



Figure 21.4 Relational algebra tree for Example 21.3: (a) canonical relational algebra tree; (b) relational algebra tree formed by pushing Selections down; (c) relational algebra tree formed by changing Selection/Cartesian products to Equijoins; (d) relational algebra tree formed using associativity of Equijoins; (e) relational algebra tree formed by pushing Projections down; (f) final reduced relational algebra tree formed by substituting $c.\text{prefType} = \text{'Flat'}$ in Selection on $p.\text{type}$ and pushing resulting Selection down tree.