

This excerpt from

Foundations of Statistical Natural Language Processing.  
Christopher D. Manning and Hinrich Schütze.  
© 1999 The MIT Press.

is provided in screen-viewable form for personal use only by members of MIT CogNet.

Unauthorized use or dissemination of this information is expressly forbidden.

If you have any questions about this material, please contact [cognetadmin@cognet.mit.edu](mailto:cognetadmin@cognet.mit.edu).

## *Tiny Statistical Tables*

THESE TINY TABLES are not a substitute for a decent statistics textbook or computer software, but they give the key values most commonly needed in Statistical NLP applications.

**Standard normal distribution.** Entries give the proportion of the area under a standard normal curve from  $-\infty$  to  $z$  for selected values of  $z$ .

$z$	-3	-2	-1	0	1	2	3
Proportion	0.0013	0.023	0.159	0.5	0.841	0.977	0.9987

**(Student's)  $t$  test critical values.** A  $t$  distribution with d.f. degrees of freedom has percentage  $C$  of the area under the curve between  $-t^*$  and  $t^*$  (two-tailed), and proportion  $p$  of the area under the curve between  $t^*$  and  $\infty$  (one tailed). The values with infinite degrees of freedom are the same as critical values for the  $z$  test.

	$p$	0.05	0.025	0.01	<b>0.005</b>	0.001	0.0005
	$C$	90%	95%	98%	<b>99%</b>	99.8%	99.9%
d.f.	1	6.314	12.71	31.82	63.66	318.3	636.6
	10	1.812	2.228	2.764	3.169	4.144	4.587
	20	1.725	2.086	2.528	2.845	3.552	3.850
( $z$ )	$\infty$	1.645	1.960	2.326	<b>2.576</b>	3.091	3.291

**$\chi^2$  critical values.** A table entry is the point  $\chi^{2*}$  with proportion  $p$  of the area under the curve being in the right-hand tail from  $\chi^{2*}$  to  $\infty$  of a  $\chi^2$  curve with d.f. degrees of freedom. (When using an  $r \times c$  table, there are  $(r - 1)(c - 1)$  degrees of freedom.)



$p$	0.99	0.95	0.10	<b>0.05</b>	0.01	0.005	0.001
d.f. 1	0.00016	0.0039	2.71	<b>3.84</b>	6.63	7.88	10.83
2	0.020	0.10	4.60	5.99	9.21	10.60	13.82
3	0.115	0.35	6.25	7.81	11.34	12.84	16.27
4	0.297	0.71	7.78	9.49	13.28	14.86	18.47
100	70.06	77.93	118.5	124.3	135.8	140.2	149.4

This excerpt from

Foundations of Statistical Natural Language Processing.  
Christopher D. Manning and Hinrich Schütze.  
© 1999 The MIT Press.

is provided in screen-viewable form for personal use only by members of MIT CogNet.

Unauthorized use or dissemination of this information is expressly forbidden.

If you have any questions about this material, please contact [cognetadmin@cognet.mit.edu](mailto:cognetadmin@cognet.mit.edu).