

## Complications. Inbreeding

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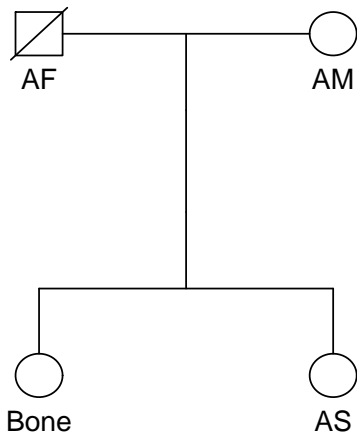
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## Beyond standard cases

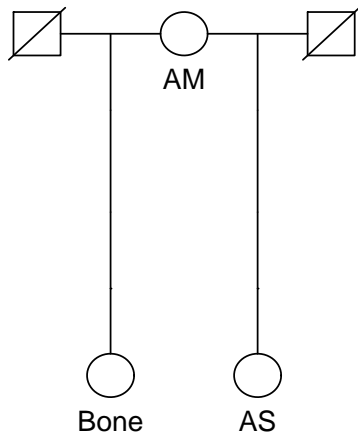
- ▶ **Complex pedigrees:**  
Large, incomplete (deficient), inbred. Later:
- ▶ **Theta correction** If e.g. Hardy-Weinberg does not apply
- ▶ **Mutation** If e.g. parent and child share no alleles
- ▶ **Silent alleles** Homozygote or silent allele?
- ▶ **Drop out** Homozygote or drop out?

## Important case, Exercise 2.3: Full - or half sibs?

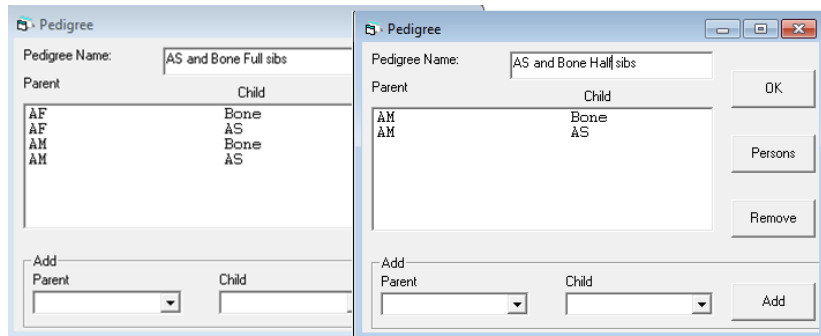
**H1: Full sibs**



**H2: Half-sibs**

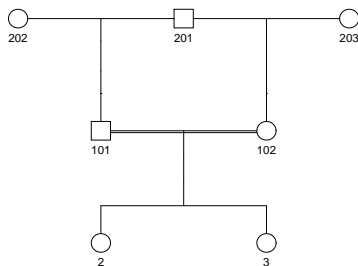


# Input



- ▶ **Recall:** pedigrees specified by all parent-child relationships.
- ▶ **Draw** pedigree.
- ▶ “Bone” and “AS” full sibs left, *half sibs* right.

# Inbred example



### Edit Pedigree

Pedigree name

Parent	Child	Is di...	
202	101	No	
201	101	No	
201	102	No	
203	102	No	
101	2	No	
101	3	No	
102	2	No	
102	3	No	

## Case data

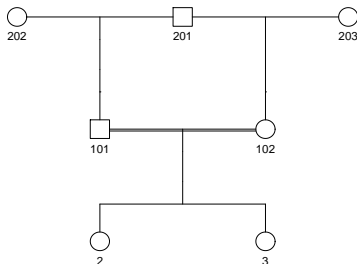
Name	Gender	DNA data
1	Male	None
2	Female	D3S1358: 17, 17;
3	Female	D3S1358: 17, 18;
202	Female	None
201	Male	None
203	Female	None
101	Male	None
102	Female	None

## Output

Project name: inbred		Number of pedigree	
Pedigree	Pr...	Posterior	Likelihood ...
H1: Mother-daughter	0.5	0.5383949	1.166354114
H2: Sisters, parents half-sibs	0.5	0.4616051	1

## Summary

- ▶ **Draw** pedigree.
- ▶ **Identify:**
  - Extra, untyped persons needed to define pedigrees.
  - Parent child relationships.
- ▶ **Example** Only 2 and 3 typed:  
5 extra persons needed; 8 Parent child relationships.





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 5 extra persons needed; 8 Parent child relationships.

