

Judea Pearl: My ideas would cause a revolution at No 10

The computer scientist, who is a key influence on Dominic Cummings, says an explanation of why things happen is key to changing them

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Pioneering: Judea Pearl
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Dominic Cummings has promised to revolutionise the civil service. On his much-discussed and semi-comprehensible blog, Boris Johnson’s consigliere has put out the word: out with the smug Oxbridge mandarins, in with the brilliant weirdos, misfits, data dorks and software gurus.

Those hoping to join Cummings's Whitehall brains trust are firmly encouraged to familiarise themselves with the work of one Judea Pearl, an Israeli-American computer scientist.

Cummings has blogged repeatedly about Pearl, calling him "one of the most important scholars in the field of causal reasoning". This is a rare understatement: the 83-year-old is closer to a pioneer.

"I commend him for reading my book. He has good judgment," says Pearl in a thick Polish-Israeli accent. It's deep into the night on the West Coast, where he runs the Cognitive Systems Laboratory at the University of California, Los Angeles. Pearl is a nocturnal creature, chiselling away at his algorithms from 11pm to 6am. "It's a beautiful time to speak to my creator," he muses. I'm starting to see why he appeals to the eccentric Cummings.

The two also share another instinct: seeing themselves as warriors against lazy consensus. He has been working on causation for 30 years, but it has taken time for his ideas to gain wider acceptance. In 2018, he published a popular account of his work, *The Book of Why*.

"I'm afraid Cummings is not going to find many people for his

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understand my work on cause and effect, but there aren't many."

Pearl is a playful old soul, yet his life has been warped by immense tragedy. In 2002, his son Daniel, a reporter for The Wall Street Journal, was kidnapped and murdered by terrorists connected to al-Qaeda in Pakistan. The event turned Pearl into a campaigner against terrorism and "ideologies of hate". He has devoted much of the past two decades to running the Daniel Pearl Foundation, which battles intolerance and promotes cross-cultural dialogue.

At its core, Pearl's work seeks to answer some simple questions: Why do things happen? Why do other things not happen? We know, for example, that a hot afternoon will cause ice cream sales to rise. We also know that the crowing of a cockerel in the morning is not what causes the sun to rise. Finely honed instincts tell us these things are true, yet until recently there was not a proper mathematical language for distinguishing between the two. Scientists instead tended to stick to the old maxim: correlation is not causation. And so the field of statistics has for many decades veered away from seeking to explain why things happen.

But Pearl has led the counter-charge, developing a mathematical language for cause and effect and acting as its chief evangelist. He's thrilled his work is starting to filter down into places like Downing Street.

"How can one talk about policy recommendations without talking about cause and effect?" he asks. "The prediction of the consequences of your actions couldn't be more closely related to government."

Not everyone is convinced by Pearl's causal revolution, but his ideas have gained support. In 2011, he was given the Turing

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causal reasoning and artificial intelligence — or teaching robots how to ask why.

This is his research's most controversial application. Now there is a mathematical framework in place, Pearl believes we can imbue artificial intelligence with cause-and-effect reasoning, giving robots free will and the ability to think counterfactually, to ask what should have happened, not just what has happened. It is a gift that currently only humans possess.

Pearl seems fairly comfortable with this somewhat terrifying possibility — as long as the AI is transparent, so we know how it has been programmed.

Yet he's not a natural optimist. "I cannot see much improvement in the world today," he sighs. "We are on the verge of war, jihadism still grabs the imagination of too many young people, anti-semitism is going up." His son was more of an optimist: "He really loved human beings. He saw in every human potential, a curiosity."

On that wistful note, the sun is rising over Pearl's home in Los Angeles. It's time to let this particular brilliant weirdo get some sleep.

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