

HARRY POTTER
AND THE
METHODS OF RATIONALITY



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BOOK 1

HARRY JAMES POTTER-EVANS-VERRES
AND THE
METHODS OF RATIONALITY



ELIEZER YUDKOWSKY

Chapters 1–21

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C H A P T E R O N E

A DAY OF VERY LOW PROBABILITY

Harry James Potter-Evans-Verres was doing his best to ignore the yelling outside his cupboard.

It was an hour before supper, and he was lying in the cupboard under the stairs, reading a fantasy novel. Normally, Harry enjoyed reading in companionable silence with his father in his study, or tuning out the sound of his mother's soap operas in the living room, but when he wanted quiet that even his room couldn't provide, he would go under the stairs. It was a private, cozy place, mostly insulated from the sounds of phone conversations, television, or outside traffic.

This particular night, however, the walls were no match for the steadily rising voices of Michael Verres-Evans and Petunia Evans-Verres, and soon Harry began to catch bits and pieces of the conversation.

"...just rubbish... fourth time this week... a silly prank, Petunia —"

Harry adjusted his glasses and tried to concentrate on the book. The author was attempting to explain, through an old wizard's limited grasp of biology and chemistry, how the dragons in his world breathed fire. Though Harry generally preferred science fiction, he always enjoyed fantasy best when the writers at least tried to put some

of the magic in rational, understandable terms: it fired up his imagination to think outside the box for what was possible, if not terribly probable.

"...not a prank, I told you... have to show him, or they'll keep... more and more of them..."

"...nonsense, there's no need... worry about crackpots sending him letters!"

Unfortunately, now his imagination was preoccupied with what kinds of letters his dad was keeping from him. Harry closed his book, no longer able to concentrate as a familiar bitterness flared up in him.

It wasn't that his parents mistreated him. Far from it — he'd been sent to the best primary schools, and when that proved insufficient he was given the best tutors an endless pool of starving university students could provide. He'd always been encouraged to study whatever caught his attention, was bought all the books he wanted, was sponsored in whatever math or science competitions he entered. Harry knew he was exceedingly lucky, and he was always grateful for what his parents gave him... but he would have been satisfied with half as much if it meant he had their respect.

Of course, if asked, his parents would say they respected him. An Oxford Professor of Biochemistry and his liberal wife were *expected* to show an enlightened view of child-rearing that included respect. But that respect meant something different than it would for a fellow adult, who they would never have dreamed of talking about as if he weren't in the house, let alone making decisions for him.

It wasn't their fault: society as a whole had such low expectations of children. And if it was ever going to change, it would be up to those like him to change it.

So Harry swung his legs out of the small hammock he'd strung to the walls, turned off the lantern his father had hung up for him, and

opened the door into the hallway.

The voices immediately quieted. By the time he stepped into the living room, his parents were sitting calmly on the couch, watching the news on a television that stuck out from its surroundings. Their living room was dominated by books. Every inch of wall space was covered by a bookcase going almost to the ceiling. Some bookshelves were stacked to the brim with hardback books: science, math, history, and everything else. Other shelves had two layers of paperback science fiction, one set right side up, the other stacked sideways in what was left of the space above. And it still wasn't enough. Books overflowed onto the tables and the sofas, covered the top of the television, and made little stacks under the windows.

"Hi, Mum, Dad. Is everything alright?"

"Hello, Harry." His mother turned to him with a warm smile, her face still young and pretty despite her age. "Yes, everything's fine."

"Did we disturb your reading, son?" his father said, looking contrite. "We're sorry, our debate got a bit passionate at the end there," Michael chuckled.

Harry and his mother exchanged knowing smiles. Professor Verres-Evans viewed arguments as uncivilized, and so any he participated in were automatically elevated in status to "debate."

"It's alright. I just couldn't help overhearing," Harry said with mild emphasis, "and it sounded like a letter arrived for me?"

He saw it in the quick glance they gave each other — his mother's expectant, his father's calculating. Harry knew his father was struggling with some mighty cognitive dissonance. One part of him felt guilty from withholding someone's mail from them, a grievous breach of privacy. The other part felt entitled by societal norms that parents were allowed to decide for their children what information they should or shouldn't have, no matter how bright and precocious those

children might be.

“Yes,” Petunia said after the silence stretched on a few seconds. “It’s the first time I’ve seen it, or I would have told you sooner. Your father thinks it’s just prank mail, but he doesn’t understand —”

“Well, no harm in having a look then, right?” Harry said. He held his hand out expectantly, brow raised in an expression of innocent patience. He wasn’t quite sure what he’d do if his father refused — trying to reason with him rarely worked on any topic that concerned Harry’s subordinate status.

After a moment, though, his father nodded and stood up, walking toward the trash and fishing an envelope and a couple papers from it. “Quite right, Harry, no harm in looking. You’re a bright boy, and I know you won’t get suckered in by whatever crock they’re selling.”

Michael handed the letters and envelope to Harry, who had to choke back a retort to the patronizing tone his father had adopted now that he was giving in. Admitting one’s mistakes was for scientific journals, apparently... not for adults to do to children.

Harry chided himself on such bitter thoughts as he went to the table. He knew this was a sore spot for him, and it occasionally took a while for his temper to calm down. So he forced himself to smile back at his dad, then straightened out the first thick paper and began to read, acutely aware of his parents’ stares. Harry’s eyes scanned the letter in a few seconds, blinked, then looked up to meet theirs.

“What.”

Michael Evans-Verres smiled. “Yes, rather silly I th —”

Harry held up his hand, then looked back down at the parchment (simple “paper” didn’t suffice to describe this material) and slowly reread the message.

Dear Mr. Potter,

We are pleased to inform you that you have been accepted at Hogwarts School of Witchcraft and Wizardry. Please find enclosed a list of all necessary books and equipment.

Term begins on September 1. We await your owl by no later than July 31.

*Yours sincerely,
Minerva McGonagall, Deputy Headmistress*

On the second sheet he found a list that wouldn't be out of place in a rulebook from a fantasy role-playing game.

"What is it, some kind of late summer camp?" Harry asked as he eyed the impressive seal heading the parchment: a lion, snake, raven and badger surrounding an ornate *H*. He smiled as he looked back at the name of the school. *Heh. "Hogwarts." What, was "Newteyes" taken?*

"No, Harry," his mother said. "It's not a summer camp. As I was telling your father..." She took a deep breath, straightened in her seat, and avoided looking at her husband, her gaze steady on Harry. "My sister — your mother, Lily — was a witch. She got that same letter. I'd promised to keep it secret, my whole family did, but now it's clear you're meant to know, if they've come for you like they did for her."

Harry exchanged a glance with his father, feeling a mix of exasperation and confusion. Mum rarely spoke of his biological parents. It wasn't taboo or anything, it just never really came up. They'd died in a car crash when he was one year old... the same crash which had given him the lightning shaped scar on his forehead. To hear that they were Wiccan wasn't terribly surprising considering some of Petunia's beliefs, but the gravity of her tone didn't match the subject matter.

"Well that's, er, very interesting, I guess. But what does her religion have to do with me? Who's 'they?'" He didn't particularly like the ominous sound of them "coming for him," whoever they were.

He imagined a shadowy coven meeting in a forest and pronouncing it time to bring the young Potter into the fold.

“It wasn’t a religion. I’m saying she was an *actual* witch. She could do magic. Her husband — your father — he was a wizard. They both went to this magic school, Hogwarts, when they were eleven. And since you’ve received that letter, it means you’re a wizard too, Harry.”

Michael Verres-Evans laughed, and Harry almost joined him. Petunia Evans-Verres had always been something of the odd-woman-out in their family. Some of the most “spirited debates” he could remember between his parents involved her superstitions, and he had a clear childhood memory of her waving a crystal of some kind in careful patterns over him when he was sick.

When he had been younger, he used to enjoy going with her to the smoky, mysterious shops she would occasionally frequent, with their pungent odors and exotic wares. Thankfully his father’s books had taught him how to critically examine the beliefs sold in such places, and a few years ago he had begun to find their air of obscure mysticism groundless and mildly irritating.

Harry smiled down at the parchment listing the “school supplies.” Wand, spell books, potion ingredients... he quickly scanned the latter. Nope, no “hog warts” listed, though newt eyes did indeed show up, as well as powdered hens’ teeth. He wondered how expensive that would be: he knew there was some research being done on atavism in chickens that resulted in them growing vestigial teeth, and that the mutation was rather rare. Aboriginal shaman and medicine men must have found plenty of uses for it, or imagined them at any rate. He wondered what Hogwarts pretended to use them for. Good dental hygiene?

And yet he didn’t laugh with his father. Because...

Because somewhere in him was a strange certainty that she was

right, in this most unlikely of cases. *You're a wizard too, Harry.*

"Well, maybe someday he'll be a wizard at chess," his father said, still smiling as he turned back to the news. "But if whoever keeps sending those letters shows up at the door in a robe and pointy hat, I'm calling the men in the white coats."

Petunia continued to look only at Harry, her gaze intent, waiting.

"Mum," he said. "What do you mean by 'wizard'?"

Petunia bit her lip. "I can't just tell you. You'll think I'm —" She swallowed, and Harry felt confused. His mother had always defended her less rational beliefs with exasperating calmness, merely shrugging off logical arguments and relying on some inner conviction. This sudden nervousness, and the confusion he felt from it, made him pay attention. "Listen. I wasn't... always like this..." She gestured at herself, as though to indicate her lithe form.

"Lily did this. Because I... I *begged* her. For years, I begged her. Lily had always been prettier than me, and I'd... been mean to her, because of that, and then she got *magic*, can you imagine how I felt? And I *begged* her to use some of that magic on me so that I could be pretty too, even if I couldn't have her magic, at least I could be pretty."

Harry watched in alarm as tears gathered in Petunia's eyes.

"And Lily would tell me no, and make up the most ridiculous excuses, like the world would end if she were nice to her sister, or a centaur told her not to — the most ridiculous things, and I hated her for it. And when I had just graduated from university, I was going out with this boy, Vernon Dursley... he was fat, and he was the only boy who would talk to me. And he said he wanted children, and that his first son would be named Dudley. And I thought to myself, *what kind of parent names their child Dudley Dursley?* It was like I saw my whole future life stretching out in front of me, and I couldn't stand it. And I wrote to my sister and told her that if she didn't help me I'd rather

just —”

Petunia stopped. Harry felt somewhat wretched for being responsible for her having to relate such an obviously painful memory. A glance at his father showed his dad similarly stricken. He’d never known that Mum had been through such a dark period, had been so envious of her sister... he wondered how much guilt she must have felt after his biological parents had died.

“Anyway,” Petunia said, her voice small, “Lily gave in. She warned me it was dangerous, and I said I didn’t care. I drank this potion and I was sick for weeks, but when I got better my skin cleared up and I finally filled out and... I was beautiful. People were *nice* to me,” her voice broke, “and after that I couldn’t hate my sister any more, especially when I learned what her magic brought her in the end -”

“Darling,” Michael said gently, “you got sick, you gained some weight while resting in bed, and your skin cleared up on its own. Or being sick made you change your diet —”

“No, it was nothing like that,” Petunia said. “It was magic, real magic. I saw it, other things —”

“Petunia,” Michael said. The annoyance was creeping back into his voice. “You *know* that can’t be true. Do I really have to explain why?”

Petunia wrung her hands. She seemed to be on the verge of tears. “My love, I know I can’t win arguments with you, but please, you have to trust me on this —”

“*Dad! Mum!*”

The two of them stopped and looked at Harry. He took a deep breath and thought about the problem. “Mum, your parents didn’t have magic, did they?”

“No,” Petunia said. “Just Lily.”

“Then your family also must not have believed her letter. How

did *they* get convinced?”

“Ah...” Petunia said. “They didn’t just send a letter. They sent a professor from Hogwarts. He —” Petunia’s eyes flicked to Michael. “He showed us some magic.”

“Well, there we are then. You don’t have to fight over this,” Harry said firmly. “If it’s true, we can just get a Hogwarts professor here and see the magic for ourselves, and Dad will admit that it’s true. And if not, then Mum will admit that it’s false. That’s what the experimental method is for, so that we don’t have to resolve things just by arguing.” Hoping against hope that this time, just this once, they might listen to him...

“Oh, come now, Harry,” Professor Verres-Evans said. “Really, *magic*? I thought you’d know better than to take this seriously, even if you’re only ten.”

I. Shall. SCREAM.

“Mum,” Harry said instead, keeping his voice calm. “If you want to win this argument with Dad, look in chapter two of the first book of the *Feynman Lectures on Physics*. There’s a quote there about how philosophers say a great deal about what science absolutely requires, and it’s all wrong, because the only rule in science is that the final arbiter is observation — that you just have to look at the world and report what you see. Um... off the top of my head I can’t think of where to find something about how it’s an ideal of science to settle things by experiment instead of arguments —”

His mother looked at him and smiled. “Thank you, Harry. But,” she looked back at her husband. “I don’t want to win an argument with your father. I want my husband to just... listen to his wife who loves him, and trust her just this once...”

Harry closed his eyes briefly. *Hopeless*. Both his parents were hopeless.

Now they were getting into one of *those* arguments again, one where his mother tried to make her husband feel guilty, and his father tried to make his wife feel stupid.

"I'm going to go to my room," Harry announced. His voice trembled a little. "Please try not to fight too much about this, Mum, Dad, we'll know soon enough how it comes out, right?"

"Of course, Harry," said his father, and his mother gave him a reassuring kiss, and then they went on "debating" while Harry climbed the stairs to his bedroom.

He shut the door behind him and tried to think, wandering past his own bookshelves crammed with textbooks and sci-fi to lie on his bed.

The funny thing was, he *should* have agreed with Dad. No one had ever seen any evidence of magic, and according to Mum, there was a whole magical world out there. How could anyone keep something like that a secret in a world of video cameras and spy satellites? More magic? That seemed like a rather suspicious sort of excuse.

Except that some part of Harry was utterly convinced that what his Mum said was true. He was magic... a wizard.

Was it simple ego? What child didn't want to believe they possessed hidden, magic powers? He knew he had an inflated sense of self-importance as others judged it. He'd always vowed to one day justify it by proving himself unique. Of course, he'd figured it would be somewhere in the realm of science. He'd imagined becoming a world renowned biologist, curing cancer and extending lifespans indefinitely. Or going into physics to perfect cold fusion, ending the planet's energy needs and propelling humanity to the stars. Reasonable things. Mostly. Not magic, at any rate.

Maybe his powers of reason had been impaired somehow. He frowned, probing his skull with his fingers as if some wound would

present itself. He hadn't hit his head on anything lately... not that he could remember in any case. *Would* he even remember? There was a scary thought. Harry mentally jumped through some quick mental hoops to confirm that yes, the least complicated answer that fits all the facts is most likely to be the true one, that all claims require evidence and that extraordinary claims require extraordinary evidence, that two plus two is still four.

It should have been a clean case for Mum joking, lying or being insane, in ascending order of awfulness. If Mum had sent the letter herself, that would explain how it arrived at the letterbox without a stamp. A little insanity was far, far less improbable than the universe really working like the contents of that letter implied.

What about his mother's other views? Was he any more susceptible to those? He considered her belief that atoms arranged in a particular pattern identified as a "crystal" could somehow destroy bacteria or viruses in his body when touched to his skin... specifically those bacteria or viruses deemed "harmful," opposed to all the beneficial ones... Yes, that he could still rationally reject as a form of wish fulfillment without any evidence to back it up. If the person from Hogwarts came to their house and started bending spoons, he would toss the letter in the trash and think nothing further of it.

But that ... was magical... that irrational belief still stayed. And he could think of no evidence to account for it... no moments in his life when he'd exhibited supernatural or inexplicable powers, no hidden talent manifesting in times of great peril or passion. Yet he still believed he had magic.

Harry rubbed his forehead, grimacing. *Don't believe everything you think*, Harry reminded himself. *So where do you come from, strange little prediction? Why do I believe what I believe?*

Usually Harry was pretty good at answering that question, but in

this particular case, he had no *clue* what his brain was thinking. He hadn't had a belief so clearly based on faith since he was very young. Some people, unfamiliar with rationalism or the scientific method, seemed to think that science took faith, since no one did every experiment themselves, but rather relied on other scientists or textbooks to tell them what was true or not true.

The problem with this view was that no scientist had "faith" in textbooks, other scientists, or even the scientific method. They had *confidence* in them. Somewhere, someone was able to do the experiments, verified the results through repeated tests, and then subjected their findings to peer review so others could repeat the experiments. And if he wanted, Harry could take the time and effort to learn the information and repeat the experiment himself. Belief in science relied on the *external*, not the internal, and thus could be shown to others, taught and learned. He no more had faith in science than he had faith that Dad's car would start tomorrow: he had confidence based on experimentation and observation.

This new belief, however, was not based on external factors. He couldn't describe it to anyone in a way that would make sense. He couldn't demonstrate the belief and have it peer reviewed. It just was.

Harry mentally shrugged. A button calls to be pushed, a handle yearns to be turned, and the thing to do with a testable hypothesis is to go and test it.

He went to his desk, shoved some of the books to the side, took a piece of lined paper from a drawer, and began writing.

Dear Deputy Headmistress

Harry paused, reflecting; then he discarded the paper for another, tapping another millimeter of graphite from his mechanical pencil. This called for careful calligraphy.

*Dear Deputy Headmistress Minerva McGonagall,
Or Whomsoever It May Concern:*

I recently received your letter of acceptance to Hogwarts, addressed to Mr. H. Potter. You may not be aware that my genetic parents, James Potter and Lily Potter (formerly Lily Evans) are dead. I was adopted by Lily's sister, Petunia Evans-Verres, and her husband, Michael Verres-Evans.

I am extremely interested in attending Hogwarts, conditional on such a place actually existing. Only my mother Petunia says she knows about magic, and she can't use it herself. My father is highly skeptical. I myself am uncertain. I also don't know where to obtain any of the books or equipment listed in your acceptance letter.

Mother mentioned that you sent a Hogwarts representative to Lily Potter (then Lily Evans) in order to demonstrate to her family that magic was real, and, I presume, help Lily obtain her school materials. If you could do this for my own family it would be extremely helpful.

*Sincerely,
Harry James Potter-Evans-Verres.*

Harry added their current address, then folded up the letter and put it in an envelope, which he addressed to Hogwarts. Further consideration led him to obtain a candle and drip wax onto the flap of the envelope, into which, using a penknife's tip, he impressed the initials H.J.P.E.V. If he was going to descend into this madness, he was going to do it with style.

Then he opened his door and went back downstairs. His father was sitting in the living-room and reading a book of higher mathematics to show how smart he was, and his mother was in the kitchen preparing one of his father's favorite meals to show how loving she

was. It didn't look like they were talking to one another at all. As scary as arguments could be, *not arguing* was somehow much worse.

"Mum," Harry said into the unnerving silence, "I'm going to test the hypothesis. According to your theory, how do I send a letter to Hogwarts?"

His mother turned from the sink to look at him uncertainly. "I don't know... I think you have to own a magic owl."

That should have sounded highly suspicious, *oh, so there's no way to test your theory then*, but the peculiar certainty in Harry seemed willing to stick its neck out even further.

"Well, the letter got here somehow," Harry said, "so I'll just wave it around outside and call 'letter for Hogwarts!' and see if an owl picks it up. Dad, do you want to come and watch?"

His father shook his head minutely and kept on reading. *Of course*, Harry thought to himself. Magic was a disgraceful thing that only stupid people believed in; if his father went so far as to *test* the hypothesis, or even *watch* it being tested, that would feel like *associating* himself with that...

Only as Harry stumped out the back door into the garden did it occur to him that if an owl *did* come down and snatch the letter, he was going to have some trouble telling Dad about it.

But — well — that can't really happen, can it? No matter what my brain seems to believe. If an owl really comes down and grabs this envelope, I'm going to have worries a lot more important than what Dad thinks.

Harry took a deep breath and raised the envelope into the air.
He swallowed.

Calling out "*Letter for Hogwarts!*" while holding an envelope high in the air in the middle of your own back garden was... actually pretty embarrassing, now that he thought about it.

No. I'm better than this. I will use the scientific method even if the result makes me feel stupid.

"Letter —" Harry said, but it actually came out as more of a whispered croak.

Harry steeled his will and shouted into the empty sky, "*Letter for Hogwarts! Can I get an owl?*"

"Harry?" asked a bemused woman's voice from nearby.

Harry yanked his hand down as if it had caught fire, hiding the envelope behind his back. His whole face was hot with shame.

An old woman's face peered out from over the neighboring fence, her grizzled grey hair escaping from her hairnet. Mrs. Figg, the occasional babysitter. "What are you doing, Harry?"

"Nothing," Harry said in a strangled voice. "Hi, Mrs. Figg. I'm just... testing a really silly theory —"

"Did you get your acceptance letter from Hogwarts?"

Harry froze.

"Yes," Harry's lips said a little while later. "I got a letter from Hogwarts. They say they want my owl by July 31, but —"

"But you don't *have* an owl. Poor dear! I can't imagine *what* someone must have been thinking, sending you just the standard letter."

A wrinkled arm stretched out over the fence and opened an expectant hand. Hardly thinking himself at this point, Harry gave over his envelope.

"Just leave it to me, dear," said Mrs. Figg, "and in a jiffy or two I'll have someone over."

And her face disappeared from over the fence.

There was a long silence in the garden.

Then Harry's voice said, calmly and quietly, "What."

C H A P T E R T W O

EVERYTHING I BELIEVE IS FALSE

“**N**ow, just to be clear,” Harry said, “if the professor does levitate you, Dad, when you know you haven’t been attached to any wires, that’s going to be sufficient evidence. You’re not going to turn around and say that it’s a magician’s trick. That wouldn’t be fair play. If you feel that way, you should say so *now*, and we can figure out a different experiment instead.”

Harry’s father, Professor Michael Verres-Evans, rolled his eyes. “Yes, Harry.”

“And you, Mum, your theory says that the professor should be able to do this, and if that doesn’t happen, you’ll admit you’re mistaken. Nothing about how magic doesn’t work when people are sceptical of it, or anything like that.”

Deputy Headmistress Minerva McGonagall was watching Harry with a bemused expression. She looked quite witchy in her black robes and pointed hat, but when she spoke she sounded formal and Scottish, which didn’t go together with the look at all. At first glance she looked like someone who ought to cackle and put babies into cauldrons, but the whole effect was ruined as soon as she opened her mouth. “Is that sufficient, Mr. Potter?” she said. “Shall I go ahead and demonstrate?”

"*Sufficient?* Probably not," Harry said. "But at least it will *help*. Go ahead, Deputy Headmistress."

"Just Professor will do," said she, and then, "*Wingardium Leviosa.*"

Harry looked at his father.

"Huh," Harry said.

His father looked back at him. "Huh," his father echoed.

Then Professor Verres-Evans looked back at Professor McGonagall. "All right, you can put me down now."

His father was lowered carefully to the ground.

Harry ruffled a hand through his own hair. Maybe it was just that strange part of him which had *already* been convinced, but... "That's a bit of an anticlimax," Harry said. "You'd think there'd be some kind of more dramatic mental event associated with updating on an observation of infinitesimal probability—" Harry stopped himself. Mum, the witch, and even his Dad were giving him *that look* again. "I mean, with finding out that everything I believe is false."

Seriously, it should have been more dramatic. His brain ought to have been flushing its entire current stock of hypotheses about the universe, none of which allowed this to happen. But instead his brain just seemed to be going, *All right, I saw the Hogwarts Professor wave her wand and make your father rise into the air, now what?*

The witch-lady was smiling benevolently upon them, looking quite amused. "Would you like a further demonstration, Mr. Potter?"

"You don't have to," Harry said. "We've performed a definitive experiment. But..." Harry hesitated. He couldn't help himself. Actually, under the circumstances, he *shouldn't* be helping himself. It was right and proper to be curious. "What else *can* you do?"

Professor McGonagall turned into a cat.

Harry scrambled back unthinkingly, backpedalling so fast that he

tripped over a stray stack of books and landed hard on his bottom with a *thwack*. His hands came down to catch himself without quite reaching properly, and there was a warning twinge in his shoulder as the weight came down unbraced.

At once the small tabby cat morphed back up into a robed woman. “I’m sorry, Mr. Potter,” said the witch, sounding sincere, though the corners of her lips were twitching upwards. “I should have warned you.”

Harry was breathing in short gasps. His voice came out choked. “*You can’t DO that!*”

“It’s only a Transfiguration,” said Professor McGonagall. “An Animagus transformation, to be exact.”

“You turned into a cat! A *SMALL* cat! You violated Conservation of Energy! That’s not just an arbitrary rule, it’s implied by the form of the quantum Hamiltonian! Rejecting it destroys unitarity and then you get FTL signalling! And cats are *COMPLICATED*! A human mind can’t just visualise a whole cat’s anatomy and, and all the cat biochemistry, and what about the *neurology*? How can you go on *thinking* using a cat-sized brain?”

Professor McGonagall’s lips were twitching harder now. “Magic.”

“Magic *isn’t enough* to do that! You’d have to be a god!”

Professor McGonagall blinked. “That’s the first time I’ve ever been called *that*.”

A blur was coming over Harry’s vision, as his brain started to comprehend what had just broken. The whole idea of a unified universe with mathematically regular laws, that was what had been flushed down the toilet; the whole notion of *physics*. Three thousand years of resolving big complicated things into smaller pieces, discovering that the music of the planets was the same tune as a falling apple, finding that the true laws were perfectly universal and had no exceptions

anywhere and took the form of simple maths governing the smallest parts, *not to mention* that the mind was the brain and the brain was made of neurons, a brain was what a person *was*—

And then a woman turned into a cat, so much for all that.

A hundred questions fought for priority over Harry's lips and the winner poured out: "And, and what kind of incantation is *Wingardium Leviosa*? Who invents the words to these spells, nursery schoolers?"

"That will do, Mr. Potter," Professor McGonagall said crisply, though her eyes shone with suppressed amusement. "If you wish to learn about magic, I suggest that we finalise the paperwork so that you can go to Hogwarts."

"Right," Harry said, somewhat dazed. He pulled his thoughts together. The March of Reason would just have to start over, that was all; they still had the experimental method and that was the important thing. "How do I get to Hogwarts, then?"

A choked laugh escaped Professor McGonagall, as if extracted from her by tweezers.

"Hold on a moment, Harry," his father said. "Remember why you haven't been going to school up until now? What about your condition?"

Professor McGonagall spun to face Michael. "His condition? What's this?"

"I don't sleep right," Harry said. He waved his hands helplessly. "My sleep cycle is twenty-six hours long, I always go to sleep two hours later, every day. I can't fall asleep any earlier than that, and then the next day I go to sleep two hours later than *that*. 10PM, 12AM, 2AM, 4AM, until it goes around the clock. Even if I try to wake up early, it makes no difference and I'm a wreck that whole day. That's why I haven't been going to a normal school up until now."

“One of the reasons,” said his mother. Harry shot her a glare.

McGonagall gave a long *hmmmmmm*. “I can’t recall hearing about such a condition before...” she said slowly. “I’ll check with Madam Pomfrey to see if she knows any remedies.” Then her face brightened. “No, I’m sure this won’t be a problem—I’ll find a solution in time. Now,” and her gaze sharpened again, “what are these *other* reasons?”

Harry sent his parents a glare. “I am a conscientious objector to child conscription, on grounds that I should not have to suffer for a disintegrating school system’s failure to provide teachers or study materials of even minimally adequate quality.”

Both of Harry’s parents howled with laughter at that, like they thought it was all a big joke. “Oh,” said Harry’s father, eyes bright, “is *that* why you bit a maths teacher in third year.”

“She didn’t know what a logarithm was!”

“Of course,” seconded Harry’s mother. “Biting her was a very mature response to that.”

Harry’s father nodded. “A well-considered policy for addressing the problem of teachers who don’t understand logarithms.”

“I was *seven years old!* How long are you going to keep on bringing that up?”

“I know,” said his mother sympathetically, “you bite *one* maths teacher and they never let you forget it, do they?”

Harry turned to Professor McGonagall. “There! You see what I have to deal with?”

“Excuse me,” said Petunia, and fled through the backdoor into the garden, from which her screams of laughter were clearly audible.

“There, ah, there,” Professor McGonagall seemed to be having trouble speaking for some reason, “there is to be no biting of teachers at Hogwarts, is that quite clear, Mr. Potter?”

Harry scowled at her. "Fine, I won't bite anyone who doesn't bite me first."

Professor Michael Verres-Evans also had to leave the room briefly upon hearing that.

"Well," Professor McGonagall sighed, after Harry's parents had composed themselves and returned. "Well. I think, under the circumstances, that I should avoid taking you to purchase your study materials until a day or two before school begins."

"What? Why? The other children already know magic, don't they? I have to start catching up right away!"

"Rest assured, Mr. Potter," replied Professor McGonagall, "Hogwarts is quite capable of teaching the basics. And I suspect, Mr. Potter, that if I leave you alone for two months with your schoolbooks, even without a wand, I will return to this house only to find a crater billowing purple smoke, a depopulated city surrounding it and a plague of flaming zebras terrorising what remains of England."

Harry's mother and father nodded in perfect unison.

"Mum! Dad!"

C H A P T E R T H R E E

COMPARING REALITY TO ITS ALTERNATIVES

“G^ood Lord,” said the barman, peering at Harry, “is this—can this be—?”

Harry leaned towards the bar of the Leaky Cauldron as best he could, though it came up to somewhere around the tips of his eyebrows. A question like *that* deserved his very best.

“Am I—could I be—maybe—you never know—if I’m *not*—but then the question is—*who*?”

“Bless my soul,” whispered the old barman. “Harry Potter... what an honour.”

Harry blinked, then rallied. “Well, yes, you’re quite perceptive; most people don’t realise that so quickly—”

“That’s enough,” Professor McGonagall said. Her hand tightened on Harry’s shoulder. “Don’t pester the boy, Tom, he’s new to all this.”

“But it is him?” quavered an old woman. “It’s Harry Potter?” With a scraping sound, she got up from her chair.

“Doris—” McGonagall said warningly. The glare she shot around the room should have been enough to intimidate anyone.

"I only want to shake his hand," the woman whispered. She bent low and stuck out a wrinkled hand, which Harry, feeling confused and more uncomfortable than he ever had in his life, carefully shook. Tears fell from the woman's eyes onto their clasped hands. "My grandson was an Auror," she whispered to him. "Died in seventy-nine. Thank you, Harry Potter. Thank heavens for you."

"You're welcome," Harry said automatically, and then he turned his head and shot Professor McGonagall a frightened, pleading look.

Professor McGonagall slammed her foot down just as the general rush was about to start. It made a noise that gave Harry a new referent for the phrase "Crack of Doom", and everyone froze in place.

"We're in a hurry," Professor McGonagall said in a voice that sounded perfectly, utterly normal.

They left the bar without any trouble.

"Professor?" Harry said, once they were in the courtyard. He had meant to ask what was going on, but oddly found himself asking an entirely different question instead. "Who was that pale man, by the corner? The man with the twitching eye?"

"Hm?" said Professor McGonagall, sounding a bit surprised; perhaps she hadn't expected that question either. "That was Professor Quirinus Quirrell. He'll be teaching Defence Against the Dark Arts this year at Hogwarts."

"I had the strangest feeling that I knew him..." Harry rubbed his forehead. "And that I shouldn't ought to shake his hand." Like meeting someone who had been a friend, once, before something went drastically wrong... that wasn't really it at all, but Harry couldn't find words. "And what *was*... all of that?"

Professor McGonagall was giving him an odd glance. "Mr. Potter... do you know... how *much* have you been told... about how your parents died?"

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Harry returned a steady look. "My parents are alive and well, and they always refused to talk about how my *genetic* parents died. From which I infer that it wasn't good."

"An admirable loyalty," said Professor McGonagall. Her voice went low. "Though it hurts a little to hear you say it like that. Lily and James were friends of mine."

Harry looked away, suddenly ashamed. "I'm sorry," he said in a small voice. "But I *have* a Mum and Dad. And I know that I'd just make myself unhappy by comparing that reality to... something perfect that I built up in my imagination."

"That is amazingly wise of you," Professor McGonagall said quietly. "But your *genetic* parents died very well indeed, protecting you."

Protecting me?

Something strange clutched at Harry's heart. "What... *did* happen?"

Professor McGonagall sighed. Her wand tapped Harry's forehead, and his vision blurred for a moment. "Something of a disguise," she said, "so that this doesn't happen again, not until you're ready." Then her wand licked out again, and tapped three times on a brick wall...

...which hollowed into a hole, and dilated and expanded and shivered into a huge archway, revealing a long row of shops with signs advertising cauldrons and dragon livers.

Harry didn't blink. It wasn't like anyone was turning into a cat.

And they walked forwards, together, into the wizarding world.

There were merchants hawking Bounce Boots ("Made with real Flubber!") and "Knives +3! Forks +2! Spoons with a +4 bonus!" There were goggles that would turn anything you looked at green, and a lineup of comfy armchairs with ejection seats for emergencies.

Harry's head kept rotating, rotating like it was trying to wind itself off his neck. It was like walking through the magical items sec-

tion of an *Advanced Dungeons and Dragons* rulebook (he didn't play the game, but he did enjoy reading the rulebooks). Harry desperately didn't want to miss a single item for sale, in case it was one of the three you needed to complete the cycle of infinite *wish* spells.

Then Harry spotted something that made him, entirely without thinking, veer off from the Deputy Headmistress and start heading straight into the shop, a front of blue bricks with bronze-metal trim. He was brought back to reality only when Professor McGonagall stepped right in front of him.

"Mr. Potter?" she said.

Harry blinked, then realised what he'd just done. "I'm sorry! I forgot for a moment that I was with you instead of my family." Harry gestured at the shop window, which displayed fiery letters that shone piercingly bright and yet remote, spelling out *Bigbam's Brilliant Books*. "When you walk past a bookshop you haven't visited before, you have to go in and look around. That's the family rule."

"That is the most Ravenclaw thing I have ever heard."

"What?"

"Nothing. Mr. Potter, our first step is to visit Gringotts, the bank of the wizarding world. Your *genetic* family vault is there, with the inheritance your *genetic* parents left you, and you'll need money for school supplies." She sighed. "And, I suppose, a certain amount of spending money for books could be excused as well. Though you might want to hold off for a time. Hogwarts has quite a large library on magical subjects. And the tower in which, I strongly suspect, you will be living, has a more broad-ranging library of its own. Any book you bought now would probably be a duplicate."

Harry nodded, and they walked on.

"Don't get me wrong, it's a *great* distraction," Harry said as his head kept swivelling, "probably the best distraction anyone has ever

tried on me, but don't think I've forgotten about our pending discussion."

Professor McGonagall sighed. "Your parents—or your mother at any rate—may have been very wise not to tell you."

"So you wish that I could continue in blissful ignorance? There is a certain flaw in that plan, Professor McGonagall."

"I suppose it would be rather pointless," the witch said tightly, "when anyone on the street could tell you the story. Very well."

And she told him of He-Who-Must-Not-Be-Named, the Dark Lord, Voldemort.

"Voldemort?" Harry whispered. It should have been funny, but it wasn't. The name burned with a cold feeling, ruthlessness, diamond clarity, a hammer of pure titanium descending upon an anvil of yielding flesh. A chill swept over Harry even as he pronounced the word, and he resolved then and there to use safer terms like You-Know-Who.

The Dark Lord had raged upon wizarding Britain like a wilding wolf, tearing and rending at the fabric of their everyday lives. Other countries had wrung their hands but hesitated to intervene, whether out of apathetic selfishness or simple fear, for whichever was first among them to oppose the Dark Lord, their peace would be the next target of his terror.

(*The bystander effect*, thought Harry, thinking of Latane and Darley's experiment which had shown that you were more likely to get help if you had an epileptic fit in front of one person than in front of three. *Diffusion of responsibility*, everyone hoping that someone else would go first.)

The Death Eaters had followed in the Dark Lord's wake and in his vanguard, carrion vultures to pick at wounds, or snakes to bite and weaken. The Death Eaters were not as terrible as the Dark Lord, but they were terrible, and they were many. And the Death Eaters wielded

more than wands; there was wealth within those masked ranks, and political power, and secrets held in blackmail, to paralyse a society trying to protect itself.

An old and respected journalist, Yermy Wibble, called for increased taxes and conscription. He shouted that it was absurd for the many to cower in fear of the few. His skin, only his skin, had been found nailed to the newsroom wall that next morning, next to the skins of his wife and two daughters. Everyone wished for something more to be done, and no one dared take the lead to propose it. Whoever stood out the most became the next example.

Until the names of James and Lily Potter rose to the top of that list.

And those two might have died with their wands in their hands and not regretted their choices, for they *were* heroes; but for that they had an infant child, their son, Harry Potter.

Tears were coming into Harry's eyes. He wiped them away in anger or maybe desperation, *I didn't know those people, not really, they aren't my parents now, it would be pointless to feel so sad for them—*

When Harry was done sobbing into the witch's robes, he looked up, and felt a little bit better to see tears in Professor McGonagall's eyes as well.

"So what happened?" Harry said, his voice trembling.

"The Dark Lord came to Godric's Hollow," Professor McGonagall said in a whisper. "You should have been hidden, but you were betrayed. The Dark Lord killed James, and he killed Lily, and he came in the end to you, to your cot. He cast the Killing Curse at you, and that was where it ended. The Killing Curse is formed of pure hate, and strikes directly at the soul, severing it from the body. It cannot be blocked, and whomever it strikes, they die. But you survived. You are the only person ever to survive. The Killing Curse rebounded and

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struck the Dark Lord, leaving only the burnt hulk of his body and a scar upon your forehead. That was the end of the terror, and we were free. That, Harry Potter, is why people want to see the scar on your forehead, and why they want to shake your hand.”

The storm of weeping that had washed through Harry had used up all his tears; he could not cry again, he was done.

(And somewhere in the back of his mind was a small, small note of confusion, a sense of something wrong about that story; and it should have been a part of Harry’s art to notice that tiny note, but he was distracted. For it is a sad rule that whenever you are most in need of your art as a rationalist, that is when you are most likely to forget it.)

Harry detached himself from Professor McGonagall’s side. “I’ll—have to think about this,” he said, trying to keep his voice under control. He stared at his shoes. “Um. You can go ahead and call them my parents, if you want, you don’t have to say ‘genetic parents’ or anything. I guess there’s no reason I can’t have two mothers and two fathers.”

There was no sound from Professor McGonagall.

And they walked together in silence, until they came before a great white building with vast bronze doors, and carven words above saying *Gringotts Bank*.

C H A P T E R F O U R

THE EFFICIENT MARKET HYPOTHESIS

Heaps of gold Galleons. Stacks of silver Sickles. Piles of bronze Knuts.

Harry stood there, and stared with his mouth open at the family vault. He had so many questions he didn't know *where* to start.

From just outside the door of the vault, Professor McGonagall watched him, seeming to lean casually against the wall, but her eyes intent. Well, that made sense. Being plopped in front of a giant heap of gold coins was a test of character so pure it was archetypal.

"Are these coins the pure metal?" Harry said finally.

"What?" hissed the goblin Griphook, who was waiting near the door. "Are you questioning the integrity of Gringotts, Mr. Potter-Evans-Verres?"

"No," said Harry absently, "not at all, sorry if that came out wrong, sir. I just have no idea at all how your financial system works. I'm asking if Galleons in general are made of pure gold."

"Of course," said Griphook.

"And can anyone coin them, or are they issued by a monopoly that thereby collects seigniorage?"

“What?” said Professor McGonagall.

Griphook grinned, showing sharp teeth. “Only a fool would trust any but goblin coin!”

“In other words,” Harry said, “the coins aren’t supposed to be worth any more than the metal making them up?”

Griphook stared at Harry. Professor McGonagall looked bemused.

“I mean, suppose I came in here with a ton of silver. Could I get a ton of Sickles made from it?”

“For a fee, Mr. Potter-Evans-Verres.” The goblin watched him with glittering eyes. “For a certain fee. Where would you find a ton of silver, I wonder?”

“I was speaking hypothetically,” Harry said. *For now, at any rate.* “So... how much would you charge in fees, as a fraction of the whole weight?”

Griphook’s eyes were intent. “I would have to consult my superiors...”

“Give me a wild guess. I won’t hold Gringotts to it.”

“A twentieth part of the metal would well pay for the coining.”

Harry nodded. “Thank you very much, Mr. Griphook.”

So not only is the wizarding economy almost completely decoupled from the Muggle economy, no one here has ever heard of arbitrage. The larger Muggle economy had a fluctuating trading range of gold to silver, so every time the Muggle gold-to-silver ratio got more than 5% away from the weight of seventeen Sickles to one Galleon, either gold or silver should have drained from the wizarding economy until it became impossible to maintain the exchange rate. Bring in a ton of silver, change to Sickles (and pay 5%), change the Sickles for Galleons, take the gold to the Muggle world, exchange it for more silver than you started with, and repeat.

Wasn't the Muggle gold to silver ratio somewhere around fifty to one? Harry didn't think it was seventeen, anyway. And it looked like the silver coins were actually *smaller* than the gold coins.

Then again, Harry was standing in a bank that *literally* stored your money in vaults full of gold coins guarded by dragons, where you had to go in and take coins out of your vault whenever you wanted to spend money. The finer points of arbitraging away market inefficiencies might well be lost on them. He'd been tempted to make snide remarks about the crudity of their financial system...

But the sad thing is, their way is probably better.

On the other hand, one competent hedge fundie could probably own the whole wizarding world within a week. Harry filed away this notion in case he ever ran out of money, or had a week free.

Meanwhile, the giant heaps of gold coins within the Potter vault ought to suit his near-term requirements.

Harry stumped forward, and began picking up gold coins with one hand and dumping them into the other.

When he had reached twenty, Professor McGonagall coughed. "I think that will be more than enough to pay for your school supplies, Mr. Potter."

"Hm?" Harry said, his mind elsewhere. "Hold on, I'm doing a Fermi calculation."

"A *what?*" said Professor McGonagall, sounding somewhat alarmed.

"It's a mathematical thing. Named after Enrico Fermi. A way of getting rough numbers quickly in your head..."

Twenty gold Galleons weighed a tenth of a kilogram, maybe? And gold was, what, ten thousand British pounds a kilogram? So a Galleon would be worth about fifty pounds... The mounds of gold coins looked to be about sixty coins high and twenty coins wide

in either dimension of the base, and a mound was pyramidal, so it would be around one-third of the cube. Eight thousand Galleons per mound, roughly, and there were around five mounds of that size, so forty thousand Galleons or 2 million pounds sterling.

Not bad. Harry smiled with a certain grim satisfaction. It was too bad that he was right in the middle of discovering the amazing new world of magic, and couldn't take time out to explore the amazing new world of being rich, which a quick Fermi estimate said was roughly a billion times less interesting.

Still, that's the last time I ever mow a lawn for one lousy pound.

Harry wheeled from the giant heap of money. "Pardon me for asking, Professor McGonagall, but I understand that my parents were in their twenties when they died. Is this a *usual* amount of money for a young couple to have in their vault, in the wizarding world?" If it was, a cup of tea probably cost five thousand pounds. Rule one of economics: you can't eat money.

Professor McGonagall shook her head. "Your father was the last heir of an old family, Mr. Potter. It's also possible..." The witch hesitated. "Some of this money may be from bounties placed on You-Know-Who, payable to his ki—ah, to whoever might defeat him. Or those bounties might not have been collected yet. I am not sure."

"Interesting..." Harry said slowly. "So some of this really is, in a sense, mine. That is, earned by me. Sort of. Possibly. Even if I don't remember the occasion." Harry's fingers tapped against his trouser-leg. "That makes me feel less guilty about spending *a very tiny fraction of it!* Don't panic, Professor McGonagall!"

"Mr. Potter! You are a minor, and as such, you will only be allowed to make *reasonable* withdrawals from—"

"I am *all about* reasonable! I am totally on board with fiscal prudence and impulse control! But I *did* see some things on the way here

which would constitute *sensible, grown-up* purchases...”

Harry locked gazes with Professor McGonagall, engaging in a silent staring contest.

“Like what?” Professor McGonagall said finally.

“Trunks whose insides hold more than their outsides?”

Professor McGonagall’s face grew stern. “Those are *very* expensive, Mr. Potter!”

“Yes, but—” Harry pleaded. “I’m sure that when I’m an adult I’ll want one. And I *can* afford one. Logically, it would make just as much sense to buy it now instead of later, and get the use of it right away. It’s the same money either way, right? I mean, I *would* want a good one, with *lots* of room inside, good enough that I wouldn’t have to just get a better one later...” Harry trailed off hopefully.

Professor McGonagall’s gaze didn’t waver. “And just what would you *keep* in a trunk like that, Mr. Potter—”

“Books.”

“Of course,” sighed Professor McGonagall.

“You should have told me *much earlier* that sort of magic item existed! And that I could afford one! Now my father and I are going to have to spend the next two days *frantically* hitting up all the secondhand bookshops for old textbooks, so I can have a decent science library with me at Hogwarts—and maybe a small science fiction collection, if I can assemble something decent out of the bargain bins. Or better yet, I’ll make the deal a little sweeter for you, okay? Just let me buy—”

“*Mr. Potter!* You think you can *bribe* me?”

“What? *No!* Not like that! I’m saying, Hogwarts can keep some of the books I bring, if you think that any of them would make good additions to the library. I’m going to be getting them cheap, and *I* just want to have them around somewhere or other. It’s okay to bribe

people with *books*, right? That's a—

"Family tradition."

"Yes, exactly."

Professor McGonagall's body seemed to slump, the shoulders lowering within her black robes. "I cannot deny the sense of your words, though I much wish I could. I will allow you to withdraw an additional hundred Galleons, Mr. Potter." She sighed again. "I *know* that I shall regret this, and I am doing it anyway."

"That's the spirit! And does a 'mokeskin pouch' do what I think it does?"

"It can't do as much as a trunk," the witch said with visible reluctance, "but... a mokeskin pouch with a Retrieval Charm and Undetectable Extension Charm can hold a number of items until they are called forth by the one who emplaced them—"

"Yes! I definitely need one of those too! It would be like the super backpack of ultimate awesomeness! Batman's utility belt of holding! Never mind my swiss army knife, I could carry a whole tool set in there! Or *books*! I could have the top three books I was reading on me at all times, and just pull one out anywhere! I'll never have to waste another minute of my life! What do you say, Professor McGonagall? It's for the sake of children's reading, the best of all possible causes."

"...I suppose you may add another ten Galleons."

Griphook was favouring Harry with a gaze of frank respect, possibly even outright admiration.

"And a little spending money, like you mentioned earlier. I think I can remember seeing one or two other things I might want to store in that pouch."

"*Don't push it, Mr. Potter.*"

"But oh, Professor McGonagall, why rain on my parade? Surely this is a *happy* day, when I discover all things wizarding for the first

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time! Why act the part of the grumpy grownup when instead you could smile and remember your own innocent childhood, watching the look of delight upon my young face as I buy a few toys using an insignificant fraction of the wealth that I earned by defeating the most terrible wizard Britain has ever known, not that I'm accusing you of being ungrateful or anything, but still, what are a few toys compared to that?"

"*You*," growled Professor McGonagall. There was a look on her face so fearsome and terrible that Harry squeaked and stepped back, knocking over a pile of gold coins with a great jingling noise and sprawling backwards into a heap of money. Griphook sighed and put a palm over his face. "I would be doing a great service to wizarding Britain, Mr. Potter, if I locked you in this vault and left you here."

And they left without any more trouble.

This book was formatted by fans of the story. The text was set in 11-point URW Garamond No. 8. Parseltongue was set in Huerta Tipografica's Alegria Sans Light Italic. Chapter headings were set in Lumos, inspired by the display font used in the US editions of the Harry Potter books, drawn by Sarah McFalls. The book was typeset using L^AT_EX and built on 2015-05-30 at 19:18.