WIZARDRY: A FEW EXAMPLES

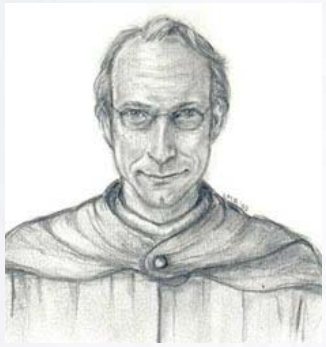
- **Change** appearance at will, which includes turning into animals

- Disappearing from one place and appearing in another

- Examining somebody else's mind or thoughts

"PUREBLOOD"

A wizard whose parents were both wizards



Arthur

Molly

Bill

Charlie

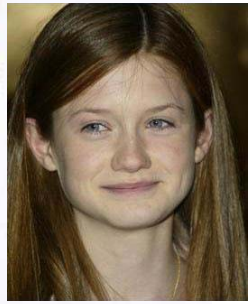
Percy

Fred

George

Ron

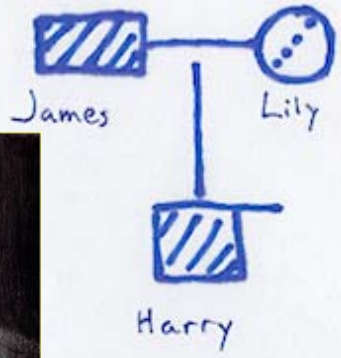
Ginny

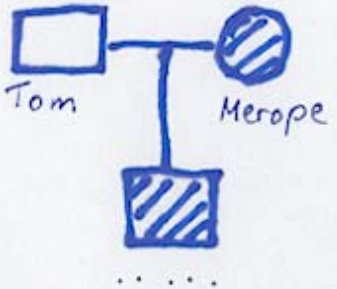


= wizarding powers

Weasley

"Half-Blood"
The offspring of a wizard and a regular person

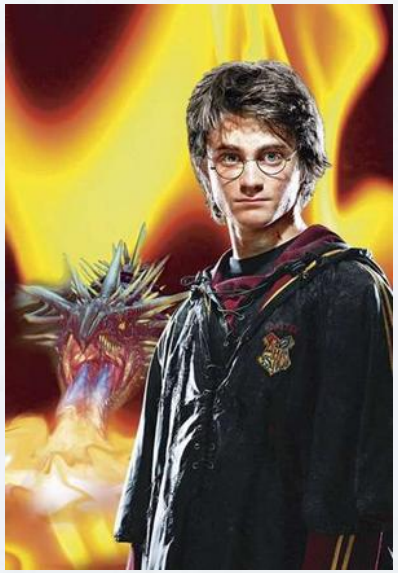




(It starts with a "V")

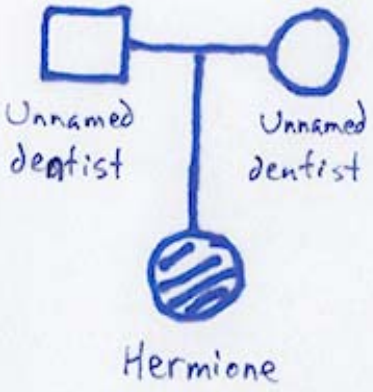
Potters

Riddles



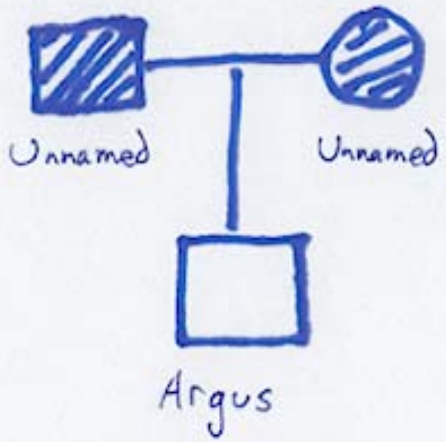
"Mudblood" or "Muggle"-born

A person with magical powers of non-magical descent

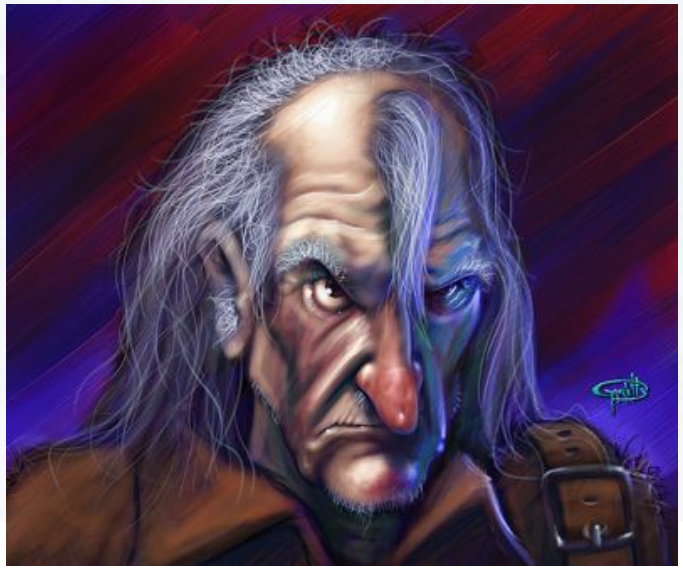


Granger

"Squib"
A person of magical descent with no magical powers.



Filch



"Muggles"

The wizard term for an ordinary person with no magical powers of non-magical descent.

The lexicon – a summary

1. **Pureblood** – wizard with both wizard parents – all the Weasley children (including Ron), Draco Malfoy.
2. **Half-blood** – wizard with one parent a wizard, and the other – not (e.g., a muggle) – Harry Potter, Voldemort.
3. **Muggle** – ordinary human with no wizarding skills – JR Rowling.
4. **Muggle-born** (or, derogatory, mudblood) – a wizard, both of whose parents are muggles (ordinary humans) – Hermione Granger.
5. **Squib** – the child of two wizards who lacks wizarding ability – Filch.

If we disregard the existence of muggle-borns (Hermione) and squibs (Filch) – what is the **simplest** hypothesis explaining the occurrence of wizarding in pedigrees?

A. Single autosomal locus, two alleles, complete dominance of W over w.
B. Single X-linked locus, two alleles, complete dominance of W over w.
C. Single autosomal locus, one allele (W) and one epiallele (W') with paramutation of W by W' leading to a muggle phenotype.
D. Any of the above (A through C) could be true.
E. Not enough information to tell.

If one assumes “single-locus, complete dominance of W over w,” Mendelian inheritance of wizardry, how can one explain the existence of muggle-born wizards?

A. It may be that the W allele is incompletely penetrant in the heterozygous state. A Ww x ww cross, then, could then yield a Ww child – who, in contrast to his/her Ww parent, would be a wizard.

B. One cannot, but one can assume that this is two locus inheritance (W and Z) that exhibits complementary gene action, and that Hermione Granger is a product of a marriage between two dentists, one of whom is WWzz and the other – wwZZ.

C. This could be paramutation – the epigenetic silencing of the wizarding gene (W → W’) – that sporadically (or under influence of the environment) is reset, especially in the context of a W’w x W’w cross.

D. One cannot. The existence of muggle-borns strongly argues for a non-genetic basis of wizardry.

E. All of the above could be true.

Whatever the genetic basis of wizardry, how can one explain the existence of squibs?

A. If we assume single-locus inheritance, then the simplest explanation is the parents of squibs, themselves wizards, are both Ww heterozygotes

B. Epistasis from other loci in the genome (for instance, this could be recessive epistasis, and Filch's two parents could be WWEe and WWEe, with Filch – WWee).

C. Environmentally determined incomplete penetrance (like BRCA1-induced breast cancer).

D. The simplest explanation for squibs is that wizardry is non-genetic.

E. All of the above could be true.