you're doing?<br/>16 <b>A. I believe they are, yeah.</b><br/>17 Q. Have you made presentations to them or --<br/>18 <b>A. No.</b><br/>19 Q. No. Are they a beta user?<br/>20 <b>A. I don't believe any of the core R team is a<br/>21 beta user.</b><br/>22 Q. And who is the core R team?<br/>23 <b>A. There's 20 individuals who can commit code<br/>24 to R, and that's also referred to as the core R</b></p>                                                                                                                                                                     |
| <p>Page 62</p> <p>1 any company?<br/>2 <b>A. I did not, no.</b><br/>3 Q. Are there any financing agreements that<br/>4 pledge the RSTUDIO trademark or promise it to<br/>5 anyone?<br/>6 <b>A. No.</b><br/>7 Q. This venture is also self-financed?<br/>8 <b>A. Yes, it is, yeah.</b><br/>9 Q. What do you do to promote the RSTUDIO<br/>10 product or service?<br/>11 <b>A. Currently, we don't engage in explicit<br/>12 promotional activities. We have beta customers, a<br/>13 handful of beta customers, and they in some cases<br/>14 have spoken to each other about it; and then they --<br/>15 subsequently people learn about it through other<br/>16 beta customers and contact us.</b><br/>17 Q. Well, you apparently go out to schools, at<br/>18 least Macalester --<br/>19 <b>A. Yes.</b><br/>20 Q. -- to talk about --<br/>21 <b>A. Yes, yes. I've visited Macalester, I've<br/>22 visited UCLA, and spoken with people at both<br/>23 colleges; and they subsequently became beta<br/>24 customers.</b></p>                                                                                           | <p>Page 64</p> <p>1 <b>team.</b><br/>2 Q. And there are, I'm told, a number of R<br/>3 language user groups around the country.<br/>4 <b>A. I believe there are, yes.</b><br/>5 Q. Have you ever gone to one of those or<br/>6 appeared before them or provided information to<br/>7 them?<br/>8 <b>A. No.</b><br/>9 Q. Have they ever asked you about RSTUDIO?<br/>10 <b>A. The folks that I visited at UCLA also run a<br/>11 user group. They asked whether we'd be interested<br/>12 in presenting it, and we said no, not right now.</b><br/>13 Q. Too early?<br/>14 <b>A. Too early in our development, yeah, to talk<br/>15 about it publicly.</b><br/>16 Q. Is there some group that maintains a<br/>17 repository of all these -- you mentioned a large<br/>18 number, I forget how many, of R packages that there<br/>19 are. Is there someone that tracks these?<br/>20 <b>A. There's a thing called CRAN, C-R-A-N,<br/>21 capital letters. I don't know exactly what it<br/>22 stands for, "Comprehensive R" something. And CRAN<br/>23 maintains a list of packages and enables users to<br/>24 download and install these packages.</b></p> |

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| <p style="text-align: right;">Page 65</p> <p>1 Q. You are not listed on CRAN yet, though?</p> <p>2 <b>A. No.</b></p> <p>3 Q. So if I went to CRAN, I'd see some large</p> <p>4 cross-section of R-related packages?</p> <p>5 <b>A. Yes.</b></p> <p>6 Q. When you're ready to go more public with</p> <p>7 this, then you make an application or ask to be</p> <p>8 listed on CRAN?</p> <p>9 <b>A. I don't plan to. Those are packages which</b></p> <p>10 <b>are sort of plug-ins for doing analysis. We could,</b></p> <p>11 <b>in principle, be distributed on CRAN, but we don't</b></p> <p>12 <b>need to, we don't need to be listed on CRAN.</b></p> <p>13 Q. Are most of the CRAN packages free packages</p> <p>14 or --</p> <p>15 <b>A. Yes, they are.</b></p> <p>16 Q. Okay. When you do have a finished product</p> <p>17 and you're ready to go out and promote it and</p> <p>18 advertise it and sell it, how do you identify the</p> <p>19 target market that you're looking for?</p> <p>20 <b>A. We make observations about the usages of R</b></p> <p>21 <b>that are most prevalent, and then we try to</b></p> <p>22 <b>communicate with people in those domains to get them</b></p> <p>23 <b>interested in RSTUDIO.</b></p> <p>24 Q. Uh-huh. And people that use R, do they use</p>                                                                                                                  | <p style="text-align: right;">Page 67</p> <p>1 <b>A. I don't recall if it said "RSTUDIO" on my</b></p> <p>2 <b>badge, but I certainly introduced myself to people</b></p> <p>3 <b>as being from RSTUDIO.</b></p> <p>4 Q. And then do they say, "Really? What do you</p> <p>5 do?"</p> <p>6 <b>A. Yes.</b></p> <p>7 Q. So you told them?</p> <p>8 <b>A. Yes.</b></p> <p>9 Q. Okay. So this is not -- you are not in</p> <p>10 what they call stealth mode here?</p> <p>11 <b>A. No, we're not. We have a restricted beta,</b></p> <p>12 <b>but we're not attempting to keep it a secret.</b></p> <p>13 Q. What is Ruby?</p> <p>14 <b>A. It's a programming language.</b></p> <p>15 Q. And does that have any statistical</p> <p>16 application?</p> <p>17 <b>A. Ruby's a general purpose programming</b></p> <p>18 <b>language that can be used for lots of things. I</b></p> <p>19 <b>don't know if it's used for statistical analysis.</b></p> <p>20 Q. What's the relationship between Ruby and R?</p> <p>21 <b>A. None that I know of.</b></p> <p>22 Q. What about Python?</p> <p>23 <b>A. It's another general purpose programming</b></p> <p>24 <b>language that's similar to Ruby.</b></p>                                                                                                          |
| <p style="text-align: right;">Page 66</p> <p>1 other languages too?</p> <p>2 <b>A. They may, they may.</b></p> <p>3 Q. Is there a reason why they wouldn't?</p> <p>4 <b>A. If you're a statistician and you -- your</b></p> <p>5 <b>job is to do statistical analysis, R includes all</b></p> <p>6 <b>the facilities required to do a lot of work, so you</b></p> <p>7 <b>don't need to use another language. You may use</b></p> <p>8 <b>another language, but you don't need to.</b></p> <p>9 Q. Are there trade journals and advertising</p> <p>10 channels that are focused solely on statisticians?</p> <p>11 <b>A. There are conferences that are focused on</b></p> <p>12 <b>statisticians. There are academic journals and</b></p> <p>13 <b>online magazines focused on statisticians. There</b></p> <p>14 <b>are blogs that are focused on statisticians.</b></p> <p>15 Q. Do you attend these conferences, any of</p> <p>16 these?</p> <p>17 <b>A. I have attended the useR! conference, which</b></p> <p>18 <b>is a conference dedicated to the use of R. I have</b></p> <p>19 <b>not attended the statistical conferences, but I plan</b></p> <p>20 <b>to in the future.</b></p> <p>21 Q. So when you go to the conferences, do you</p> <p>22 identify yourself as being with RSTUDIO?</p> <p>23 <b>A. Are you speaking of when I attended --</b></p> <p>24 Q. When you attend the useR! conference.</p> | <p style="text-align: right;">Page 68</p> <p>1 MR. GREENSTEIN: Can you grab RS518 to</p> <p>2 show the witness?</p> <p>3 Q. In the first paragraph, what do you mean by</p> <p>4 "even though Ruby definitely has more kinship to R</p> <p>5 than Python"?</p> <p>6 <b>A. (Witness reviews document.) Ruby is a</b></p> <p>7 <b>functional programming language, and R is a</b></p> <p>8 <b>functional programming language. Python is not as</b></p> <p>9 <b>intrinsically a functional language as Ruby and R;</b></p> <p>10 <b>so it's a fairly technical distinction, but that's</b></p> <p>11 <b>what I'm referring to there.</b></p> <p>12 Q. I have no idea what that means. What is a</p> <p>13 functional programming language?</p> <p>14 <b>A. A functional programming language is a</b></p> <p>15 <b>language where functions are first class objects in</b></p> <p>16 <b>the language that can be computed upon.</b></p> <p>17 MS. HUSTON: Does that help?</p> <p>18 (Laughter.)</p> <p>19 Q. Okay. How does one compute on a function</p> <p>20 in the language?</p> <p>21 <b>A. You could use a function as a variable.</b></p> <p>22 <b>You could pass a function to another function and</b></p> <p>23 <b>ask it to call it.</b></p> <p>24 Q. What is a function, an algorithm or --</p> |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| Page 69                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Page 71                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <p>1     <b>A. A function is a collection of commands that</b><br/> 2     <b>could be called parameters.</b><br/> 3     Q. Is a statistical calculation a function, or<br/> 4     the ability to do a statistical calculation?<br/> 5     <b>A. In the way that I'm talking about</b><br/> 6     <b>functions, I'm talking about functional programming</b><br/> 7     <b>languages. Almost every programming language</b><br/> 8     <b>supports functions. Functional programming</b><br/> 9     <b>languages allow more computation on functions</b><br/> 10    <b>themselves.</b><br/> 11    Q. Okay. So does that mean one could do<br/> 12    statistical computing with Ruby?<br/> 13    <b>A. Ruby's a general purpose programming</b><br/> 14    <b>language. You can do anything with Ruby.</b><br/> 15    Q. Would it be easier to do with it Ruby than<br/> 16    with Python, if I understand your distinction here?<br/> 17    <b>A. My point here is that there are bindings</b><br/> 18    <b>between R and Python that exist that are known to</b><br/> 19    <b>work; and my point here was that the only binding</b><br/> 20    <b>between Ruby and R that I could find reference to</b><br/> 21    <b>didn't -- was a pre-alpha binding that didn't work,</b><br/> 22    <b>essentially. So I was simply pointing out that the</b><br/> 23    <b>bindings between R and Python were more robust.</b><br/> 24    Q. Okay. Skipping down to the fifth paragraph</p> | <p>1     <b>A. That's correct, it's a hypothetical in this</b><br/> 2     <b>execution.</b><br/> 3     MR. GREENSTEIN: I would like to mark<br/> 4     518 as Exhibit 3.<br/> 5     (Marked, Exhibit 3, E-mail chain, top<br/> 6     one of which is from J.J. Allaire to D. Kaplan dated<br/> 7     4/3/10, RS518.)<br/> 8     Q. What is an interpreted language?<br/> 9     <b>A. An interpreted language is a language where</b><br/> 10    <b>the commands of the language are read by the</b><br/> 11    <b>environment and then executed immediately. That is</b><br/> 12    <b>distinguished from a compiled language where the</b><br/> 13    <b>commands of the language are compiled into machine</b><br/> 14    <b>code and then executed as machine code.</b><br/> 15    Q. Is R an interpreted language or a compiled<br/> 16    language?<br/> 17    <b>A. It's interpreted.</b><br/> 18    Q. What about Ruby?<br/> 19    <b>A. Interpreted.</b><br/> 20    Q. And S?<br/> 21    <b>A. Interpreted.</b><br/> 22    Q. And you can make calls to Ruby from R,<br/> 23    right?<br/> 24    <b>A. It's in principle possible, although as I</b></p>                                                                                                                                                                                                                    |
| Page 70                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Page 72                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <p>1     that begins "All of this activity," what does it<br/> 2     mean that "It is inevitable that 'RSTUDIO' will<br/> 3     therefore also morph into 'MathStudio'"?<br/> 4     <b>A. This customer, Danny Kaplan, is -- uses a</b><br/> 5     <b>bunch of different mathematical programming</b><br/> 6     <b>environments. He uses Mathematica, MATLAB, so he's</b><br/> 7     <b>interested in the notion of tools that target lots</b><br/> 8     <b>of different environments, back ends. So I was</b><br/> 9     <b>talking to him about that possibility.</b><br/> 10    So, you know, in this discussion we're<br/> 11    speculating on the notion that Python might become<br/> 12    an important player in math software and that<br/> 13    therefore, we might want to have a broader focus<br/> 14    within RSTUDIO, i.e., MathStudio. But that's not --<br/> 15    I don't believe that's true. This is a speculation<br/> 16    and a dialogue with Danny, and we've subsequently<br/> 17    talked to other people and tried to understand where<br/> 18    R is going in the field and where Python is going;<br/> 19    and we feel pretty confident that R is going to grow<br/> 20    to encompass everything it needs to encompass and<br/> 21    that the focus on a single language will be valuable<br/> 22    and useful for customers.<br/> 23    Q. So MathStudio is a hypothetical possibility<br/> 24    extension of --</p>                     | <p>1     <b>pointed out here, what exists there are -- it was</b><br/> 2     <b>considered pre-alpha, meaning possibly not working</b><br/> 3     <b>properly or not ready for production use.</b><br/> 4     Q. What is the system function in R?<br/> 5     <b>A. The system function allows you to call</b><br/> 6     <b>other processes.</b><br/> 7     Q. It allows you to call Ruby, right?<br/> 8     <b>A. It allows you to call anything you want.</b><br/> 9     Q. Okay. So from R you can call any other<br/> 10    programming language?<br/> 11    <b>A. From R you can invoke -- let's make a</b><br/> 12    <b>distinction here. The system function allows you to</b><br/> 13    <b>run other programs. You don't have any idea what</b><br/> 14    <b>those programs were written in. They're just</b><br/> 15    <b>programs.</b><br/> 16    Q. Okay.<br/> 17    <b>A. What we were talking about previously is</b><br/> 18    <b>about language bindings where you can actually</b><br/> 19    <b>directly interoperate with another language, so I'm</b><br/> 20    <b>not saying you can call any other language from R.</b><br/> 21    <b>You can execute a program. The language is opaque</b><br/> 22    <b>to you, not known to you.</b><br/> 23    Q. From RSTUDIO can you tell R to use its<br/> 24    system function to operate -- call any other</p> |

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1 program?

2 **A. You can use the system function in RSTUDIO.**

3 Q. RSTUDIO lets you use R's system function?

4 **A. It does. However, in our current**

5 **implementation we restrict what you can actually**

6 **call by putting the R process in a container, so we**

7 **make certain facilities available, but not an**

8 **unqualified all facilities.**

9 Q. That's a choice you make within the

10 RSTUDIO --

11 **A. Yes.**

12 Q. -- you know --

13 **A. In RSTUDIO, yes, yes.**

14 Q. It's written in one of the pieces that R is

15 easier to use if you are familiar with Ruby. Is

16 that a fair statement?

17 **A. That might be true because of the**

18 **functional programming background that they share,**

19 **yes.**

20 Q. Do you know what RinRuby is, R-i-n Ruby?

21 **A. No, I do not.**

22 Q. The information I have is that RinRuby is a

23 Ruby library that integrates the R interpreter in

24 Ruby.

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1 **A. Okay.**

2 Q. That doesn't ring a bell at all?

3 **A. No.**

4 Q. I ask you to glance through that, if you

5 could.

6 MR. GREENSTEIN: I don't have multiple

7 copies. I'm sorry.

8 **A. (Witness reviews document.) So this --**

9 **okay.**

10 MR. GREENSTEIN: Can you just mark that,

11 please.

12 (Marked, Exhibit 4, Document entitled

13 "Journal of Statistical Software," Jan. 2009, V. 29,

14 Issue 4.)

15 Q. We talked a few minutes ago about calls

16 from R to Ruby. If I understand this correctly,

17 this is going the other direction, calls from Ruby

18 into R?

19 **A. (Witness reviews document.) This appears to**

20 **make it possible to call R from Ruby, yes.**

21 Q. Okay. So there's some kind of back and

22 forth in both directions between the two of them?

23 **A. I don't know how this works. I will tell**

24 **you that any -- in principle, any program written in**

Page 75

1 **just about any computer language can call any other**

2 **program written in any other computer language, so**

3 **programs can invoke each other.**

4 Q. Okay. This particular article is in the

5 Journal of Statistical Software, so I assume it's

6 got something to do with statistical software.

7 **A. Yes.**

8 Q. So does that mean that Ruby has utility in

9 the statistical software field?

10 MS. HUSTON: Objection.

11 **A. I don't know. I don't know how much**

12 **utility it has in the statistical software field. I**

13 **don't hear a lot about it. As I said, somewhere in**

14 **the wild you can probably find instances of just**

15 **about any programming language calling any other**

16 **programming language. It doesn't mean that they are**

17 **used together frequently or commonly or that they**

18 **even work well together.**

19 Q. Are you familiar with the Journal of

20 Statistical Software?

21 **A. Yes.**

22 Q. Is that a respected publication in the

23 statistical software field?

24 **A. Yes.**

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1 MR. GREENSTEIN: Can you mark that as

2 No. 5, please.

3 (Marked, Exhibit 5, Printout from Web

4 titled at the top "Calling Ruby, Perl or Python from

5 R".)

6 Q. Lest you think I know anything about this,

7 that's where I got the information about using the

8 system function to call --

9 **A. Yeah.**

10 Q. -- Ruby from R. Is that an accurate

11 description of what you were explaining?

12 **A. (Witness reviews document.) So this shows**

13 **an example of using the system function to call**

14 **Ruby. Yes, it does.**

15 Q. Okay. Sorry I don't have extra copies for

16 your counsel.

17 It mentions a book by Peter Dalgaard,

18 D-a-l-g-a-a-r-d, called "Introductory Statistics

19 with R" --

20 **A. Yes.**

21 Q. -- and a book by John Verzani,

22 V-e-r-z-a-n-i, called "Using R for Introductory

23 Statistics."

24 **A. I am familiar with that as well.**

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1 Q. So both of them would suggest, as you had  
2 also, that R is useful for both complex statistics  
3 as well as introductory or more simple statistics?  
4 **A. You're saying that -- maybe you could draw  
5 that relationship --**  
6 Q. Sure.  
7 **A. -- it would be easier.**  
8 Q. The books are entitled essentially  
9 "Introductory statistics with the R language." You  
10 explained that the R language can be used for the  
11 most basic computation, typically wouldn't be, but  
12 it also is used for very complex statistics.  
13 **A. Yes.**  
14 Q. These books' titles would suggest that the  
15 R language is used in the introductory statistics  
16 field, which I would believe is the less complex  
17 field.  
18 **A. It has utility --**  
19 MS. HUSTON: Objection. (To the  
20 witness) Be sure to pause.  
21 MR. GREENSTEIN: I'm sorry?  
22 MS. HUSTON: I said "objection," and I  
23 asked the witness to pause to give me an opportunity  
24 to object before he answers.

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1 MR. GREENSTEIN: Right.  
2 **A. It has utility in introductory statistics.**  
3 Q. What is computational statistics? Is that  
4 the same as statistical computing?  
5 **A. I think -- I don't know exactly how to  
6 define that term.**  
7 Q. Do you know what RSRuby is?  
8 **A. I'm not familiar with it.**  
9 Q. It says with RSRuby you can use all the R  
10 routines directly from within Ruby code without  
11 knowing the R language. Is that your experience?  
12 **A. I don't know about that package.**  
13 MS. HUSTON: Objection.  
14 Q. Are you aware of any package that lets you  
15 use the R routines directly from within Ruby without  
16 knowing the R language?  
17 **A. I'm not aware of specific instances. It  
18 doesn't surprise me that that exists, but I don't  
19 know of specific instances of it.**  
20 Q. What kind of packages are there in R or for  
21 R that do statistical modeling?  
22 **A. There's econometric packages. There's  
23 bioinformatics packages. There's packages for  
24 clinical trials. There's packages for finance.**

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1 **There's actually a long list of kind of vertical  
2 areas that R is used in. Those are some examples of  
3 the verticals.**  
4 Q. And those all let you do statistical  
5 modeling?  
6 **A. I can't tell you what every package does.  
7 I wouldn't want to universally characterize all R  
8 packages. I would tell you that there are R  
9 packages in each of those disciplines that assist  
10 you in your work.**  
11 Q. Can you pull 537, please? This is a book,  
12 "R in a Nutshell," that you were kind enough to  
13 provide a copy from it.  
14 **A. (Witness reviews document.) Yes.**  
15 Q. This talks about learning how to program in  
16 R but also finding the right user-contributed-to R  
17 packages for statistical modeling and visualization  
18 and bioinformatics?  
19 **A. Okay.**  
20 Q. What is bioinformatics?  
21 **A. I can tell you I can't probably precisely  
22 define it, but I can give you my understanding.  
23 It's data analysis within biological research. And  
24 that's...**

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1 Q. Okay. And in the right column it talks  
2 about comprehensive reference for using R in data  
3 analytics and visualization.  
4 **A. Okay.**  
5 Q. What is data analytics?  
6 **A. That's the analysis of data.**  
7 MR. GREENSTEIN: Do you have page 480,  
8 RS480? Do you have that?  
9 MR. RUFO: 480?  
10 MR. GREENSTEIN: 480, yes.  
11 Q. In the center of that there is a comment  
12 from you to Joe Cheng about an excellent  
13 introduction to the R system by John Chambers and it  
14 references a book --  
15 **A. Uh-huh.**  
16 Q. -- "Software for Data Analysis:  
17 Programming With R," I think it's called?  
18 **A. Yes, it is.**  
19 Q. So you're familiar with that book?  
20 **A. Yes.**  
21 Q. And the Amazon link on that book says it's  
22 a valuable book for everybody involved in data  
23 analysis, not only statisticians.  
24 **A. Okay.**

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1 MS. HUSTON: Objection, foundation.  
 2 MR. GREENSTEIN: I said the Amazon link  
 3 references that.  
 4 MS. HUSTON: But this witness doesn't  
 5 have personal knowledge. I'm happy --  
 6 MR. GREENSTEIN: I haven't asked a  
 7 question yet. I've just given him background.  
 8 MS. HUSTON: All right.  
 9 Q. Is this book valuable for people who are  
 10 not statisticians in your view?  
 11 **A. I don't think so.**  
 12 MR. GREENSTEIN: Would you mark 480 as  
 13 an exhibit, please.  
 14 (Marked, Exhibit 6, E-mail chain, top  
 15 one of which is from J. Cheng to J.J. Allaire dated  
 16 7/27/09, RS480.)  
 17 MR. GREENSTEIN: Would you mark that.  
 18 (Marked, Exhibit 7, Printout from  
 19 Website, titled "RubyForge" at the top.)  
 20 Q. Would you let your counsel look at that,  
 21 because I don't have an extra copy, please.  
 22 (Witness hands document to his counsel.)  
 23 Q. Are you familiar with this Ruby Forge, or  
 24 what's it --

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1 **A. Ruby Forge, the Website?**  
 2 Q. Yes.  
 3 **A. I've heard of it.**  
 4 Q. And that talks about links between Ruby and  
 5 R, calling one from the other?  
 6 **A. This is a package that does that. It says**  
 7 **the development status is alpha.**  
 8 Q. Right. You're not familiar with it,  
 9 though?  
 10 **A. You know, in my e-mail I referenced that I**  
 11 **found one package and its development status was**  
 12 **alpha. This may have been that package, but I don't**  
 13 **recall specifically.**  
 14 Q. Okay, okay, sure.  
 15 THE WITNESS: Excuse me. Can I take a  
 16 break?  
 17 MS. HUSTON: Yes. Why don't we take a  
 18 break here.  
 19 MR. GREENSTEIN: Sure.  
 20 (Recess.)  
 21 MR. GREENSTEIN: Could you mark this,  
 22 please.  
 23 (Marked, Exhibit 8, Printout from Web,  
 24 titled "R-Forge" at the top.)

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1 MR. GREENSTEIN: And this will be 9.  
 2 (Marked, Exhibit 9, One-page document  
 3 entitled "What is R?".)  
 4 MR. GREENSTEIN: And that will be 10.  
 5 (Marked, Exhibit 10, Two-page document  
 6 entitled "UseR!, The R User Conference 2010".)  
 7 MR. GREENSTEIN: And this will be 11.  
 8 (Marked, Exhibit 11, One-page printout  
 9 from Web with "Revolution R and Revolution R  
 10 Enterprise: Revolutionary Products for..." at the  
 11 top.)  
 12 BY MR. GREENSTEIN:  
 13 Q. This has been marked as Exhibit No. 8. I  
 14 don't have multiple copies to show. Would you share  
 15 it with your counsel.  
 16 **A. (Witness reviews document.)**  
 17 Q. Are you familiar with that product?  
 18 **A. This is a Website.**  
 19 Q. Website?  
 20 **A. Yes, R-Forge. Yes, I am.**  
 21 Q. They talk about R being -- having linear  
 22 and nonlinear modeling.  
 23 **A. Okay.**  
 24 Q. You talked about linear modeling. What is

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1 nonlinear modeling?  
 2 **A. I'm not qualified to define nonlinear**  
 3 **modeling.**  
 4 Q. So there are different types of modeling  
 5 that are used with R; do you know that?  
 6 **A. They're talking about regression tests and**  
 7 **advanced statistical analysis techniques. That's**  
 8 **what they're talking about. I can't define**  
 9 **nonlinear modeling other than to say it is an**  
 10 **advanced statistical analysis technique. I would**  
 11 **probably need a graduate degree in statistics to**  
 12 **give you a good definition of it.**  
 13 Q. Well, they talk about a wide variety of  
 14 statistical and graphical techniques, so it's not  
 15 just statistical techniques; time series analysis  
 16 classification, clustering, et cetera. You're not  
 17 familiar with those other --  
 18 **A. I have heard of them. I know generally of**  
 19 **them.**  
 20 Q. Okay. Do you know what the R Journal is?  
 21 **A. Yes.**  
 22 Q. What is that?  
 23 **A. It's a periodical. I don't know what its**  
 24 **frequency is. It's just a periodical that's**

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1 **dedicated to the R language.**  
 2 Q. Is it from the R -- what's the group  
 3 called, the R Program, R Project? The R Project?  
 4 **A. I don't know if it is, I don't know if it**  
 5 **is.**  
 6 Q. Okay. I ask you to take a look at Exhibit  
 7 9.  
 8 **A. (Witness reviews document.)**  
 9 Q. I just have a couple questions on that when  
 10 you're ready.  
 11 **A. (Witness reviews document.) Okay.**  
 12 Q. It says, "R is an integrated suite of  
 13 software facilities for data manipulation,  
 14 calculation and graphical display." Is that a fair  
 15 statement?  
 16 **A. Yes.**  
 17 Q. It also -- and this is from the R Project.  
 18 That's the group that created and monitors R; is  
 19 that correct?  
 20 **A. Yes.**  
 21 Q. It says, "We," the R Project, "prefer to  
 22 think of it as an environment within which  
 23 statistical techniques are implemented," rather than  
 24 a statistical environment?

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1 **A. So let me read what you're -- it says,**  
 2 **"Many users think of R as a statistics system. We**  
 3 **prefer to think of it as an environment within which**  
 4 **statistical techniques are implemented."**  
 5 Q. Okay.  
 6 **A. Okay?**  
 7 Q. Is that a fair statement? Do you agree  
 8 with that?  
 9 **A. I don't understand the difference that**  
 10 **they're talking about. If you said, what's the**  
 11 **difference between a statistics system and an**  
 12 **environment within which statistical techniques are**  
 13 **implemented, I don't understand the semantics in**  
 14 **that distinction.**  
 15 Q. Okay. Does the language, "The term  
 16 'environment' is intended to characterize it as a  
 17 fully planned and coherent system rather than an  
 18 incremental accretion of very specific and  
 19 inflexible tools," does that help explain it?  
 20 **A. I think that what they're saying is that**  
 21 **the various tools which compose R work well**  
 22 **together.**  
 23 Q. Can R be used for data mining?  
 24 **A. You'll have to explain that question a**

Page 87

1 **little bit.**  
 2 Q. Do you know what data mining is?  
 3 **A. I believe it means extracting data from,**  
 4 **you know, extracting data from the operation of a**  
 5 **business process. That would be my understanding of**  
 6 **what it means, but...**  
 7 Q. How would one extract that data, from a  
 8 database or --  
 9 **A. Whatever medium it's stored in. In a lot**  
 10 **of companies you would find data in a database, and**  
 11 **it could be in other places as well.**  
 12 Q. Did you go to the 2010 R user conference or  
 13 an earlier one?  
 14 **A. 2010.**  
 15 Q. This is Exhibit 10, is that?  
 16 **A. (Witness reviews document.) Yes.**  
 17 Q. It's kind of a cover Web page from the 2010  
 18 conference. It speaks of R as a lingua franca. Can  
 19 you read that line?  
 20 **A. The line that has a highlight on it?**  
 21 Q. Yes.  
 22 **A. "R as the lingua franca of data analysis**  
 23 **and statistical computing."**  
 24 Q. Do you know what they mean by that?

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1 **A. I don't know exactly what they mean. The**  
 2 **two words are often conflated in the industry and**  
 3 **used in place of each other, so I'm not sure what**  
 4 **this author meant by that.**  
 5 Q. This is what the conference focuses on,  
 6 right?  
 7 **A. It says it's one of a number of things the**  
 8 **conference focuses on.**  
 9 Q. One of three things?  
 10 **A. Yes.**  
 11 Q. Okay. So that would -- so that the  
 12 organizers of the useR! 2010 conference speak of  
 13 data analysis and statistical computing as separate  
 14 items --  
 15 MS. HUSTON: Objection.  
 16 Q. -- correct?  
 17 **A. They list them as separate items.**  
 18 Q. And No. 2, it allows users "to discuss and  
 19 exchange ideas on how R can be used to do  
 20 statistical computations, data analysis,  
 21 visualization and exciting applications in various  
 22 fields"; is that what it says?  
 23 **A. That is what it says.**  
 24 Q. Okay. So here too the R focus is not

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1 limited to statistical computations but it includes  
 2 data analysis, visualization, and exciting  
 3 applications in various fields?  
 4 **A. The field is diverse. People identify what  
 5 they're doing in different ways. It may be that  
 6 some people identify what they're doing as data  
 7 analysis, some people identify it as statistical  
 8 computing, and they're really doing the same thing.  
 9 Part of what may be going on here is they are simply  
 10 providing accessible descriptions that the maximum  
 11 number of people will identify with.**  
 12 **In my experience in the field and with  
 13 the product, the terms are used interchangeably, and  
 14 I'm not sure where one begins or where one ends or  
 15 that they aren't the same thing.**  
 16 Q. Okay. You are not sure?  
 17 **A. They may simply be making their description  
 18 more applicable by including different ways that  
 19 people refer to the same thing.**  
 20 Q. That's speculation on your part?  
 21 **A. Yes, it is speculation.**  
 22 Q. You mentioned Revolution Analytics is one  
 23 of the companies that has a competitive product?  
 24 **A. Yes.**

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1 Q. Who are they and what do you know about  
 2 them?  
 3 **A. They're a company that used to be based in  
 4 Connecticut. I believe they are now based in  
 5 California. They have their own variation of R  
 6 called Revolution R that has some performance  
 7 enhancements, includes an IDE called the Revolution  
 8 R Productivity Environment; and they've also got  
 9 some new products that relate to calling R from the  
 10 Web and analyzing large data sets with R.**  
 11 Q. Exhibit 11 is a page from their Website  
 12 that talks about the product, one aspect of the  
 13 product.  
 14 **A. (Witness reviews document.) Okay.**  
 15 Q. And they appear from this to focus a lot on  
 16 very, very large databases, big data analysis?  
 17 **A. They have a product called RevoScaleR that  
 18 is designed -- they have one product --**  
 19 Q. What's it called again?  
 20 **A. RevoScaleR -- that is designed to make  
 21 large data sets analyzable. So they have created a  
 22 new data file format that is specific to doing  
 23 statistical analysis and computation, and then they  
 24 suggest that people put their data into that new**

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1 **file format and then do their analysis on it.**  
 2 Q. That's the XDF file format?  
 3 **A. That sounds right to me, but, I mean, I'd  
 4 have to see -- is that mentioned on this page?**  
 5 Q. No. It's the one I'm going to give you  
 6 next.  
 7 **A. Okay.**  
 8 MR. GREENSTEIN: Will you mark that.  
 9 (Marked, Exhibit 12, One-page printout  
 10 from Web with "Dana Gardner's Instablog" at the  
 11 top.)  
 12 **A. (Witness reviews document.)**  
 13 Q. Can I see that for a second?  
 14 (Witness hands Attorney Greenstein  
 15 document.)  
 16 Q. They talk about using R for "enterprise  
 17 applications as quantitative finance and risk  
 18 management, social media, bioinformatics and  
 19 telecommunications data analysis."  
 20 **A. Okay.**  
 21 Q. Does that sound correct in your experience?  
 22 **A. I don't have experience with those  
 23 customers.**  
 24 Q. Okay. It also says, "With RevoScaleR we're

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1 focused on making analytical models, not just scale  
 2 to the big data sets, but run the analysis in a  
 3 fraction of the time compared to traditional  
 4 systems."  
 5 **A. Okay.**  
 6 Q. Do you know what they mean by "analytical  
 7 models"?  
 8 **A. May I see the document, see if they give  
 9 examples?**  
 10 Q. They do.  
 11 **A. (Witness reviews document.) Summary  
 12 statistics, linear regression, binomial logistic  
 13 regression and crosstabs are the examples that they  
 14 provide.**  
 15 Q. That is a collection of the most common  
 16 statistical algorithms that you just read off,  
 17 right?  
 18 **A. Let me just see.**  
 19 Q. Sure.  
 20 **A. I think so, but...**  
 21 Q. It's not what they call analytical models.  
 22 It's like three paragraphs down.  
 23 MS. HUSTON: Objection.  
 24 **A. Okay. (Witness reviews document.) I**

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1 believe that what they're saying here, most common  
 2 statistical algorithms, is the definition of  
 3 analytical models. Okay? So in this quote up here  
 4 (indicating), they have a short quote from their  
 5 vice-president of marketing, and he says "analytical  
 6 models." Okay? He doesn't fully elaborate on that  
 7 term in that sentence. I believe that the  
 8 elaboration of that term is further down when they  
 9 define what RevoScaleR actually does.  
 10 Q. Okay.  
 11 MS. HUSTON: Can we go off the record  
 12 for a moment?  
 13 MR. GREENSTEIN: Sure.  
 14 (Discussion off the record.)  
 15 (Luncheon recess at 12:08 p.m.)  
 16 (Mr. Rufo left the deposition.)  
 17  
 18  
 19  
 20  
 21  
 22  
 23  
 24

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1 AFTERNOON SESSION (12:42 p.m.)  
 2 BY MR. GREENSTEIN:  
 3 Q. Mr. Allaire, the Revolution Analytics  
 4 Website talks about Revolution R Enterprise having a  
 5 "visual development environment that leaves the  
 6 command line far behind." What is a visual  
 7 development environment compared to an IDE?  
 8 A. That is an IDE. So that's marketing  
 9 language that their Website -- I don't know exactly  
 10 what they mean. They have an IDE for R.  
 11 Q. Is your IDE for RSTUDIO a visual  
 12 development environment also?  
 13 A. I don't know what they mean by "visual."  
 14 Our tool really lets users work with text console,  
 15 command console, script files, and then they also  
 16 may display some graphics; but the Revolution  
 17 product does similar -- I don't know what they mean  
 18 by "visual" there.  
 19 Q. Have you ever heard of the Rattle  
 20 package --  
 21 A. I have heard of it.  
 22 Q. -- R-a-t-t-l-e?  
 23 A. I've heard of Rattle, yes.  
 24 Q. It's promoted as a data mining GUI for R?

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1 A. Okay.  
 2 Q. GUI is "graphical user interface"?  
 3 A. That's what it stands for in that case,  
 4 yes.  
 5 Q. You're not familiar with the Rattle  
 6 package?  
 7 A. I don't think I've seen it.  
 8 Q. It talks about having a graphical user  
 9 interface specifically for data mining using R. So  
 10 you wouldn't know what they were talking about  
 11 there?  
 12 A. I have not seen the package. I don't know  
 13 what they're talking about.  
 14 Q. Are you familiar with any packages that  
 15 provide data mining for R?  
 16 A. I don't -- let me say this: No, and I also  
 17 don't know exactly what you mean by "data mining" in  
 18 this case.  
 19 Q. Okay. Are you familiar with entity  
 20 relationship modeling?  
 21 A. I've heard of it.  
 22 Q. Okay. Your counsel was kind enough to  
 23 provide us with a couple hundred pages of 50  
 24 different examples of ER used as an abbreviation for

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1 "entity relationship." These are pages 679 and 680  
 2 of the disclosures. Are those documents that you  
 3 provided?  
 4 A. I did.  
 5 Q. So you're familiar with all those  
 6 documents?  
 7 A. I'm familiar with this document.  
 8 Q. Are you familiar with all the documents  
 9 that were provided?  
 10 A. Yes, I've seen the documents, yeah.  
 11 Q. Okay. Did you actually provide them or --  
 12 A. Yeah.  
 13 Q. So can you tell me briefly what an entity  
 14 relationship modeling program does?  
 15 A. It would assist people in designing a  
 16 database.  
 17 Q. And does it assist in designing reports  
 18 from databases?  
 19 A. Are you speaking about the whole category,  
 20 or are you speaking about a specific product or --  
 21 Q. I'm -- generally, I'm trying to find your  
 22 perception of what entity relationship modeling is.  
 23 A. Yeah.  
 24 Q. You provided a whole bunch of documents

Page 97

1 about it.

2 **A. Entity relationship modeling is assisting**

3 **people in modeling a database. That's very much of**

4 **a --**

5 Q. Modeling a database. Does that include

6 extracting data from the database?

7 **A. It certainly seems like it could.**

8 Q. Some of the documents you provided say that

9 data models are tools used in analysis to describe

10 data requirements and assumptions in a database.

11 **A. Okay.**

12 Q. Are you familiar with entity relationship

13 diagrams?

14 **A. I've heard of them also. Let me say**

15 **something. It seems likely that an entity**

16 **relationship modeling tool would allow you to run a**

17 **report that describes the structure of a database.**

18 **That seems likely, that they would do that.**

19 Q. Okay. And would that report do

20 calculations on the data in the database?

21 **A. You know, I'm not familiar enough with the**

22 **tools.**

23 Q. Would it provide a graphical representation

24 of the data?

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1 **A. It seems like it might provide a graphical**

2 **representation of the structure of the database.**

3 Q. In your experience, if you have any, with

4 entity relationship models, could these be used to

5 write some kind of statistical algorithm on the

6 data?

7 **A. On the structure of the database or on the**

8 **underlying data?**

9 Q. On the underlying data.

10 **A. Would an entity relationship modeling tool**

11 **be used to do statistical analysis of the underlying**

12 **data in the database; is that what you are asking?**

13 Q. In creating a report would it do -- would

14 it operate on the data in any statistical fashion,

15 simple or complex?

16 **A. You're asking me to characterize tools that**

17 **I haven't -- I don't have direct experience with --**

18 Q. Okay.

19 **A. -- but I would say that -- again, I can't**

20 **characterize it.**

21 Q. If you don't know, you don't know.

22 Are you familiar with the various levels

23 of abstraction of a database, external, conceptual

24 and internal?

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1 **A. I'm not familiar with that terminology.**

2 Q. How did you find all these documents that

3 are in this list on pages 6 -- what is 97 and 98?

4 **A. Surfing the Web.**

5 Q. Okay. So you just picked out anything that

6 had the words "entity relationship" in it and not --

7 you didn't read the articles to understand them?

8 **A. I did not -- did I read every word of every**

9 **article? No. Did I attempt to find articles where**

10 **the abbreviation ER was used concurrent with the**

11 **term "entity relationship"? I did.**

12 Q. Do you know the relationship between entity

13 relationship modeling and UML?

14 **A. I'm not aware of the explicit relationship,**

15 **no.**

16 Q. Are you aware of UML being used in any kind

17 of a statistical computer application?

18 **A. I am not personally aware of it, no.**

19 Q. Would anyone in the company be aware of it?

20 **A. No.**

21 Q. Sorry?

22 **A. No.**

23 Q. Okay. I'll take that back. What is

24 RFusion?

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1 **A. RFusion is a name that we considered for**

2 **another product.**

3 Q. You considered it?

4 **A. Yeah.**

5 Q. And is it still under consideration or --

6 **A. Yeah.**

7 Q. What would that product be?

8 **A. It could be -- we considered a product that**

9 **would be -- that's basically an alternate name for**

10 **the RSTUDIO product, a potential alternate name for**

11 **the RSTUDIO product.**

12 Q. You have no current plans to use it, but --

13 **A. We might need to use it.**

14 Q. Pardon?

15 **A. We may or may not need to use it. We plan**

16 **to use it if we need to.**

17 Q. Okay. It's kind of a standby name in case?

18 **A. It's an alternate name that we'll use if we**

19 **need to.**

20 Q. How about Radix?

21 **A. That's also an alternate name that we may**

22 **use. It also is a potential company name, so I'd**

23 **say it's more likely a company name.**

24 Q. You have no specific plans to use it,

Page 101

1    though?

2    **A. Well, as a company name.**

3    Q. You have no specific plans to use it?

4    MS. HUSTON: Objection.

5    Q. Do you have specific plans to use it?

6    MS. HUSTON: Objection.

7    Q. Do you have specific plans to use "Radix"?

8    MS. HUSTON: Objection.

9    **A. Yes.**

10   Q. Okay. You said it was an alternate, so I

11   understood that to mean you may use it, not

12   specifically will use it; is that correct?

13   **A. We're going to use it as -- we plan on**

14   **using it as our company name.**

15   Q. Okay, but not as a product name?

16   MS. HUSTON: Objection.

17   **A. Typically company names are combined with**

18   **other words to form product names. To that extent**

19   **we would.**

20   Q. When do you plan to use Radix as a company

21   name?

22   **A. We are going to publicly introduce our**

23   **products at some point in the next year or two, and**

24   **at that time is when we would use it.**

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1    Q. You'll change the company name to Radix?

2    **A. Yes.**

3    Q. And would the RFusion name replace RSTUDIO?

4    MS. HUSTON: Objection.

5    **A. RSTUDIO is the name that we intend to use**

6    **for our product. We're obviously in a proceeding**

7    **related to that. So if it turns out that we can't**

8    **use RSTUDIO, we intend to use RFusion as the name.**

9    Q. Uh-huh. Have you ever heard of Professor

10   George Merovich, M-e-r-o-v-i-c-h?

11   **A. I have not.**

12   Q. West Virginia University?

13   **A. I have not.**

14   Q. Then I won't ask you about him. Is IBM

15   active in the statistical computing field?

16   **A. What I know about IBM is that they**

17   **acquired a company called SPSS, which is a company**

18   **that is in the statistical computing field. So by**

19   **virtue of that acquisition, I would say that they**

20   **are. That's what I know. I don't know of other**

21   **detailed...**

22   MR. GREENSTEIN: Okay. I have no more

23   questions.

24   MS. HUSTON: I have just a couple of

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1    questions on cross-examination.

2    MR. GREENSTEIN: On what?

3    MS. HUSTON: Cross-examination.

4    CROSS-EXAMINATION

5    BY MS. HUSTON:

6    Q. Mr. Allaire, I'm putting before you Exhibit

7    3. Do you recall that you testified about this

8    document previously?

9    **A. (Witness reviews document.) Yes.**

10   Q. And do you see in the paragraph below the

11   paragraph numbered 3 there's a statement about

12   "RSTUDIO will therefore also morph into MathStudio"?

13   **A. Yes.**

14   Q. What did you mean by that statement?

15   **A. Well, to complete the quotation, it says,**

16   **"As you pointed out during our visit" -- I'm**

17   **speaking to Danny -- "it's inevitable that RSTUDIO**

18   **will therefore also morph into MathStudio." Danny,**

19   **during my visit, suggested that perhaps Python**

20   **software or Python would be important to**

21   **mathematical software, and therefore we might want**

22   **to have a product that was more broadly construed,**

23   **the name of which was more broadly construed. And I**

24   **thought that might be possible in this e-mail, and**

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1    **I'm kind of acknowledging that. But as we have done**

2    **further -- learned more about the customers and the**

3    **market and done further investigation, I don't think**

4    **that's the case. I think that R will grow to**

5    **encompass everything it needs to and that a product**

6    **offering focused solely on R will do what customers**

7    **need.**

8    Q. So as you sit here today, do you think it's

9    inevitable or even likely that RSTUDIO will morph

10   into MathStudio?

11   **A. No, I do not.**

12   Q. Do you recall that Mr. Greenstein asked you

13   about certain goods and services in your trademark

14   applications?

15   **A. Yes.**

16   Q. Do you recall that he asked you about the

17   design and development of computer software?

18   **A. Yes.**

19   Q. And do you recall that you testified that

20   you intended that to encompass your development or

21   your company's development of RSTUDIO?

22   **A. I did, yes.**

23   Q. At the time that you signed this

24   application, did you also intend it to cover



EXHIBIT  
*Allaire*  
/\_\_\_\_\_  
JKC 9/27/10

PENGAD 800-681-6888

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD

EMBARCADERO TECHNOLOGIES, INC.  
  
Opposer  
v.  
RSTUDIO, INC.  
  
Applicant.

Opposition No.: 91-193,335

Trademarks: RSTUDIO

Serial Nos.: 77/691,980  
77/691,984  
77/691,987

OPPOSER'S NOTICE OF DEPOSITION OF JOSEPH J. ALLAIRE

PLEASE TAKE NOTICE that, pursuant to Federal Rule of Civil Procedure 30, Opposer EMBARCADERO TECHNOLOGIES, INC. ("Embarcadero", or "Opposer"), shall take the discovery deposition of JOSEPH J. ALLAIRE on Thursday, May 25, 2010, commencing at 10:00 a.m. before a duly authorized notary public or before some other officer authorized by law to administer oaths, said deposition to continue until completed.

The deposition shall take place at 111 Ethyl Way, Unit F, Stoughton, MA 02072 and shall be recorded stenographically.

PLEASE TAKE FURTHER NOTICE that the witness is obligated to produce the documents described in Exhibit A on or before May 25, 2010, at 9:30 a.m., at 111 Ethyl Way, Unit F, Stoughton, MA 02072.

You are obligated to attend and give testimony in this matter.

Dated: April 19, 2010

Respectfully submitted,  
EMBARCADERO TECHNOLOGIES, INC.

By: /Martin R Greenstein/  
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Attorneys for Opposer

## EXHIBIT A

For purposes of these document requests, “documents and things” mean all writings, diagrams, photographs, tangible articles, legal documents, e-mails, faxes, electronic records, CD-roms, DVD’s and documents and records stored in any electronic, optical or other media.

The RSTUDIO Mark shall mean the mark RSTUDIO or R STUDIO, R-STUDIO, R/STUDIO (in one or two words, with or without punctuation), alone or in combination with any other words, symbols or designs.

1. All documents and things concerning or relating to the creation, selection, and adoption by you or any related or predecessor companies, of the RSTUDIO Mark.
2. All documents concerning or relating to any searches, investigations or reports on the availability for use or registration of the RSTUDIO Mark.
3. All documents which refer or relate to your awareness of Opposer Embarcadero Technologies, Inc. and Opposer’s mark ER/STUDIO.
4. All documents and things concerning or relating to your bona fide intent to use the RSTUDIO Mark in US commerce on each and every item of goods and/or services set forth in the applications opposed herein, namely, #77/691,980, #77/691,984 and #77/691,987 as of the March 16, 2009 filing date.
5. All documents and things concerning or relating to all current, commercial use by you, any related company or any licensee of the RSTUDIO Mark in US commerce on any goods or services, including but not limited to each and every item of goods and services set forth the applications opposed herein: #77/691,980, #77/691,984 and #77/691,987.
6. All documents and things concerning or relating to any plans which you have or made for the use of the RSTUDIO Mark on or in connection with any products or services.
7. All documents and things concerning or relating to any assignment, consent, authorization, license, contract, loan, security agreement, or permission between you and

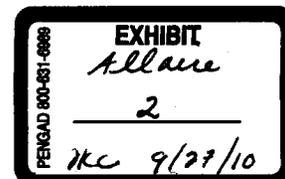
- any individual and/or entity to acquire rights of any sort in, including but not limited to permission to use the RSTUDIO Mark.
8. All documents and things concerning or relating to the “R” computing language and the R Project for Statistical Computing, including but not limited to licenses, agreements, permissions and other rights Applicant claims from or through the R Project for Statistical Computing.
  9. All documents and things concerning or relating to correspondence or conversations Applicant has had with any third parties (excluding Applicant’s attorneys), including but not limited to representatives of or people affiliated with or acting on behalf of the R Project for Statistical Computing, about this opposition, about Opposer or about rights in the mark RSTUDIO.
  10. All documents and things concerning or relating to Opposer, including but not limited to Opposer’s trademarks, product line, business activities, software, background or personnel.
  11. Representative samples of all labels, packaging, documentation, user manuals, brochures, advertising and other materials created by or for Applicant in connection with its current or planned RSTUDIO products or services.
  12. All documents and things that relate to or explain why Applicant’s trademark includes the word “Studio”, and the message or concept intended to be communicated to customers by the term “Studio”.
  13. All documents and things which support, contradict and/or explain the denial of the allegations of Par. 6 of the Notice of Opposition.
  14. All documents and things which support, contradict and/or explain the denial of the allegations of Par. 7 of the Notice of Opposition.

**CERTIFICATE OF SERVICE**

I hereby certify that a true and correct copy of the foregoing **OPPOSER'S NOTICE OF DEPOSITION OF JOSEPH J. ALLAIRE** is being served on April 19, 2010, by first class mail, postage prepaid on Applicant's Attorney of Record at his address below:

Charles E. Weinstein, Esq.  
FOLEY HOAG LLP  
155 Seaport Blvd, Ste 1600  
Boston, MA 02210-2600

/Martin R Greenstein/  
Martin R. Greenstein



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD

EMBARCADERO TECHNOLOGIES, INC.  
  
Opposer  
v.  
RSTUDIO, INC.  
  
Applicant.

Opposition No.: 91-193,335

Trademarks: RSTUDIO

Serial Nos.: 77/691,980  
77/691,984  
77/691,987

**OPPOSER'S FIRST RULE 30(b)6  
NOTICE OF DEPOSITION OF RSTUDIO, INC.**

PLEASE TAKE NOTICE that, pursuant to Federal Rule of Civil Procedure 30(b)6, Opposer EMBARCADERO TECHNOLOGIES, INC. ("Embarcadero", or "Opposer"), shall take the discovery deposition of Applicant, RSTUDIO, INC. ("RSTUDIO" or "Applicant"), on Friday, May 26, 2010, commencing at 10:00 a.m. before a duly authorized notary public or before some other officer authorized by law to administer oaths, said deposition to continue until completed.

The deposition shall take place at 111 Ethyl Way, Unit F, Stoughton, MA 02072 and shall be recorded stenographically.

**INSTRUCTIONS**

Pursuant to Federal Rule of Civil Procedure 30(b)(6), Applicant is directed to designate one or more of its officers, directors, managers, or other persons who consent to testify on its behalf and who have knowledge of and are adequately prepared to testify concerning the topics enumerated below. Pursuant to Federal Rule of Civil Procedure (30)(b)(6), Applicant is also requested to make all documents and things responsive to Exhibit A, attached hereto, available for inspection and copying on or before May 26, 2010 at 9:30 a.m., at 111 Ethyl Way, Unit F, Stoughton, MA 02072.

**TOPICS**

1. The RSTUDIO Mark shall mean the mark RSTUDIO or R STUDIO, R-STUDIO,

R/STUDIO (in one or two words, with or without punctuation), alone or in combination with any other words, symbols or designs.

2. The corporate structure, ownership structure, financial structure and management of RSTUDIO, INC. as it exists today, and any and all changes thereto since 2007.
3. All license, agreements, contracts or other arrangements, verbal or written, regarding the registration, ownership and/or use of the RSTUDIO Mark.
4. The bona fide intent of RSTUDIO to use the RSTUDIO Mark in US commerce on each and every item of goods and/or services set forth in the applications opposed herein, namely, #77/691,980, #77/691,984 and #77/691,987 as of the March 16, 2009 filing date.
5. The creation, selection, and adoption by RSTUDIO or any related or predecessor companies, of the RSTUDIO Mark.
6. Any and all searches, investigations or reports on the availability for use or registration of the RSTUDIO Mark.
7. RSTUDIO's awareness of Opposer Embarcadero Technologies, Inc. and Opposer's mark ER/STUDIO.
8. All current, commercial use by RSTUDIO, any related company or any licensee of the RSTUDIO Mark in US commerce on any goods or services, including but not limited to each and every item of goods and services set forth the applications opposed herein: #77/691,980, #77/691,984 and #77/691,987.
9. All plans which RSTUDIO has or made for the use of the RSTUDIO Mark on or in connection with any products or services.
10. Any assignment, consent, authorization, license, contract, loan, security agreement, or permission between RSTUDIO and any individual and/or entity to acquire rights of any sort in, including but not limited to permission to use the RSTUDIO Mark.
11. The "R" computing language and the R Project for Statistical Computing, including but

not limited to licenses, agreements, permissions and other rights RSTUDIO claims from or through the R Project for Statistical Computing.

12. Correspondence or conversations RSTUDIO has had with any third parties (excluding its attorneys), including but not limited to representatives of or people affiliated with or acting on behalf of the R Project for Statistical Computing, about this opposition, about Opposer or about rights in the mark RSTUDIO.
13. All knowledge RSTUDIO has and investigations RSTUDIO has made or caused to be made about Opposer, including but not limited to Opposer's trademarks, product line, business activities, software, background or personnel.
14. Labels, packaging, documentation, user manuals, brochures, advertising and other materials created by or for RSTUDIO in connection with its current or planned RSTUDIO products or services.
15. Why RSTUDIO's trademark and corporate name includes the word "Studio", and the message or concept intended to be communicated to customers by the term "Studio".
16. All facts which support, contradict and/or explain RSTUDIO's denial of the allegations of Par. 6 of the Notice of Opposition.
17. All facts which support, contradict and/or explain RSTUDIO's denial of the allegations of Par. 7 of the Notice of Opposition.

RSTUDIO, by and through its designated Rule 30(b)6 witness(es), is obligated to attend and give testimony in this matter.

Dated: April 19, 2010

Respectfully submitted,  
EMBARCADERO TECHNOLOGIES, INC.  
By: /Martin R Greenstein/  
Martin R. Greenstein  
Mariela P. Vidolova  
TechMark a Law Corporation  
4820 Harwood Road, 2nd Floor  
San Jose, CA 95124-5273  
Tel: 408-266-4700; Fax: 408-850-1955  
E-Mail: [MRG@TechMark.com](mailto:MRG@TechMark.com)  
Attorneys for Opposer

## EXHIBIT A

For purposes of these document requests, “documents and things” mean all writings, diagrams, photographs, tangible articles, legal documents, e-mails, faxes, electronic records, CD-roms, DVD’s and documents and records stored in any electronic, optical or other media.

The RSTUDIO Mark shall mean the mark RSTUDIO or R STUDIO, R-STUDIO, R/STUDIO (in one or two words, with or without punctuation), alone or in combination with any other words, symbols or designs.

1. All documents and things concerning or relating to the creation, selection, and adoption by you or any related or predecessor companies, of the RSTUDIO Mark.
2. All documents concerning or relating to any searches, investigations or reports on the availability for use or registration of the RSTUDIO Mark.
3. All documents which refer or relate to your awareness of Opposer Embarcadero Technologies, Inc. and Opposer’s mark ER/STUDIO.
4. All documents and things concerning or relating to your bona fide intent to use the RSTUDIO Mark in US commerce on each and every item of goods and/or services set forth in the applications opposed herein, namely, #77/691,980, #77/691,984 and #77/691,987 as of the March 16, 2009 filing date.
5. All documents and things concerning or relating to all current, commercial use by you, any related company or any licensee of the RSTUDIO Mark in US commerce on any goods or services, including but not limited to each and every item of goods and services set forth the applications opposed herein: #77/691,980, #77/691,984 and #77/691,987.
6. All documents and things concerning or relating to any plans which you have or made for the use of the RSTUDIO Mark on or in connection with any products or services.
7. All documents and things concerning or relating to any assignment, consent, authorization, license, contract, loan, security agreement, or permission between you and

any individual and/or entity to acquire rights of any sort in, including but not limited to permission to use the RSTUDIO Mark.

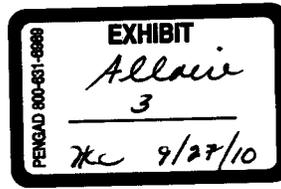
8. All documents and things concerning or relating to the “R” computing language and the R Project for Statistical Computing, including but not limited to licenses, agreements, permissions and other rights Applicant claims from or through the R Project for Statistical Computing.
9. All documents and things concerning or relating to correspondence or conversations Applicant has had with any third parties (excluding Applicant’s attorneys), including but not limited to representatives of or people affiliated with or acting on behalf of the R Project for Statistical Computing, about this opposition, about Opposer or about rights in the mark RSTUDIO.
10. All documents and things concerning or relating to Opposer, including but not limited to Opposer’s trademarks, product line, business activities, software, background or personnel.
11. Representative samples of all labels, packaging, documentation, user manuals, brochures, advertising and other materials created by or for Applicant in connection with its current or planned RSTUDIO products or services.
12. All documents and things that relate to or explain why Applicant’s trademark includes the word “Studio”, and the message or concept intended to be communicated to customers by the term “Studio”.
13. All documents and things which support, contradict and/or explain the denial of the allegations of Par. 6 of the Notice of Opposition.
14. All documents and things which support, contradict and/or explain the denial of the allegations of Par. 7 of the Notice of Opposition.

**CERTIFICATE OF SERVICE**

I hereby certify that a true and correct copy of the foregoing **OPPOSER'S FIRST RULE 30(b)6 NOTICE OF DEPOSITION OF RSTUDIO, INC.** is being served on April 19, 2010, by first class mail, postage prepaid on Applicant's Attorney of Record at his address below:

Charles E. Weinstein, Esq.  
FOLEY HOAG LLP  
155 Seaport Blvd, Ste 1600  
Boston, MA 02210-2600

/Martin R Greenstein/  
Martin R. Greenstein



JJ Allaire <jj.allaire@gmail.com>

## python vs. ruby

2 messages

JJ Allaire <jj.allaire@gmail.com>

Sat, Apr 3, 2010 at 8:23 AM

To: Daniel Kaplan <kaplan@macalester.edu>

Danny,

Quick follow up on our discussion about a web language to learn. Even though Ruby definitely has more kinship to R than Python, I think Python might have a few advantages from your standpoint:

1) Python/R bindings are already very strong (the only Ruby/R binding I could find was not actively maintained and listed as "pre-alpha")

2) In doing web research to follow up on the discussions we had last week, Joe and I discovered a very interesting project called SAGE (<http://www.sagemath.org/>) which is an open-source project aimed at replacing mainstream math software with Python wrappers to various other open-source numerics packages. It is quite rough around the edges but there appears to be a lot of interest in it.

3) More interestingly, sage has a project called "Sage Notebook" which is actually attempting to satisfy many of the web/publishing scenarios we discussed: <http://www.sagenb.org/> Again, rough around the edges but illustrates the potential.

All of this activity makes me think that there will be parallel paths of open-source innovation in math software: R and Python. As you pointed out during our visit, it is inevitable that "RStudio" will therefore also morph into "MathStudio" and share strong focuses on R and Python.

So, given that the advantages of Ruby over Python are somewhat subtle and that Python is going to be a major player in Math I'd go for Python if I were you!

Best,

J.J.

Daniel Kaplan <kaplan@macalester.edu>

Sat, Apr 3, 2010 at 1:40 PM

To: JJ Allaire <jj.allaire@gmail.com>

JJ,

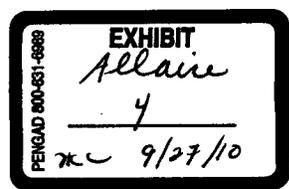
Thanks for this advice. I'm going to take it. Among other things, we teach a course at Macalester using Python, which increases the chances of my being able to hire a student assistant.

I'll have a good chance to get started with Python this summer, since I'm co-teaching a workshop to introduce science faculty to basic computation. I'll be teaching a 3-day segment on R, which will be followed by a 3-day segment on Python taught by a Harvey Mudd computer scientist, Z Sweedyk.

There is general and growing interest among mathematicians in SAGE, so this is one to keep track of as you

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RS518



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# *Journal of Statistical Software*

January 2009, Volume 29, Issue 4.

<http://www.jstatsoft.org/>

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## **RinRuby: Accessing the R Interpreter from Pure Ruby**

**David B. Dahl**  
Texas A&M University

**Scott Crawford**  
Texas A&M University

---

### **Abstract**

**RinRuby** is a Ruby library that integrates the R interpreter in Ruby, making R's statistical routines and graphics available within Ruby. The library consists of a single Ruby script that is simple to install and does not require any special compilation or installation of R. Since the library is 100% pure Ruby, it works on a variety of operating systems, Ruby implementations, and versions of R. **RinRuby**'s methods are simple, making for readable code. This paper describes **RinRuby** usage, provides comprehensive documentation, gives several examples, and discusses **RinRuby**'s implementation. The latest version of **RinRuby** can be found at the project website: <http://rinruby.ddahl.org/>.

*Keywords:* R, Ruby, JRuby, Java, **RinRuby**.

---

## **1. Introduction**

Scripting languages such as Ruby, Python, Perl, and PHP are increasingly popular since they can greatly decrease development time compared to traditional languages, such as C, C++, and Java. Although many variations exist, scripting languages are high-level programming languages that typically avoid explicit type declarations, interpret or compile code at runtime, and focus on simplicity and productivity rather than raw execution speed. Scripting languages have been particularly successful in tasks such as data extraction, web development, prototyping, report generation, and combining existing software to accomplish a task.

Ruby is a dynamic scripting language "with a focus on simplicity and productivity. It has an elegant syntax that is natural to read and easy to write" (Flanagan and Matsumoto 2008). Ruby supports features such as pure object orientation, closures, and mix-ins. Several implementations are available, the most mature being the reference C implementation, JRuby (which runs on the Java Virtual Machine), IronRuby (which runs on the .NET Framework), and Rubinius (an alternative implementation written in Ruby and C). Unfortunately statistical

analysis routines and graphing abilities are quite limited in Ruby.

R is a scripting language and environment developed by statisticians for statistical computing and graphics with a large library of routines (R Development Core Team 2008). R has many contributors and a large user base which increases confidence in the correctness of the implementation. The graphing abilities of R are excellent.

This paper describes the **RinRuby** software, a 100% pure Ruby library that provides a simple but effective bridge to R from Ruby. Being 100% pure Ruby, **RinRuby** does not need to be recompiled with each incremental release of R and Ruby. It allows a statistician to leverage R's familiar and comprehensive statistical computing and graphics abilities in the powerful Ruby scripting language. (Note that **RinRuby** does not provide access *to Ruby from R*.)

**RinRuby**'s design allows R to be accessed from Ruby on any implementation of Ruby using a standard installation of R on any operating system capable of running R and Ruby (including Linux, Mac OS X, and Microsoft Windows). This means there is no need to install Ruby or R with special options. Using **RinRuby** in JRuby, for example, allows for seamless integration of Ruby, Java, and R code in one application.

The paper is organized as follows. Section 2 introduces **RinRuby** basics, including installation and typical usage. An example using the Gettysburg Address is given in Section 3. Section 4 discusses approaches to making R accessible in a scripting language and details the technique used by **RinRuby**. Comprehensive documentation is provided in Section 5, while Section 6 discusses a few caveats related to **RinRuby** usage. The appendix contains two examples: our **RinRuby** translation of Tim Churches' demonstration of **RPy** (a similar program that makes R accessible within Python, see Moreira and Warnes 2008) and an example involving simple linear regression. The scripts for all the examples are available online along with the paper.

## 2. Using RinRuby

### 2.1. Installation

A prerequisite for **RinRuby** is a working installation of R, but no special compilation flags, installation procedures, or packages are needed for R. If using the RubyGems system, **RinRuby** can be installed by simply executing the following at the operating system's shell prompt (denoted \$):

```
$ gem install rinruby
```

This will download and install the latest version of **RinRuby** from RubyForge (<http://rubyforge.org/>), an archive of Ruby extensions analogous to the Comprehensive R Archive Network for R. The equivalent call for JRuby is:

```
$ jruby -S gem install rinruby
```

If RubyGems is not available, the latest version of the `rinruby.rb` script can be downloaded from the **RinRuby** webpage (<http://rinruby.ddahl.org/>) and placed in a directory in Ruby's search path (as given by the array \$:).

**About R**

[What is R?](#)

[Contributors](#)

[Screenshots](#)

[What's new?](#)

**Download, Packages**

[CRAN](#)

**R Project**

[Foundation](#)

[Members & Donors](#)

[Mailing Lists](#)

[Bug Tracking](#)

[Developer Page](#)

[Conferences](#)

[Search](#)

**Documentation**

[Manuals](#)

[FAQs](#)

[The R Journal](#)

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[Books](#)

[Certification](#)

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**Misc**

[Bioconductor](#)

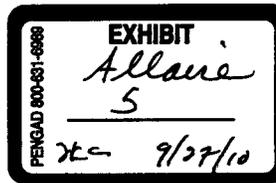
[Related Projects](#)

[User Groups](#)

[Links](#)

WEDNESDAY, JUNE 16, 2010

## Calling Ruby, Perl or Python from R



R vs Ruby

ROR/LAMP Enthusiasts

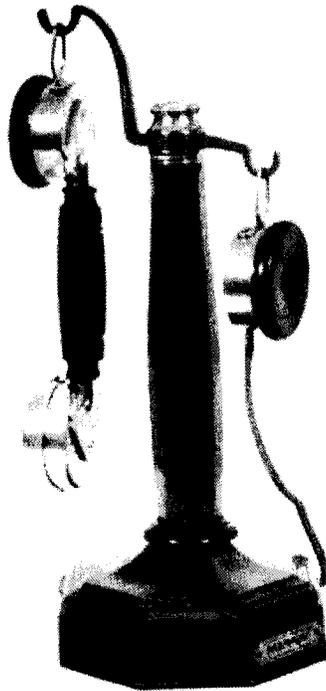
Looking for a better position? Let us help connect you.

[www.musicompany.com/staffing.html](http://www.musicompany.com/staffing.html)

Ruby in the CloudWebinar

Learn tips & tricks to manage your Ruby app in the cloud with fog

Ads by Google



If you want to interact with other programming languages from R, there are various packages and bindings available. These packages provide a pretty high degree of integration between the languages and allow you to pass objects back and forth seamlessly. The downside is that you need to have the time, security rights and correct installation sequences available to complete the compilation and installation.

A quick and easy way to return a string from an external program or scripting language is to call the *system* function. As you can see from the examples, you must set *intern=TRUE* to pass the value back into the R environment. In addition, the value being passed into R is being redirected from *STDOUT*, so you have to use an appropriate command in your script to effectively return the result.

```
x=system('ruby -e "puts 1+1"', intern=TRUE)
x=system('perl -e "print 2 + 4"', intern=TRUE)
x=system('C:\\jython2.2.1\\jython -c "print 1+3"',
intern=TRUE)
```

Obviously not a great approach for a full blown application, but a good

Blog Archive

## ▼ 2010 (61)

- ▶ September (4)
- ▶ August (10)
- ▶ July (19)

## ▼ June (23)

[CRAN Search](#)

[Analyze Gold Demand and Investments using R](#)

[Analyze Twitter Data Using R](#)

[Stock Analysis using R](#)

[World Bank API R package available!](#)

[R Layout command.](#)

[Occupational Wage Comparison Plotted in R](#)

[Chart the U.S. Gross National Product with the Fed...](#)

[Installing Ruby on Linux as a User other than root...](#)

[Calling Ruby, Perl or Python from R](#)

[Date and Time in R](#)

[Plotting BP Oil Spill Testing Data using R](#)

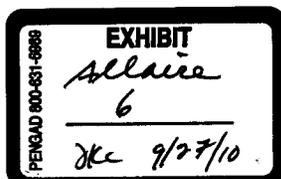
[Data Mining with WEKA example implemented in R](#)

[3 lines of R code to Process a Web Service](#)

[Plotting World Bank Data with R](#)

[Ruby Script to parse ISBNs listed in R-Project to...](#)

[The 1000 most visited sites](#)



JJ Allaire <jj.allaire@gmail.com>

## travel plans

3 messages

**Joe Cheng** <joe@joecheng.com>  
To: JJ Allaire <jj.allaire@gmail.com>  
Cc: Amy Cheng <amylcheng@gmail.com>

Mon, Jul 27, 2009 at 10:46 AM

Hey JJ,

Plane tickets are booked. I'll be there from Sept 18 to Oct 7. Amy and the kids will come with me on Sept 18 and return on Sept 28.

Also, reminder that I'll be leaving for two weeks in South Africa, this Wednesday night. My understanding is that there is internet access where we're staying so I might actually be semi-reachable over e-mail.

Thanks...

-joe

**JJ Allaire** <jj.allaire@gmail.com>  
To: Joe Cheng <joe@joecheng.com>

Tue, Jul 28, 2009 at 8:22 PM

Great! I'll let you know when the accommodations are finalized, logistical details, etc.

BTW found an excellent technical introduction to the R system. It is by John Chambers, who was the original creator of S/SPlus at AT&T and is now a core committer on the R project. Link here:  
<http://www.amazon.com/gp/product/0387759352/>

Have a fantastic time on your trip!

J

[Quoted text hidden]

**Joe Cheng** <joe@joecheng.com>  
To: JJ Allaire <jj.allaire@gmail.com>

Tue, Jul 28, 2009 at 8:39 PM

Wow! I didn't realize there were so many books on R. I'll be sure to grab that one.

Do you mind cc'ing Amy ([AmYLCheng@gmail.com](mailto:AmYLCheng@gmail.com)) with the logistical info? That way she can double check that everything is OK without waiting for me to get back from my trip.

Thanks!

[Quoted text hidden]

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RS480



Log In Support New Account

This project's trackers

S

Home My Page Project Tree Code Snippets Project Openings RSRuby
Summary Forums Tracker Tasks Docs News SCM Files

RSRuby is a bridge between Ruby and the R interpreted language. When RSRuby is called in a Ruby script, a full R interpreter is embedded into the Ruby interpreter, allowing the Ruby script to call functions from any R library the user wishes.

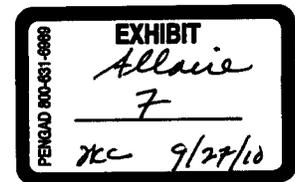
- Development Status: 3 - Alpha
• Intended Audience: Developers
• License: BSD License
• Natural Language: English
• Operating System: OS X, POSIX
• Programming Language: C, Other, Ruby
• Topic: Mathematics

Registered: 2006-07-10 21:38
Activity Percentile: 67.11%
View project activity statistics.

Developer Info

Project Admins:
Alex Gutteridge

Developers:
2 [View Members]



Latest File Releases

Table with 5 columns: Package, Version, Date, Notes / Monitor, Download. Row 1: rsruby, 0.5.1.1, February 11, 2009, Download

[View All Project Files]

Public Areas

Project Home Page

Tracker

- Bugs ( 7 open /11 total )
Bug Tracking System

- Support Requests ( 0 open /0 total )
Tech Support Tracking System

- Patches ( 0 open /0 total )
Patch Tracking System

- Feature Requests ( 2 open /2 total )
Feature Request Tracking System

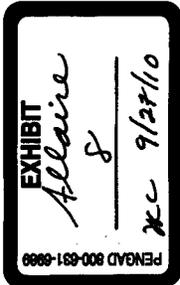
Public Forums ( 174 messages in 2 forums

Latest News

rsruby version 0.4.2 has been released
Alex Gutteridge - 2007-01-19 01:47
(0 Comment) [Read More/Comment(0)]

Initial RubyForge Release
Alex Gutteridge - 2006-07-14 18:12
(0 Comment) [Read More/Comment(0)]

[News archive]
[Submit News]



**What are R and R-Forge?**

R is 'GNU S', a freely available language and environment for statistical computing and graphics which provides a wide variety of statistical and graphical techniques, linear and nonlinear modelling, statistical tests, time series analysis, classification, clustering, etc. Please consult the [R-project homepage](#) for further information. **R-Forge** offers a central platform for the development of R packages, R-related software and further projects. It is based on [GForge](#) offering easy access to the best in SVN, daily built and checked packages, mailing lists, bug tracking, message boards/forums, site hosting, permanent file archival, full backups, and total web-based administration.

**A Platform for the Whole R Community**

In order to get the most out of R-Forge, you'll need to register as a site user. This will allow you to participate fully in all we have to offer. You may of course browse the site without registering, but will not have access to participate fully.

**Getting Your Package on R-Forge**

Register as a site user, then Login and finally Register Your Project. For details see the [documentation](#).

**Documentation**

- For an overview see this short introduction to R-Forge.
- For all technical details see the User's Manual.

If you experience any problems or need help you can submit a [Support Request](#) to the R-Forge Team, or write an email to [R-Forge@R-Project.org](mailto:R-Forge@R-Project.org). Thanks... and enjoy the site.

**Latest News**

meta 3.0 published in JSS  
 Peter Solymos - 2009-02-23 10:43 - meta - Multivariate data handling  
 The meta package (version bumped to 3.0) is published in the Journal of Statistical Software (<http://www.statsoft.org/v24/i08/>).  
 (0 Comment) [Read More/Comment]

TTR 0.2 now on CRAN  
 Josh Ulrich - 2009-02-20 17:36 - Technical Trading Rules  
 This update represents a major milestone as TTR users are no longer restricted to using matrix objects. TTR 0.2 uses xts internally, so all major time series classes are now supported.  
 NEW FEATURES:  
 (0 Comment) [Read More/Comment]

R-Forge Update: Minor Improvements  
 Stefan Theussl - 2009-02-02 18:16 - R-Forge Site Admin

**R-Forge Statistics**

Hosted Projects: 340  
 Registered Users: 899

**Most Active This Week**

- (100.0%) raster - Spatial data
- (98.6%) vegan - Community Ecology Package
- (97.1%) FLR
- (95.7%) R-GNU Linear Programming Kit Interface
- (94.2%) jeeGraph
- (92.8%) Modeling Psychophysical Data in R
- (91.3%) surveillance
- (89.9%) non-missing data imputation
- (88.4%) class4R
- (87.0%) R-Forge Site Admin
- (85.5%) Multiple-Site Probability Learning
- (84.1%) Biometrics - Computational Finance
- (82.8%) SolViews
- (81.2%) TIMPGUI - R-gui-based GUI for TIMP
- (79.7%) gqplot - pdf plots
- (78.3%) xlsr
- (76.8%) Matrix - Methods and Classes
- (75.4%) Bicustering Algorithm
- (73.9%) search
- (72.5%) PsychoR

[ More ]

**Recently Registered Projects**

- (03/09) diagnosis - Diagnostic Tests Evaluation
- (03/08) layout
- (03/08) gqplot - pdf plots
- (03/03) QuantLab
- (03/01) R.methodsS3
- (02/28) Bicustering Algorithm
- (02/27) Clustering Discrete Distributions
- (02/26) Basic wavelet routines
- (02/26) gqplot - pdf plots
- (02/24) R package miscols

Figure 1: Home page of R-Forge on 2009-03-10

- download the documentation,
- examine the latest news and changes,
- go to a specific project website either by searching for available projects (top middle of the page), by clicking on one of the projects listed on the right, or by going through the listing in the *Project Tree* tab.

Registered users can access their personal page via the tab named *My Page*. Figure 2 shows the personal page of the first author.

### Registering as a new user

To use R-Forge as a developer, one has to register as a site user. A link on the main web site called *New Account* on the top right of the home page leads to the corresponding registration form.

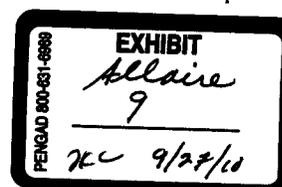
After submitting the completed form, an e-mail is sent to the given address containing a link for activating the account. Subsequently, all R-Forge features, including joining existing or creating new projects, are available to logged-in users.

### Registering a project

There are two possibilities to register a project: Clicking on *Register Your Project* on the home page or going to the *My Page* tab and clicking on *Register Project* (see Figure 2 below the main tabs). Both links lead to a form which has to be filled out in order to finish the registration process. In the text field "Project Public Description" the registrant is supposed to enter a concise description of the project. This text and the "Project Full Name" will be shown in several places on R-Forge (see e.g., Figure 1). The text entered in the field "Project Purpose And Summarization" is additional information for the R-Forge administrators, inspected for approval. "Project Unix Name" refers to the name which uniquely determines the project. In the case of a project that contains a single R package, the project Unix name typically corresponds to the package name (in its lower-case version). Restrictions according to the Unix file system convention force Unix names to be in lower case (and will be converted automatically if they are typed in upper case).

After the completed form is submitted, the project has to be approved by the R-Forge administrators and a confirmation e-mail is sent to the registrant upon approval. After that, the regis-

## What is R?



### Introduction to R

R is a language and environment for statistical computing and graphics. It is a [GNU project](#) which is similar to the S language and environment which was developed at Bell Laboratories (formerly AT&T, now Lucent Technologies) by John Chambers and colleagues. R can be considered as a different implementation of S. There are some important differences, but much code written for S runs unaltered under R.

R provides a wide variety of statistical (linear and nonlinear modelling, classical statistical tests, time-series analysis, classification, clustering, ...) and graphical techniques, and is highly extensible. The S language is often the vehicle of choice for research in statistical methodology, and R provides an Open Source route to participation in that activity.

One of R's strengths is the ease with which well-designed publication-quality plots can be produced, including mathematical symbols and formulae where needed. Great care has been taken over the defaults for the minor design choices in graphics, but the user retains full control.

R is available as Free Software under the terms of the [Free Software Foundation's GNU General Public License](#) in source code form. It compiles and runs on a wide variety of UNIX platforms and similar systems (including FreeBSD and Linux), Windows and MacOS.

### The R environment

R is an integrated suite of software facilities for data manipulation, calculation and graphical display. It includes

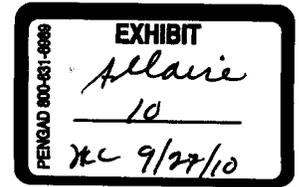
- an effective data handling and storage facility,
- a suite of operators for calculations on arrays, in particular matrices,
- a large, coherent, integrated collection of intermediate tools for data analysis,
- graphical facilities for data analysis and display either on-screen or on hardcopy, and
- a well-developed, simple and effective programming language which includes conditionals, loops, user-defined recursive functions and input and output facilities.

The term "environment" is intended to characterize it as a fully planned and coherent system, rather than an incremental accretion of very specific and inflexible tools, as is frequently the case with other data analysis software.

R, like S, is designed around a true computer language, and it allows users to add additional functionality by defining new functions. Much of the system is itself written in the R dialect of S, which makes it easy for users to follow the algorithmic choices made. For computationally-intensive tasks, C, C++ and Fortran code can be linked and called at run time. Advanced users can write C code to manipulate R objects directly.

Many users think of R as a statistics system. We prefer to think of it of an environment within which statistical techniques are implemented. R can be extended (easily) via *packages*. There are about eight packages supplied with the R distribution and many more are available through the CRAN family of Internet sites covering a very wide range of modern statistics.

R has its own LaTeX-like documentation format, which is used to supply comprehensive documentation, both on-line in a number of formats and in hardcopy.



# The R User Conference 2010

July 20-23

National Institute of Standards and Technology (NIST),  
Gaithersburg, Maryland, USA

Host: National Institute of Standards and Technology  
Sponsors: R Foundation for Statistical Computing 



Ritter and

## About the Conference

**useR! 2010**, the R user conference, took place at the Gaithersburg, Maryland, USA campus Institute of Standards and Technology (NIST) from **2010-07-21 to 2010-07-23**. Pre-conference tutorial on July 20.

The conference is organized by NIST and funded by the R Foundation for Statistical Computing.

Following the successful useR! 2004, useR! 2006, useR! 2007, useR! 2008, and useR! 2009, the conference is focused on:

1. R as the 'lingua franca' of data analysis and statistical computing,
2. providing a platform for R users to discuss and exchange ideas how R can be used to do statistical computations, data analysis, visualization and exciting applications in various fields,
3. giving an overview of the new features of the rapidly evolving R project.

As for the predecessor conferences, the program consists of two parts:

1. invited lectures discussing new R developments and exciting applications of R,
2. user-contributed presentations reflecting the wide range of fields in which R is used to analyze

A major goal of the useR! conference is to bring users from various fields together and provide discussion and exchange of ideas: both in the formal framework of presentations as well as in the the conference in Gaithersburg.

Prior to the conference, on 2010-07-20, there are tutorials offered at the conference site. Each length of 3 hours and takes place either in the morning or afternoon.

Invited speakers:

Mark Handcock, Frank Harrell Jr, Friedrich Leisch, Uwe Ligges, Richard Stallman, Luke Tierney, Würtz

Program committee:

Louis Bajuk-Yorgan, Dirk Eddelbuettel, John Fox, Virgilio Gómez-Rubio, Richard Heiberger, Thomas Hothorn, Aaron King, Jan de Leeuw, Nicholas Lewin-Koh, Andy Liaw, Uwe Ligges, Martin Maechler, Katharine Mullen, Heather Turner, Ravi Varadhan, H. D. Vinod, John Verzani, Alan Zaslavsky

Organizing Committee:

Kevin Coakley, Nathan Dodder, David Gil, William Guthrie, Olivia Lau, Walter Liggett, John L. Mullen, Jonathon Phillips, Antonio Possolo, Daniel Samarov, Ravi Varadhan

## Call for Papers

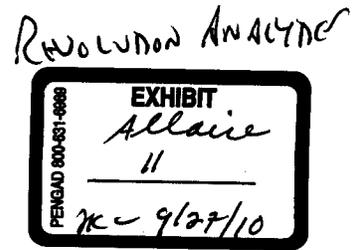
We invited all R users to submit abstracts presenting innovations or exciting applications of R on to

- Applied Statistics & Biostatistics
- Bayesian Statistics
- Bioinformatics
- Chemometrics and Computational Physics

REVOLUTIONARY PRODUCTS FOR STATISTICS & PREDICTIVE ANALYTICS

Revolution Analytics provides commercial software and services that support users of the open source R programming language. As the popularity of R grows for statistical computing and predictive analytics, we aim to have a powerful, full-featured product for every type of user and every budget.

**Quick Links:**  
Which R is Right for Me?



Revolution R Community: 100% R and More

Revolution R is our free distribution of the R programming language—enhanced for users looking for faster performance and greater stability. Perfect for learning R and basic analysis.

**Performance:** Optimized libraries and compiler techniques run most computation-intensive programs significantly faster than Base R.

**Reliability:** Revolution R is built upon the latest proven & stable R releases.

**Up-to-Date:** Our constant check of the R project means critical bugs and fixes are incorporated—less for you to worry about.

... and more! Unleash the processing power of multi-core processors: "ParallelR Lite" library included.

- Learn more about Revolution R Community
- Download Revolution R Community now

Revolution R Enterprise: Production-Grade Analysis for Business & Large-Scale Research

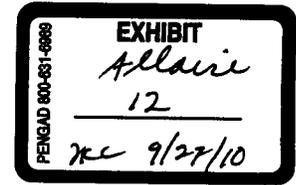
Revolution R Enterprise is designed for corporations, government agencies and academic researchers that require the highest levels of performance, reliability and computational power for their large-scale data analysis. It is optimized to run the fastest computations of any R software on a wide-range of platforms—and features a visual development environment that leaves the command-line far behind! A subscription to Revolution R Enterprise also includes direct access to our expert technical support team.



With Revolution R Enterprise take advantage of:

- **The speed & reliability** benefits of Revolution R.
- **Visual Productivity:** Revolution R Enterprise has a graphic IDE that enables faster, more accurate R programming. [Read more](#)
- **Visual Debugging:** Create reliable R applications faster. Create a breakpoint and step through code with a single click.
- **64-Bit Scalability:** Analyze larger data sets on 64-bit Windows, taking full advantage of your equipment's RAM.
- **Wide Platform Support:** Available for 32-bit and 64-bit Windows and Red Hat Enterprise Linux.
- **Parallel Processing Power:** Significantly reduce computation time for simulations, optimizations, segmented data analysis and more.
- **Big Data Analysis for Terabyte-Class File Structures**—A comprehensive solution that provides fast, scalable statistical analysis of large data sets without the RAM barrier of standard R. Combines external memory algorithms, distributed parallel computing, high performance data access and an extensible framework to deliver new levels of capacity and speed for analyzing Big Data with R. [Read more here.](#)
- **Enterprise-Class Application Integration, Deployment & Administration for R**—new Web Services framework that integrates dynamic R-based computations into applications for business users. [Read more](#)
- **On-Call Tech Support**

And much more, coming soon!



## Dana Gardner's Instablog

• [Revolution Analytics targets R language, platform at growing need to handle 'big data' crunching](#) [0 comments](#)

Aug 4, 2010 12:34 PM | about stocks: [IBM](#), [ORCL](#), [SAP](#)

**R**evolution Analytics is working to revolutionize [big data analysis](#) with better crunching tools and an [updated platform](#) that brings the open source [R statistics language](#) to some the the largest data sets.

The company is [betting](#) its new big data scalability platform will help R transition from a research and prototyping tool to a production-ready platform for such enterprise applications as [quantitative finance](#) and [risk management](#), [social media](#), [bioinformatics](#), and [telecommunications data analysis](#).

The latest version of Revolution R Enterprise comes complete with an add-on package called RevoScaleR, a framework for [multi-core processing](#) of large data sets. With RevoScaleR, Revolution Analytics targets some of the largest levels of capacity and performance for analyzing big data, [they said](#).

"With RevoScaleR, we've focused on making analytical models not just scale to the big data sets, but run the analysis in a fraction of the time compared to traditional systems," says [David Smith](#), vice president of Community and Marketing at Revolution Analytics. "For example, the [FAA](#) publishes a data set that contains every commercial airline take off and landing between 1987 and 2008. That's more than 13 [gigabytes](#) of data. By analyzing that data, we can figure out the likelihood of airline delays in one second."

### A rows-and-columns approach

**O**ne second to analyze 13 GB of data should turn some heads because it takes 300 seconds with traditional methods. Under the hood of RevoScaleR is rapid fire access to data. For example, the RevoScaleR uses an [XDF file format](#), a new binary big data file format with an interface to the R language that offers high-speed access to arbitrary rows, blocks and columns of data.

"The new [SQL](#) movement was all about going from relational databases to a flat file on a disk that offers fast to access by columns. A lot of the technology that's behind things like [Twitter](#) and [Facebook](#) take this approach," Smith said. "We've taken that one step further to develop a system that accesses the database by rows and columns at the same time, which is really well-attuned to doing these statistical computations."

RevoScaleR also relies on a collection of the most-common statistical algorithms optimized for big data, including high-performance implementations of [summary statistics](#), [linear regression](#), [binomial logistic regression](#) and [crosstabs](#). Data reading and transformation tools let users interactively explore and prepare large data sets for analysis. And, extensibility lets expert R users develop and extend their own statistical algorithms.

### Integrating Hadoop

**B**ased on the open-source R technologies, Revolution R Enterprise accordingly plays well with other modern big data architectures. Revolution R Enterprise leverages sources such as [Hadoop](#), [NoSQL](#) or key value databases, relational databases, and data warehouses. These products can be used to store, regularize, and do basic manipulation on very large data sets—while Revolution R Enterprise now provides advanced analytics.

"Together, Hadoop and R can store and analyze massive, complex data," says Saptarshi Guha, developer of the popular RHIFE R package that integrates the Hadoop framework with R in an automatically distributed computing environment. "Employing the new capabilities of Revolution R Enterprise, we will be able to go even further and compute dig data regressions and more."

The new RevoScaleR package will be delivered as part of Revolution R Enterprise 4.0, which will be available for 32- and 64-bit Microsoft Windows in the next 30 days. Support for [Red Hat Enterprise Linux \(RHEL 5\)](#) is planned for later this year.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD**

**EMBARCADERO TECHNOLOGIES, INC.**

**Opposer**

v.

**RSTUDIO, INC.**

**Applicant.**

**Opposition No.: 91-193,335**

**Trademarks: RSTUDIO**

**Serial Nos.: 77/691,980**  
**77/691,984**  
**77/691,987**

**OPPOSER'S NOTICE OF RELIANCE**

Pursuant to Trademark Rule 2.122(e) Opposer, EMBARCADERO TECHNOLOGIES, INC., ("Embarcadero", or "Opposer"), by its attorneys, hereby gives notice that it will or may rely on the following materials relevant to the issues in the captioned proceeding, copies of which are attached to the Notice. The Notice of Reliance is being submitted at this time pursuant to stipulation by the parties.

1. RStudio Inc.'s current website as of February 28, 2011, attached hereto as Exhibit A to show the manner in which Applicant is using and/or referencing to its RSTUDIO marks.
2. The discovery deposition (including Exhibits) of Joseph J. Allaire, dated September 27, 2010, attached hereto as Exhibit B.
3. Joseph Adler's book "R in a Nutshell", released December 2009, providing an introduction to the R computing language, attached hereto as Exhibit C.
4. The article "RinRuby: Accessing the R Interpreter from Pure Ruby" published in the Journal of Statistical Software dated January 2009, Volume 29, Issue 4, available at: <http://www.jstatsoft.org/v29/i04/paper>, attached hereto as Exhibit D. The article shows the connectivity between the R computing language and the Ruby programming language.

5. The article “Collaborative Software Development Using R-Forge” published in The R Journal dated May 2009, Volume 1, Issue 1, available at:  
[http://journal.r-project.org/archive/2009-1/2009-1\\_index.html](http://journal.r-project.org/archive/2009-1/2009-1_index.html), attached hereto as Exhibit E. The article reviews the R-Forge platform for development of R-related software.
6. The online article named “Calling Ruby, Perl or Python from R”, dated June 16, 2010 and appearing at: <http://www.r-chart.com/2010/06/if-you-want-to-interact-with-other.html>, attached hereto as Exhibit F. The article discusses the links between the R computing language and other programming languages.
7. The RSRuby webpage, appearing on RubyForge’s website at:  
<http://rubyforge.org/projects/rsruby>, attached hereto as Exhibit G and showing the connections between the Ruby programming language and the R computing language.
8. The online page “What is R” appearing on the About Section of R-Project’s website at:  
<http://www.r-project.org/about.html>, attached hereto as Exhibit H to provide an explanation of the R computing language and its environment.
9. The Online announcement for Use R! The R User Conference 2010 held July 20-23, 2010 appearing on: <http://user2010.org/>, attached hereto as Exhibit I to show the varied community attending this conference.
10. The Online blog article named “Revolution Analytics targets R language, platform at growing need to handle 'big data' crunching”, dated August 4, 2010 and appearing at:  
<http://seekingalpha.com/instablog/122491-dana-gardner/85572-revolution-analytics-targets-r-language-platform-at-growing-need-to-handle-big-data-crunching>, attached hereto as Exhibit J, to show the uses of the R computing language to analyze “big data”.
11. Dictionary definitions of the term “statistics”, from the Merriam-Webster online dictionary, the Free dictionary online and the Wikipedia website attached hereto as

Exhibit K.

12. Portions of Embarcadero's current website as of February 28, 2011, attached hereto as Exhibit L to show the various ER/STUDIO products offered by Opposer.

Dated: February 28, 2011

Respectfully Submitted,

EMBARCADERO TECHNOLOGIES, INC.  
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Attorneys for Opposer

**CERTIFICATE OF SERVICE**

I hereby certify that a true and correct copy of the foregoing **OPPOSER'S NOTICE OF RELIANCE** is being served on February 28, 2011, by first class mail, postage prepaid on Applicant's Attorney of Record at his address below:

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Julia Huston  
Joshua S. Jarvis  
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/Mariela P Vidolova/  
Mariela P. Vidolova

# Exhibit E

# Collaborative Software Development Using R-Forge

Special invited paper on “The Future of R”

by Stefan Theußl and Achim Zeileis

## Introduction

Open source software (OSS) is typically created in a decentralized self-organizing process by a community of developers having the same or similar interests (see the famous essay by Raymond, 1999). A key factor for the success of OSS over the last two decades is the Internet: Developers who rarely meet face-to-face can employ new means of communication, both for rapidly writing and deploying software (in the spirit of Linus Torvald’s “release early, release often paradigm”). Therefore, many tools emerged that assist a collaborative software development process, including in particular tools for source code management (SCM) and version control.

In the R world, SCM is not a new idea; in fact, the R Development Core Team has always been using SCM tools for the R sources, first by means of Concurrent Versions System (CVS, see Cederqvist et al., 2006), and then via Subversion (SVN, see Pilato et al., 2004). A central repository is hosted by ETH Zürich mainly for managing the development of the base R system. Mailing lists like R-help, R-devel and many others are currently the main communication channels in the R community.

Also beyond the base system, many R contributors employ SCM tools for managing their R packages, e.g., via web-based SVN repositories like SourceForge (<http://SourceForge.net/>) or Google Code (<http://Code.Google.com/>). However, there has been no central SCM repository providing services suited to the specific needs of R package developers. Since early 2007, the R-project offers such a central platform to the R community. R-Forge (<http://R-Forge.R-project.org/>) provides a set of tools for source code management and various web-based features. It aims to provide a platform for collaborative development of R packages, R-related software or further projects. R-Forge is closely related to the most famous of such platforms—the world’s largest OSS development website—namely <http://SourceForge.net/>.

The remainder of this article is organized as follows. First, we present the core features that R-Forge offers to the R community. Second, we give a hands-on tutorial on how users and developers can get started with R-Forge. In particular, we illustrate how people can register, set up new projects, use R-Forge’s SCM facilities, provide their packages on R-

Forge, host a project-specific website, and how package maintainers submit a package to the Comprehensive R Archive Network (CRAN, <http://CRAN.R-project.org/>). Finally, we summarize recent developments and give a brief outlook to future work.

## R-Forge

R-Forge offers a central platform for the development of R packages, R-related software and other projects.

R-Forge is based on GForge (Copeland et al., 2006) which is an open source fork of the 2.61 SourceForge code maintained by Tim Perdue, one of the original SourceForge authors. GForge has been modified to provide additional features for the R community, namely a CRAN-style repository for hosting development releases of R packages as well as a quality management system similar to that of CRAN. Packages hosted on R-Forge are provided in source form as well as in binary form for Mac OS X and Windows. They can be downloaded from the website of the corresponding project on R-Forge or installed directly in R; for a package `foo`, say, `install.packages("foo", repos = "http://R-Forge.R-project.org")`.

On R-Forge, developers organize their work in so-called “Projects”. Every project has various tools and web-based features for software development, communication and other services. All features mentioned in the following sections are accessible via so-called “Tabs”: e.g., user accounts can be managed in the *My Page* tab or a list of available projects can be displayed using the *Project Tree* tab.

Since starting the platform in early 2007, more and more interested users registered their projects on R-Forge. Now, after more than two years of development and testing, around 350 projects and more than 900 users are registered on R-Forge. This and the steadily growing list of feature requests show that there is a high demand for centralized source code management tools and for releasing prototype code frequently among the R community.

In the next three sections, we summarize the core features of R-Forge and what R-Forge offers to the R community in terms of collaborative development of R-related software projects.

## Source code management

When carrying out software projects, source files change over time, new files get created and old files deleted. Typically, several authors work on several computers on the same and/or different files and

keeping track of every change can become a tedious task. In the open source community, the general solution to this problem is to use version control, typically provided by the majority of SCM tools. For this reason R-Forge utilizes SVN to facilitate the developer's work when creating software.

A central repository ensures that the developer always has access to the current version of the project's source code. Any of the authorized collaborators can "check out" (i.e., download) or "update" the project file structure, make the necessary changes or additions, delete files from the current revision and finally "commit" changes or additions to the repository. More than that, SVN keeps track of the complete history of the project file structure. At any point in the development stage it is possible to go back to any previous stage in the history to inspect and restore old files. This is called version control, as every stage automatically is assigned a unique version number which increases over time.

On R-Forge such a version-controlled repository is automatically created for each project. To get started, the project members just have to install the client of their choice (e.g., Tortoise SVN on Windows or svnX on Mac OS X) and check out the repository. In addition to the inherent backup of every version within the repository a backup of the whole repository is generated daily.

A rights management system assures that, by default, anonymous users have read access and developers have write access to the data associated with a certain project on R-Forge. More precisely, registered users can be granted one of several roles: e.g., the "Administrator" has all rights including the right to add new users to the project or release packages directly to CRAN. He/she is usually the package maintainer, the project leader or has registered the project originally. Other members of a project typically have either the role "Senior Developer" or "Junior Developer" which both have permission to commit to the project SVN repository and examine the log files in the *R Packages* tab (the differences between the two roles are subtle, e.g., senior developers additionally have administrative privileges in several places in the project). When we speak of developers in subsequent sections we refer to project members having the rights at least of a junior developer.

## Release and quality management

Development versions of a software project are typically prototypes and are subject to many changes. Thus, R-Forge offers two tools which assist the developers in improving the quality of their source code.

First, it offers a quality management system similar to that of CRAN. Packages on R-Forge are checked in a standardized way on different platforms based on `R CMD check` at least once daily. The resulting log files can be examined by the project de-

velopers so that they can improve the package to pass all tests on R-Forge and subsequently on CRAN.

Second, bug tracking systems allow users to notify package authors about problems they encounter. In the spirit of OSS—given enough eyeballs, all bugs are shallow (Raymond, 1999)—peer code review leads to an overall improvement of the quality of software projects.

## Additional features

A number of further tools, of increased interest for larger projects, help developers to coordinate their work and to communicate with their user base. These tools include:

- Project websites: Developers may present their work on a subdomain of R-Forge, e.g., <http://foo.R-Forge.R-project.org/>, or via a link to an external website.
- Mailing lists: By default a list `foo-commits@lists.R-Forge.R-project.org` is automatically created for each project. Additional mailing lists can be set up easily.
- Project categorization: Administrators may categorize their project in several so-called "Trove Categories" in the *Admin* tab of their project (under *Trove Categorization*). For each category three different items can be selected. This enables users to quickly find what they are looking for using the *Project Tree* tab.
- News: Announcements and other information related to a project can be put on the project summary page as well as on the home page of R-Forge. The latter needs approval by one of the R-Forge administrators. All items are available as RSS feeds.
- Forums: Discussion forums can be set up separately by the project administrators.

## How to get started

This section is intended to be a hands-on tutorial for new users. Depending on familiarity with the systems/tools involved the instructions might be somewhat brief. In case of problems we recommend consulting the user's manual (*R-Forge Administration and Development Team, 2008*) which contains detailed step-by-step instructions.

When accessing the URL <http://R-Forge.R-project.org/> the home page is presented (see Figure 1). Here one can

- login,
- register a user or a project,

**What are R and R-Forge?**

R is "GNU S", a freely available language and environment for statistical computing and graphics which provides a wide variety of statistical and graphical techniques: linear and nonlinear modelling, statistical tests, time series analysis, classification, clustering, etc. Please consult the [R-project homepage](#) for further information. **R-Forge** offers a central platform for the development of R packages, R-related software and further projects. It is based on [GForge](#) offering easy access to the best in SVN, daily built and checked packages, mailing lists, bug tracking, message boards/forums, site hosting, permanent file archival, full backups, and total web-based administration.

**A Platform for the Whole R Community**

In order to get the most out of R-Forge, you'll need to [register as a site user](#). This will allow you to participate fully in all we have to offer. You may of course browse the site without registering, but will not have access to participate fully.

**Getting Your Package on R-Forge**

[Register as a site user](#), then Login and finally, [Register Your Project](#). For details see the documentation.

**Documentation**

- For an overview see this [short introduction to R-Forge](#).
- For all technical details see the [User's Manual](#).

If you experience any problems or need help you can submit a [Support Request to the R-Forge Team](#) or write an email to [R-Forge@R-Project.org](mailto:R-Forge@R-Project.org). Thanks... and enjoy the site.

**Latest News**

**mefa 3.0 published in JSS**  
*Peter Solymos - 2009-02-23 10:43* - [mefa - Multivariate data handling](#)  
 The mefa package (version bumped to 3.0) is published in the Journal of Statistical Software (<http://www.jstatsoft.org/v29/i08/>). (0 Comment) [\[Read More/Comment\]](#)

**TTR\_0.2 now on CRAN**  
*Josh Ulrich - 2009-02-20 17:36* - [Technical Trading Rules](#)  
 This update represents a major milestone, as TTR useRs are no longer restricted to using matrix objects. TTR 0.2 uses xts internally, so all major time series classes are now supported.

**NEW FEATURES:** (0 Comment) [\[Read More/Comment\]](#)

**R-Forge Update: Minor Improvements**  
*Stefan Theussl - 2009-02-02 18:16* - [R-Forge Site Admin](#)

**R-Forge Statistics**

Hosted Projects: **340**  
 Registered Users: **899**

**Most Active This Week**

- (100.0%) [raster -- spatial data](#)
- (98.6%) [vegan - Community Ecology Package](#)
- (97.1%) [FLR](#)
- (95.7%) [R/GNU Linear Programming Kit Interface](#)
- (94.2%) [geoGraph](#)
- (92.8%) [Modeling Psychophysical Data in R](#)
- (91.3%) [surveillance](#)
- (89.9%) [mi-missing data imputation](#)
- (88.4%) [classifR](#)
- (87.0%) [R-Forge Site Admin](#)
- (85.5%) [Multiple Cue Probability Learning](#)
- (84.1%) [Rmetrics - Computational Finance](#)
- (82.6%) [SciViews](#)
- (81.2%) [TIMPGUI: a java-based GUI for TIMP](#)
- (79.7%) [ggplot-add-ons](#)
- (78.3%) [nlcv](#)
- (76.8%) [Matrix - Methods and Classes](#)
- (75.4%) [Biclustering Algorithm](#)
- (73.9%) [rgarch](#)
- (72.5%) [PsychoR](#)

[\[ More \]](#)

**Recently Registered Projects**

- (03/09) [diagnosis -- Diagnostic Tests Evaluation](#)
- (03/06) [langid](#)
- (03/06) [ggplot-add-ons](#)
- (03/03) [QuantLab](#)
- (03/01) [R.methodsS3](#)
- (02/28) [Biclustering Algorithm](#)
- (02/27) [Clustering Discrete Distributions](#)
- (02/26) [Basic wavelet routines](#)
- (02/26) [qrdecUpdate](#)
- (02/24) [R package nlstools](#)

Figure 1: Home page of R-Forge on 2009-03-10

- download the documentation,
- examine the latest news and changes,
- go to a specific project website either by searching for available projects (top middle of the page), by clicking on one of the projects listed on the right, or by going through the listing in the *Project Tree* tab.

Registered users can access their personal page via the tab named *My Page*. Figure 2 shows the personal page of the first author.

## Registering as a new user

To use R-Forge as a developer, one has to register as a site user. A link on the main web site called *New Account* on the top right of the home page leads to the corresponding registration form.

After submitting the completed form, an e-mail is sent to the given address containing a link for activating the account. Subsequently, all R-Forge features, including joining existing or creating new projects, are available to logged-in users.

## Registering a project

There are two possibilities to register a project: Clicking on *Register Your Project* on the home page or going to the *My Page* tab and clicking on *Register Project* (see Figure 2 below the main tabs). Both links lead to a form which has to be filled out in order to finish the registration process. In the text field "Project Public Description" the registrant is supposed to enter a concise description of the project. This text and the "Project Full Name" will be shown in several places on R-Forge (see e.g., Figure 1). The text entered in the field "Project Purpose And Summarization" is additional information for the R-Forge administrators, inspected for approval. "Project Unix Name" refers to the name which uniquely determines the project. In the case of a project that contains a single R package, the project Unix name typically corresponds to the package name (in its lower-case version). Restrictions according to the Unix file system convention force Unix names to be in lower case (and will be converted automatically if they are typed in upper case).

After the completed form is submitted, the project has to be approved by the R-Forge administrators and a confirmation e-mail is sent to the registrant upon approval. After that, the regis-

Figure 2: The *My Page* tab of the first author

trant automatically becomes the project administrator and the standardized web area of the project (<http://R-Forge.R-project.org/projects/foo/>) is immediately available on R-Forge. This web area includes a *Summary* page, an *Admin* tab visible only to the project administrators, and various other tabs depending on the features enabled for this project in the *Admin* tab. To present the new project to a broader community the name of the project additionally is promoted on the home page under “Recently Registered Projects” (see Figure 1).

Furthermore, within an hour after approval a default mailing list and the project’s SVN repository containing a ‘README’ file and two pre-defined directories called ‘pkg’ and ‘www’ are created. The content of these directories is used by the R-Forge server for creating R packages and a project website, respectively.

## SCM and R packages

The first step after creation of a project is typically to start generation of content for one (or more) R package(s) in the ‘pkg’ directory. Developers can either start committing changes via SVN as usual or—

if the package is already version-controlled somewhere else—the corresponding parts of the repository including the history can be migrated to R-Forge (see Section 6 of the user’s manual).

The *SCM* tab of a project explains how the corresponding SVN repository located at `svn://svn.R-Forge.R-project.org/svnroot/foo` can be checked out. From this URL the sources are checked out either anonymously without write permission (enabled by default) or as developer using an encrypted authentication method, namely secure shell (`ssh`). Via this secure protocol (`svn+ssh://` followed by the registered user name) developers have full access to the repository. Typically, the developer is authenticated via the registered password but it is also possible to upload a secure shell key (updated hourly) to make use of public/private key authentication. Section 3.2 of the user’s manual explains this process in more detail.

To make use of the package builds and checks the package source code has to be put into the ‘pkg’ directory of the repository (i.e., ‘pkg/DESCRIPTION’, ‘pkg/R’, ‘pkg/man’, etc.) or, alternatively, a subdirectory of ‘pkg’. The latter structure allows developers to have more than one package in a single project; e.g.,

if a project consists of the packages `foo` and `bar`, then the source code is located in `'pkg/foo'` and `'pkg/bar'`, respectively.

R-Forge automatically examines the `'pkg'` directory of every repository and builds the package sources as well as the package binaries on a daily basis for Mac OS X and Windows (if applicable). The package builds are provided in the *R Packages* tab (see Figure 3) for download or can be installed directly in R using `install.packages("foo", repos="http://R-Forge.R-project.org")`. Furthermore, in the *R Packages* tab developers can examine logs of the build and check process on different platforms.

To release a package to CRAN the project administrator clicks on *Submit this package to CRAN* in the *R Packages* tab. Upon confirmation, a message will be sent to `CRAN@R-project.org` and the latest successfully built source package (the `'tar.gz'` file) is automatically copied to `ftp://CRAN.R-project.org/incoming/`. Note that packages are built once daily, i.e., the latest source package does not include more recent code committed to the SVN repository.

Figure 3 shows the *R Packages* tab of the `tm` project (<http://R-Forge.R-project.org/projects/tm/>) as one of the project administrators would see it. Depending on whether you are a member of the project or not and your rights you will see only parts of the information provided for each package.

## Further steps

A customized project website, accessible through <http://foo.R-Forge.R-project.org/> where `foo` corresponds to the unix name of the project, is managed via the `'www'` directory. The website gets updated every hour.

The changes made to the project can be examined by entering the corresponding standardized web area. On entry, the *Summary* page is shown. Here, one can

- examine the details of the project including a short description and a listing of the administrators and developers,
- follow a link leading to the project homepage,
- examine the latest news announcements (if available),
- go to other sections of the project like *Forums*, *Tracker*, *Lists*, *R Packages*, etc.
- follow the download link leading directly to the available packages of the project (i.e., the *R Packages* tab).

Furthermore, meta-information about a project can be supplied in the *Admin* tab via so-called "Trove Categorization".

## Recent and future developments

In this section, we briefly summarize the major changes and updates to the R-Forge system during the last few months and give an outlook to future developments.

Recently added features and major changes include:

- New defaults for freshly registered projects: Only the tabs *Lists*, *SCM* and *R packages* are enabled initially. *Forums*, *Tracker* and *News* can be activated separately (in order not to overwhelm new users with too many features) using *Edit Public Info* in the *Admin* tab of the project. Experienced users can decide which features they want and activate them.
- An enhanced structure in the SVN repository allowing multiple packages in a single project (see above).
- The R package **RForgeTools** (Theußl, 2009) contains platform-independent package building and quality management code used on the R-Forge servers.
- A modified *News* submit page offering two types of submissions: project-specific and global news. The latter needs approval by one of the R-Forge administrators (default: project-only submission).
- Circulation of SVN commit messages can be enabled in the *SCM Admin* tab by project administrators. The mailing list mentioned in the text field is used for delivering the SVN commit messages (default: off).
- Mailing list search facilities provided by the Swish-e engine which can be accessed via the *List* tab (private lists are not included in the search index).

Further features and improvements which are currently on the wishlist or under development include

- a Wiki,
- task management facilities,
- a re-organized tracker more compatible with R package development and,
- an update of the underlying GForge system to its successor FusionForge (<http://FusionForge.org/>).

For suggestions, problems, feature requests, and other questions regarding R-Forge please contact `R-Forge@R-project.org`.

**R-Forge** Search the entire project  Search [Advanced search](#) [Log Out](#) [My Account](#)

Home My Page Project Tree **tm - Text Mining Package**

Summary Admin Lists SCM R Packages

R Development Page | Admin

### Contributed R Packages

Below is a list of all packages provided by project **tm - Text Mining Package**.

**Important note** for package binaries: R-Forge provides these binaries only for versions of R that were released since the package was first submitted to R-Forge, but not for older versions. In order to use more recent packages from R-Forge you may need to switch to a newer version of R or, alternatively, try to build the package with an older version of R. Packages are built/checked according to this [schedule](#).

**tm - Text Mining Package**

A framework for text mining applications within R.

**Download:** [Package source \(.tar.gz\)](#) | [Windows binary \(.zip\)](#) | [MacOS X universal binary \(.tgz\)](#)

| Logs:        | Linux x86_32    | Linux x86_64    | Windows x86_32  | MacOS X universal     |
|--------------|-----------------|-----------------|-----------------|-----------------------|
| Daily build: | patched         | patched         | patched   devel | patched   devel (N/A) |
| Daily check: | patched   devel | patched   devel | patched   devel | patched   devel (N/A) |

[\[Submit this package to CRAN\]](#)

To install this package directly within R type: `install.packages("tm", repos="http://R-Forge.R-project.org")`

Version: 0.3-3.2 | Last change: 2009-03-03 17:23:22+01 | Rev.: 894  
Stable Release: [Get tm 0.3-3 from CRAN](#)

Figure 3: R Packages tab of the **tm** project

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