

A binary relation  $P(a,b)$  may be defined on the set of objects  $A = \{a_1, \dots, a_m\}$  by the matrix  $(e_{ij})$ ,  $i, j = 1, \dots, m$  where  $e_{ij} = 1(0)$  means that relation  $P(a_i, a_j)$  is true (false). Using such matrices, any binary relation on the set  $A$  can be defined. This representation of binary relations is widely used [Terehina, 1973; Tyrin et al 1977, 1979, 1981; Mirkin 1976, 1980; Drobishev 1980; Kupershtoh et al, 1976]. The most common binary relations are equivalence, order, quasi-order, partial order (see Section 4.9.1), and lexicographical orders.