

# example: network study of corporate law firm

✓ prediction power based on expected conditional entropy  $EH(Z|X, Y)$

finding good predictors:  
variables (almost) uniquely determined  
by combinations of other

```
# prediction power matrix with  $E(Z|X, Y)$   
pp <- prediction_power(var, dat)  
diag(pp) # single variable prediction  $EH(Z|X)$ 
```

predicting  $Z$  = status:

##	status	gender	office	years	age	practice	lawschool	cowork	advice	friend
## status	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
## gender	NA	1.375	1.180	0.670	0.855	1.304	1.225	1.306	1.263	1.270
## office	NA	NA	2.147	0.493	0.820	1.374	1.245	1.373	1.325	1.334
## years	NA	NA	NA	2.265	0.573	0.682	0.554	0.691	0.667	0.684
## age	NA	NA	NA	NA	1.877	1.089	0.958	1.087	1.052	1.058
## practice	NA	NA	NA	NA	NA	2.446	1.388	1.459	1.410	1.427
## lawschool	NA	NA	NA	NA	NA	NA	3.335	1.390	1.337	1.350
## cowork	NA	NA	NA	NA	NA	NA	NA	2.419	1.400	1.411
## advice	NA	NA	NA	NA	NA	NA	NA	NA	2.781	1.407
## friend	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.408

best predictors of 'status':  
(years, office)  
(age, years)  
(lawschool, years)

interpretation when  $EH$  is rounded to its closest integer:

- ✓ unambiguous prediction of  $Z$  when  $EH < 0.5$
- ✓ two prediction values for  $Z$  when  $0.5 \leq EH \leq 1$
- ✓ etc.

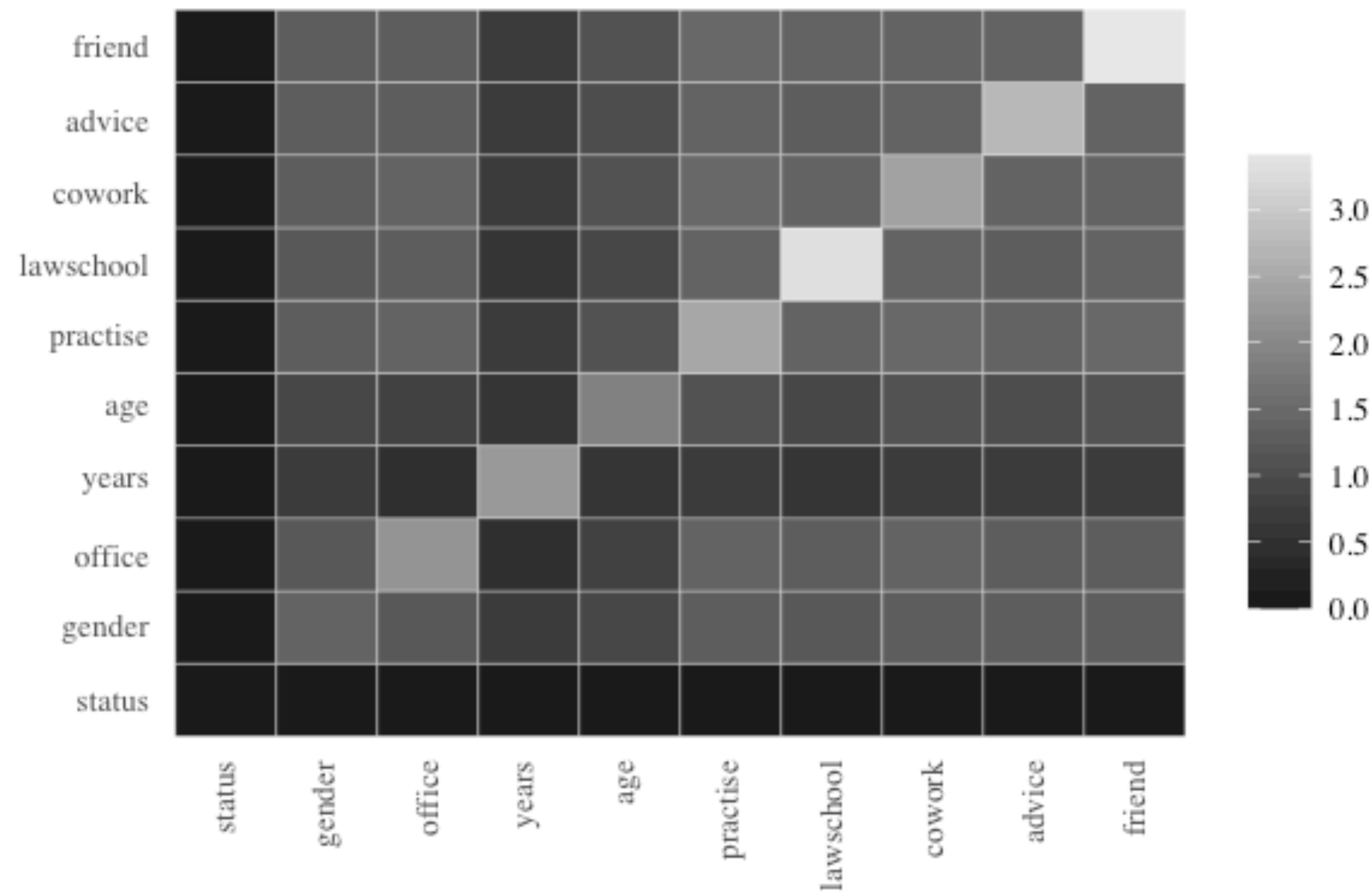
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prediction power visualized using ggplot:



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(years, office)  
(age, years)  
(lawschool, years)