Merging data

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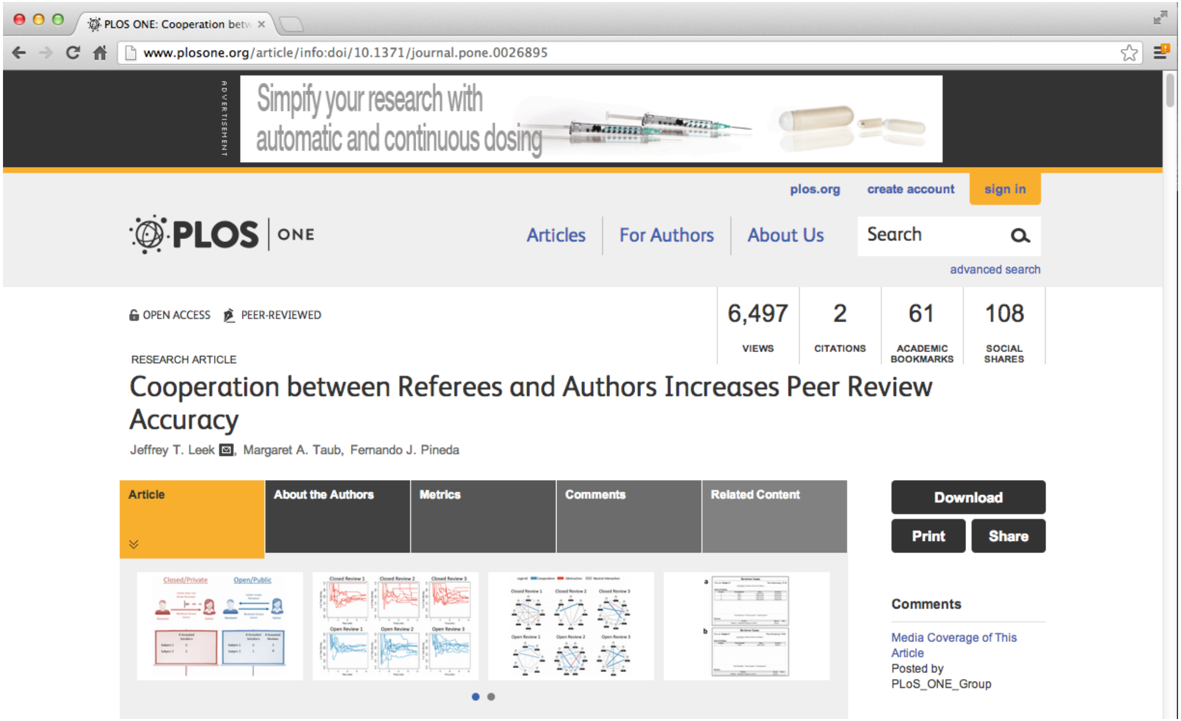
Peer review experiment data



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Cooperation between Referees and Authors Increases Peer Review Accuracy

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Peer review data

```
if(!file.exists("./data")){dir.create("./data")}
fileUrl1 = "https://dl.dropboxusercontent.com/u/7710864/data/reviews-apr29.csv"
fileUrl2 = "https://dl.dropboxusercontent.com/u/7710864/data/solutions-apr29.csv"
download.file(fileUrl1,destfile="./data/reviews.csv",method="curl")
download.file(fileUrl2,destfile="./data/solutions.csv",method="curl")
reviews = read.csv("./data/reviews.csv"); solutions <- read.csv("./data/solutions.csv")
head(reviews,2)
```

```
  id solution_id reviewer_id      start       stop time_left accept
1  1           3          27 1304095698 1304095758      1754      1
2  2           4          22 1304095188 1304095206      2306      1
```

```
head(solutions,2)
```

```
  id problem_id subject_id      start       stop time_left answer
1  1        156         29 1304095119 1304095169      2343      B
2  2        269         25 1304095119 1304095183      2329      C
```

Merging data - merge()

- Merges data frames
- Important parameters: *x*,*y*,*by*,*by.x*,*by.y*,*all*

```
names(reviews)
```

```
[1] "id"          "solution_id" "reviewer_id" "start"       "stop"        "time_left"  
[7] "accept"     
```

```
names(solutions)
```

```
[1] "id"         "problem_id" "subject_id" "start"      "stop"       "time_left"  "answer"    
```

Merging data - merge()

```r
mergedData = merge(reviews,solutions,by.x="solution_id",by.y="id",all=TRUE)
head(mergedData)
```

```
  solution_id id reviewer_id    start.x     stop.x time_left.x accept problem_id subject_id
1           1  4          26 1304095267 1304095423        2089      1        156         29
2           2  6          29 1304095471 1304095513        1999      1        269         25
3           3  1          27 1304095698 1304095758        1754      1         34         22
4           4  2          22 1304095188 1304095206        2306      1         19         23
5           5  3          28 1304095276 1304095320        2192      1        605         26
6           6 16          22 1304095303 1304095471        2041      1        384         27
     start.y     stop.y time_left.y answer
1 1304095119 1304095169        2343      B
2 1304095119 1304095183        2329      C
3 1304095127 1304095146        2366      C
4 1304095127 1304095150        2362      D
5 1304095127 1304095167        2345      A
6 1304095131 1304095270        2242      C
```

Default - merge all common column names

```
intersect(names(solutions),names(reviews))
```

```
[1] "id"        "start"     "stop"      "time_left"
```

```
mergedData2 = merge(reviews,solutions,all=TRUE)
head(mergedData2)
```

```
  id      start       stop time_left solution_id reviewer_id accept problem_id subject_id answer
1  1 1304095119 1304095169      2343          NA          NA     NA        156         29      B
2  1 1304095698 1304095758      1754           3          27      1         NA         NA   <NA>
3  2 1304095119 1304095183      2329          NA          NA     NA        269         25      C
4  2 1304095188 1304095206      2306           4          22      1         NA         NA   <NA>
5  3 1304095127 1304095146      2366          NA          NA     NA         34         22      C
6  3 1304095276 1304095320      2192           5          28      1         NA         NA   <NA>
```

Using join in the plyr package

Faster, but less full featured - defaults to left join, see help file for more

```
df1 = data.frame(id=sample(1:10),x=rnorm(10))
df2 = data.frame(id=sample(1:10),y=rnorm(10))
arrange(join(df1,df2),id)
```

```
   id       x       y
1   1  0.2514  0.2286
2   2  0.1048  0.8395
3   3 -0.1230 -1.1165
4   4  1.5057 -0.1121
5   5 -0.2505  1.2124
6   6  0.4699 -1.6038
7   7  0.4627 -0.8060
8   8 -1.2629 -1.2848
9   9 -0.9258 -0.8276
10 10  2.8065  0.5794
```

If you have multiple data frames

```
df1 = data.frame(id=sample(1:10),x=rnorm(10))
df2 = data.frame(id=sample(1:10),y=rnorm(10))
df3 = data.frame(id=sample(1:10),z=rnorm(10))
dfList = list(df1,df2,df3)
join_all(dfList)
```

```
   id        x        y        z
1   6  0.39093 -0.16670  0.56523
2   1 -1.90467  0.43811 -0.37449
3   7 -1.48798 -0.85497 -0.69209
4  10 -2.59440  0.39591 -0.36134
5   3 -0.08539  0.08053  1.01247
6   4 -1.63165 -0.13158  0.21927
7   5 -0.50594  0.24256 -0.44003
8   9 -0.85062 -2.08066 -0.96950
9   2 -0.63767 -0.10069  0.09002
10  8  1.20439  1.29138 -0.88586
```

More on merging data

- The quick R data merging page - http://www.statmethods.net/management/merging.html
- plyr information - http://plyr.had.co.nz/
- Types of joins - http://en.wikipedia.org/wiki/Join_(SQL))