Computing Elements of A

- Input always consists of a pedigree → Birth date
- Step 1: Complete pedigree, order such that parents are always before offspring
- Start with empty A. A is a square and symmetric matrix with number of rows equal to number of columns equal to the number of animals in the pedigree.

	1	2	3	4	5	6
1	1	0	½	½	½	¼
2	0	1	·	·	·	·
3	½	·	·			
4	½	·		·		
5	½	·			·	
6	¼	·				·

$A =$

$(A)_{15} = \frac{1}{2}[(A)_{11} + (A)_{12}] - \frac{1}{2}[1 + 0] = \frac{1}{2}$

Diagonal (Main-Dia)

$(A)_{ii} = 1 + F_i$

$F_i = 0.5 \cdot (A)_{sd}$

$(A)_{11} = 1 + F_1 = 1 + 0 = 1$

Off-Diag:

$(A)_{ki} = \frac{1}{2}[(A)_{ks} + (A)_{kd}]$

where s and d are parents of i

$(A)_{12} = \frac{1}{2}[(A)_{1NA} + (A)_{1NA}] = 0$