Hermione’s Parents

**Question:** What are possible genotypes of Hermione’s parents who are Muggles (no magical ability)?

• Hermione’s genotype is **MMss**.
  – For Hermione’s inherited ss, both of her Muggle parents must have Ss.
  – For Hermione’s inherited MM, both parents may have MM or MM’, but neither parents can have M’M’ allele pair.

• Hermione’s parents’ possible genotypes are:
  – MMSs, or MM’Ss
Harry and Ginny’s Children

**Question:** Will all of Harry and Ginny’s children have magical ability?

- **Parents’ magical genes:**
  - Harry’s genotype is **MMss**.
  - Ginny’s genotype may be **MMss** or **MM’ss**.

- **Harry’s and Ginny’s children’s genotypes:**
  - Since Harry and Ginny each has an **ss** allele pair, they can only pass **s** alleles to their children. Therefore, all of their children having inherited **ss** allele pair, have magical ability.
Dudley’s Children

Question: Could Dudley Dursley potentially have children with magical ability?

• Dudley’s parents’ genotypes:
  – **Vernon Dursley** is about as magic-less as one can get. So let’s assume Vernon’s genotype is **M’M’SS**.
  – **Petunia**’s sister Lily Potter had magical ability. So, Petunia can have a genotype of **SS** or **Ss** allele pair.

• Dudley’s genotypes:
  – If Dudley inherited **S** allele from both parents, he cannot have kids with magical ability.
  – If Dudley inherited an **s** allele from Petunia, he can have kids with magical ability with a Muggle with an **Ss** allele pair, or a witch possessing an **ss** allele pair.