

stats

```
'''
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'''

from math import log

# a = new; b= company
def chisquare(both_ab, a, b, n):
    # create 2x2 array
    o11 = both_ab;
    o21 = a - both_ab;
    o12 = b - both_ab;
    o22 = n - a - b - both_ab;
    return 1.0*n*(o11*o22 - o12*o21)*((o11*o22 - o12*o21)/((o11+o12)*(o11+o21)*(o12+o22)*
(o21+o22))

def likelihood_ratio(c12, c1, c2, n):
    p = 1.0*c2/n
    p1 = 1.0*c12/c1
    p2 = 1.0*(c2-c12)/(n-c1)

    if (p1 - 1.0) == 0.0: p1 = 0.9999999999999999
    if p2 == 0.0: p2 = 4.9406564584124654e-24;

    lamda = -1
    try:
        lamda = 1.0*( (c12*log(p) + (c1-c12)*log(1-p)) + ((c2-c12)*log(p) + (n-c1-c2+c12)
*log(1-p))- (c12*log(p1) + (c1-c12)*log(1-p1)) - ((c2-c12)*log(p2) + (n-c1-c2+c12)*log(1-p2)));
        #print p, p1, p2, 'doing my job'
    except:
        print p, p1, p2, 'not doing my job'

    pass

    return -2*lamda;

#test
#print chisquare(8, 15828, 4675, 14307668)
#print likelihood_ratio(10, 379, 932, 14307668)
```