

4. 320 families with 5 children

Boys	5	4	3	2	1	0
Girls	0	1	2	3	4	5
Families	14	56	110	88	40	12

Male and female births equally possible?

```
ans > x = c(5,4,3,2,1,0)
> n = 5
> N = 320
> p = 0.5
> obf = c(14,56,110,88,40,12)
> exf = dbinom(x,n,p)*320
> sum(obf)
[1] 320
> sum(exf)
[1] 320
> chisq = sum((obf-exf)^2/exf)
> chisq
[1] 7.16
```

```
> qchisq(0.95, 5)
[1] 11.0705
```

Calculated χ^2 less than tabulated value
at 5% significance, null hypothesis accepted

5	x	0	1	2	3	4	5	6
	f	275	72	30	7	5	2	1

ans

```
> x = 0:6
```

```
> f = c(275, 72, 30, 7, 5, 2, 1)
```

```
> lambda = (sum(f*x)/sum(f))
```

```
> expf = dpois(x, lambda) * sum(f)
```

```
>
```

```
> f1 = round(exp)
```

```
> sum(f)
```

```
[1] 392
```

```
> sum(f1)
```

```
[1] 393
```

```
> obf = c(275, 72, 30, 15)
```

```
> exf = c(242, 117, 28, 6)
```

```
> chisq = sum(((obf - exf)^2)/exf)
```

```
> chisq
```

```
[1] 35.45055
```

```
> qchisq(0.95, 2)
```

```
[1] 5.991465
```

Not a good fit