

Table 14.5 Calculating the χ^2 Test for Independence

Category	Observed Preference	Expected Preference	Observed – Expected	(Observed – Expected) ²	$\frac{(\text{Observed} - \text{Expected})^2}{\text{Expected Preference}}$
Coke, SE	52	35	17	289	$\frac{289}{35} = 8.26$
Coke, SW	18	35	–17	289	$\frac{289}{35} = 8.26$
Pepsi, SE	38	37.5	0.5	0.25	$\frac{0.25}{37.5} = 0.01$
Pepsi, SW	37	37.5	–0.5	0.25	$\frac{0.25}{37.5} = 0.01$
Dr. Pepper, SE	15	32.5	–17.5	306.25	$\frac{306.25}{32.5} = 9.42$
Dr. Pepper, SW	50	32.5	17.5	306.25	$\frac{306.25}{32.5} = 9.42$
					$\chi^2 = 35.38$