Table A4 - Chi-Square Distribution

<table>
<thead>
<tr>
<th>df</th>
<th>area to right of C.V.</th>
</tr>
</thead>
<tbody>
<tr>
<td># of categories - 1</td>
<td>Right Tail C.V.</td>
</tr>
</tbody>
</table>

For our example,

\[ X^2 = 7.0872 \]

\[ Z - 1 = 1 \rightarrow 6.6349 \]

\[ \alpha = 0.01 \]

\[ \text{Reject } H_0: p_1 = 0.17 \]

\[ p_2 = 0.83 \]

Our T.S. was \( X^2 = 7.0872 \)

\[ \text{Note the critical value: } X^2 = 6.6349 \]

\[ \text{Remember the } Z \text{-test (2-tailed)} \]

\[ Z = \frac{X^2}{df} = 2.576 \]

\[ \Rightarrow Z^2 = 2.576^2 = 6.635 \]

\[ X^2 = Z^2 \text{ with one degree of freedom} \]

The Chi-square distribution is the distribution of sums of random \( Z \)-scores squared. The number of squared \( Z \)-scores is the degrees of freedom.

\[ \Rightarrow \text{Conclusion: The data don't support the claim that 17\% of youth have asthma (and 83\% don't).} \]