8.2 The data in Table 8.5 are from an investigation into satisfaction with housing conditions in Copenhagen (derived from Example W in Cox and Snell 1981, from original data from Madsen 1971). Residents in selected areas living in rented homes built between 1960 and 1968 were questioned about their satisfaction and the degree of contact with other residents. The data were tabulated by type of housing.

Table 8.5 *Satisfaction with housing conditions.*

| Contact with other residents | Satisfaction | | | | | |
| | Low | | Medium | | High | |
	Low	High	Low	High	Low	High
Tower block	65	34	54	47	100	100
Apartment	130	141	76	116	111	191
House	67	130	48	105	62	104

(a) Summarize the data using appropriate tables of percentages to show the associations between levels of satisfaction and contact with other residents, levels of satisfaction and type of housing, and contact and type of housing.

(b) Use nominal logistic regression to model associations between level of satisfaction and the other two variables. Obtain a parsimonious model that summarizes the patterns in the data.

(c) Do you think an ordinal model would be appropriate for associations between the levels of satisfaction and the other variables? Justify your answer. If you consider such a model to be appropriate, fit a suitable one and compare the results with those from (b).

(d) From the best model you obtained in (c), calculate the standardized residuals and use them to find where the largest discrepancies are between the observed frequencies and expected frequencies estimated from the model.