Compute Numerator Relationship Matrix A

Background: $\text{var}(\underline{u}) = G = A \cdot \sigma_u^2$

- Diagonal elements of A:

$$(A)_{ii} = (1 + F_i) \text{ with } F_i = \tfrac{1}{2}(A)_{sd}$$

- Offdiagonal: $(A)_{ij} = \dfrac{\text{cov}(u_i, u_j)}{\sigma_u^2}$

Recipe to compute A based on given pedigree:

- Step 1: Complete all animals in pedigree
  Result: Pedigree must be sorted such that parents are before offspring (topological sort)

3	1	2
4	1	NA
5	4	3
6	5	2
1	NA	NA
2	NA	NA

invalid orders