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The identity function

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During Erik Remington's first year in graduate school, he was drafted into the Civilian Corps. Unwilling to interrupt his studies in applied physics, he contacted Ravi DeCruz, the young congressman who had spearheaded the legislation leading to the establishment of the Civilian Corps. Erik knew Ravi from college and wanted him to pull some strings.

"You will benefit from this in ways you can't imagine," said Ravi. "We're using an algorithm that ensures maximal compatibility between caregivers and patients. Think of it this way: the system won't work without you."

Erik was temporarily infected by Ravi's enthusiasm, but his positive outlook evaporated the next day, when paramedics delivered an elderly patient with dementia to his home. For reasons of privacy, the patient was identified only by the alphanumeric code "K23." Clinging to a desire not to depersonalize the patient, Erik resolved initially not to refer to him by the code. In defiance of the privacy regulations, he introduced himself and then asked the patient to state his name. The result was disappointing, however, as the patient simply repeated Erik's name several times, pronouncing each iteration at a lower volume until his lips were moving inaudibly.

"Very well," sighed Erik. "K23 it is."

K23's face was a caricature of sagging wrinkles. Following several failed attempts to rise from his wheelchair, he finally struggled to a stand and began to shuffle around the house unsteadily. He rearranged the contents of drawers, pulled books from the shelves, and stumbled over area rugs. Within an hour he had fallen twice, the second time striking his forehead on the coffee table. Then he soiled himself. While Erik was changing the diaper, he noticed that there was only one distinctive characteristic on the old man's body: a rectangular patch of scar tissue over the left deltoid.

Erik scoffed, muttering, "Compatibility... algorithm... my foot!"

Two days later, Erik began to feel that he was at the end of his rope. The bruise on K23's forehead had crept down to his eye sockets, staining them like a raccoon's mask. Erik joined a caregiver support

group, in part to take advantage of the 1 hour of free adult day care during the meeting.

"Treat your patient the way you would want to be treated," recommended the moderator.

Erik was disappointed to discover that the other caregivers were as confused and shell-shocked as he was. Renee, a young woman who had been working as a receptionist at a car dealership until she was drafted, popped her gum and looked at the moderator with a startled expression.

"If I was livin' like Q97 I would wanna die," she said.

The moderator rebuked her gently and Renee sank back into her blunted despondency. That day she consulted a thanatologist, who advised her on methods to euthanize Q97. Although the story was initially publicized, it rapidly faded from the headlines, and only a handful of people were ever aware that Renee was imprisoned briefly under a manslaughter conviction. Even fewer people were aware that Ravi DeCruz requested, and was granted, a private meeting with the judge prior to sentencing.

Treat your patient the way you would want to be treated. As trite as it seemed, Erik kept this rule in the forefront of his mind, as a primary guiding principle. Long after he was discharged from the Civilian Corps, it permeated his relationships with mentors, collaborators, and students.

K23 died quietly after 17 months in Erik's care, and Erik resumed work on his PhD. In later years, when asked whether he had gained anything from his Civilian Corps experience, Erik would claim that he learned nothing apart from a few practical tidbits about psychopharmacology. K23 had been heavily sedated and completely noncommunicative when he first arrived at Erik's home. In consultation with a psychiatrist, Erik reduced the dose of antipsychotic medication, and eventually K23 began exhibiting lucid intervals, during which he would occasionally speak. Sometimes he commented on benign visual hallucinations.

"Where is his head?" K23 would ask, in a hoarse voice barely above a whisper. "How did he get so filthy?"

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At other times he spoke to his reflection in the mirror as if he were greeting a long-lost friend.

"Oh, hello! I didn't think I would see you again. How are you? Thank you, thank you so much for everything!"

The truth was that Erik gleaned more from caring for K23 than he would immediately acknowledge.

The first was a word that K23 uttered with such evident lovesickness that Erik knew it must have been the name of his wife. *Rosy*. Many years later, on a crisp autumn day in New Haven, when Erik first saw Elizabeth Gunter's rosy cheeks, it was the first word that came to his mind. During their courtship and marriage, he often called her Rosy out of a mixture of affection for her and nostalgia for K23. By then, the bitterness of the caregiving experience had left him.

The second thing K23 gave Erik was a metaphor that settled into his mind like a spore and germinated after many years, exerting profound influences on his physics research. Once, during an unusually lucid hour, K23 had referred to an ancient documentary that depicted surfers in Tahiti riding a wave that receded from shore. Decades after K23's death, Erik published his most influential work based on ideas that arose from considering this backward moving wave. Erik encapsulated his findings in a single equation that he considered to rival the elegance of any mathematical discovery, even Euler's renowned formula. When he learned that many of his colleagues shared his appreciation of the discovery, he permitted himself the conceit of having the equation tattooed on his arm. Erik's research revolutionized the scientific concept of space-time, and found immediate applications in fields such as quantum computing and space travel. As explained in numerous subsequent

technical and popular scientific books, the new theory precisely specified the circumstances under which matter could be transferred backward in time.

Twelve years after the landmark article, Erik began to have memory loss. Not long afterward, he experienced his first visual hallucination while pouring a glass of iced tea: a headless Lilliputian in grimy period garb dancing a jig on his countertop.

Elizabeth cared for Erik at home until her health began to fail, after which she applied to have him transferred for care by the Civilian Corps. She was surprised when Erik's college friend, Senator Ravi DeCruz, paid them a personal visit at home and revealed to her the strange secret of the Civilian Corps.

"Our predecessors left our country with an astronomically large debt that threatens to crush our nation and our way of life," he explained. "Your husband's research has given us a means to offload some of the burdens we are currently facing. Although the program is in its infancy, we expect eventually to be able to shift much of the encumbrance of today's ills onto previous, less fiscally responsible generations."

"Will I ever see him again?" sobbed Elizabeth.

"I'm afraid it just won't be possible. And we'll have to alter his appearance somewhat. You wouldn't recognize him if you did see him. As part of the strategy, we will have to remove all distinguishing features, especially the tattoo."

"And your—compatibility algorithm. Will it assign him to someone kind, someone who will really care for him?"

Ravi smiled. "Absolutely," he said. "The algorithm is really quite simple! It is the most fundamental of mathematical formulas, known as the identity function. In Erik's case, it is guaranteed to work."

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