Causes and Effects are Facts

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1. As I say in **Note 1,** I'm only going to discuss *singular* causation, like Fred's smoking causing him to get cancer. I'm not going to discuss *general* causation, like smoking causing cancer; so from now on, what I'll *mean* by causes, effects and causation are *singular* ones.

2. I'll also assume (**Note 2**) that all singular causation is *contingent*, i.e. that causes never *entail* their effects. So even when they're *sufficient* causes, they're never *necessarily* sufficient, since the laws or other conditions that *make* them sufficient will themselves be contingent.

3. (*Some* causation of course is *also* contingent because it's not *deterministic*: causes may only need to give their effects *chances*, or to *raise* those chances. Whether that's so is another question I shan't discuss, since nothing I have to say will turn on it.)

4. What I *will* discuss is what causes and effects, including actions and their mental causes, *are*. Calling them '*events*', as many theorists do, doesn't really answer that question, since, as I say in **Note 3**, different authors differ in what they *mean* by 'event'. Some mean a kind of *particular*, like a death; or something having a natural *property*, like a temperature, at a time; or a *change* in a thing's property, like *freezing*; or a *trope*, i.e. an *instance* of a property.

5. Which of these is *right* is yet another question I shan't discuss, since I'm going to argue for a view which, though not new, is still undervalued: namely, that singular causes and effects, including actions, aren't *entities* of *any* of these kinds. And to make that case, I shall have to make some minimal assumptions about the causal entities I'm disputing, which for convenience I too will *call* 'events': since the assumptions I'm making fit *all* the above views of what events are.

6. The assumptions, in **Note 4**, are these: events are non-abstract empirical entities, with limited locations in space and time. And that's enough, if all causes and effects are events in this weak sense, to make all singular causation statable by instances of the form '*c* causes *e*', where '*c*' and '*e*' are singular terms referring to events, and linked by the relational predicate 'causes': as in 'The stabbing of Julius Caesar caused his death'.

7. And we can all agree, I hope, that '*c* causes *e*', so understood, implies the three things in **Note 5**. First, formally speaking, '*c* causes *e*' states a *relation* between *c* and *e*. Second, since relations need real *relata*,

it implies that *c* and *e exist* in the *actual* world. And third, '*c* causes *e*' is *transparent*, i.e. it entails any statement derived from it by replacing '*c*' or '*e*' (or both) by other terms for the same events: as in 'The stabbing in Rome's Theatre of Pompey on the Ides of March 44 BCE caused the death of the Roman Republic's Dictator'.

8.   And that's fine, up to a point: a lot of causation *can* be truly reported by transparent instances of the form '*c* causes *e*'. But not *all*: there are at least *three* kinds of singular causation that *can't* be truly reported in that way.

9.   The first kind occurs when one event *affects* another event, but doesn't *cause* it, as in **Note 6**. Suppose Fred, who's dying of cancer, is given an injection to make his death painless. The injection *c*, which *affects* his death *e*, by causing it to be painless, doesn't *cause* his death: if it did, whoever gave Fred the injection would have *killed* him, which they didn't. So in this case, although '*c affects e*' is true, '*c causes e*' is false.

10.   So what event *did* Fred's injection cause? If it's Fred's *painless* death, then that event can't *be* the death that was caused by cancer, since *that* death *wasn't* caused by his injection. But this means that Fred's life has *two* endings: one caused by his cancer, and another one caused by his injection. And they aren't all: there's also Fred's *death-in-hospital*, caused by his being *taken* to hospital to die; and so on; and so on.

11.   Turning cases of *affecting* events into cases of *causing* them by this 'fine-graining' of effects not only multiplies entities beyond *credibility*. It also makes obvious *entailments*, like Fred's dying *painlessly*, or in *hospital*, entailing that he *dies* mysterious. For why should Fred's *painless death* and his *hospital death* entail his *death* if they are distinct events?

12.   That's the *first* kind of causation that's not credibly reported by instances of '*c* causes *e*'. The *second* kind are cases where a cause or an effect is an *identity* as in **Note 7**. Take the US President John F. Kennedy ('JFK' for short), who was shot *because* he was the US President – but not, I assume, because he was, for example, Joseph Kennedy's second son.

13.   But if 'JFK's being the US President caused him to be shot' is *true,* while 'JFK's being Joseph Kennedy' second son caused him to be shot' is *false*, then this instance of '*c* causes *e*' can't be *transparent*. And as for identity *causes*, so for identity *effects*.

14.   Suppose that winning the 2020 US presidential election causes Donald Trump to be the US President in 2021, so that the terms 'Donald Trump' and 'The US President in 2021' both refer to the same person.

15.   If that's so, then the *transparency* of '*c* causes *e*' implies that replacing either of these terms by the other in that causal statement wouldn't *falsity* it. But of course it *would*, since whatever caused Donald Trump to be *Donald Trump* in 2021, it certainly wasn't his winning the 2020 US presidential election.

16.   The *third* kind of causal statement that doesn't fit the transparent '*c* causes *e*' format is one where the cause or effect is that something *doesn't* happen, or *isn't* done, as in **Note 8.** Suppose our cancer patient Fred dies painfully because he's *not* given a painkilling injection; or, alternatively, that he *doesn't* die then at all, because his cancer's cut out.

17.   These *are* cases of *causation*: since in the first one someone's guilty of *negligence*, and in the second a surgical operation is a *life-saver*. Yet neither of them fits the '*c* causes *e*' format: since in the first case there's no *cause* event, and in the second case there's no *effect* event.

18.   How should we respond to these three apparent counter-examples to the universality of the '*c* causes *e*' format? We *could* try to accommodate them by adding epicycles to this Ptolemaic formula, like the fine-graining of events I mentioned earlier. But I think we'd do better to *replace* that formula with a Copernican alternative: one that can handle *all* causal statements without *any* semantic epicycles.

19.   On this alternative the canonical form of singular causal statements *isn't* '*c* causes *e*',
      where '*c*' and '*e*' are *singular terms*, and which entails that *c* and *e* are *actual entities*; but
        'Q because P',
      where 'P' and 'Q' are *sentences*, and which entails that 'P' and 'Q' are *true*.

20.   On this view, as I say in **Note 9**, causes and effects aren't *entities* at all, but *facts*, in the ontologically vacuous sense of 'fact' given by the simple equivalence principle that
        It's a *fact* that P if and only if it's *true* that P.

21.   One obvious objection, in **Note 10**, to this use of the 'Q because P' format is that not *all* instances of it report *causation*: the format can also be used to give *non*-causal explanations. But though that's true, we can always pick out its *causal* instances as being shorthand for such *explicitly* causal forms as 'The fact that P causes the fact that Q', or 'P's being the case causes Q to be the case'. So that in what follows is what I'll *mean* by 'Q because P'.

22.   And of course 'Q because P' isn't *just* a shorthand for other ways of reporting causation: its *explanatory* connotation isn't a *coincidence*. On the contrary, it express a important aspect of our *concept* of causation:

namely, that causes *explain* effects in a way that effects *don't* explain causes – which is why 'Q because P' is as obviously *asymmetrical* as it's *irreflexive*.

23. *Another* objection to the 'Q because P' format that I need to meet is this, in **Note 11**. How can this format express the *limited spatiotemporal locations*, and *temporal ordering*, of causes and effects? After all, on the tenseless and eternalist theory of spacetime that I'm taking for granted, propositions like 'Trump wins the 2020 US Presidential election' and 'Trump is the US President in 2021' will, if they're true at all, be true everywhere and always. How can such timeless facts have limited spacetime locations and be temporally ordered?

24. The answer, I say, lies in the spatiotemporal *content* of these facts. The cause of Trump's being the *US President* in *2021*, if he is, is that he wins the *2020 US* Presidential election, not that he won the *2016* one - or a French on. And similarly in all other cases, even if the relevant information is only *implicit*, as in 'JFK was shot because he was [*already*] the US President' or 'Caesar died because [and *after*] he was stabbed'.

25. Assuming, then, that these and other conceivable objections to the 'Q because P' format can be met, what are its merits? I think its most obvious, and strangely overlooked, merit is that, as I say in **Note 12**, both *covering law* and *counterfactual* theories of singular causation *imply* this format, as indeed do their probabilistic extensions.

26. Take a simple law of nature which says that everything that's F is G, where F and G are natural properties, e.g. being radium 226 and having a half-life of 1600 years. This, on the covering law theory, implies that if any entity x is F, that will *cause* x to be G. In other words, x is G *because* x is F: e.g. an atom has a half-life of 1600 years *because* it's radium 226.

27. Similarly, the counterfactual theory says that x will be G *because* x is F only if x *wouldn't* have been G if it *hadn't* been F: e.g. if an atom *hadn't* been of radium 226 its half-life wouldn't have been 1600 years. So *both* these theories, which require causes to be, respectively, *sufficient* and *necessary* for their effects, treat causes and effects not as entities but as *facts* in my innocuous sense.

28. So far, then, so good for the 'Q because P' format, but not of course good enough. It will only beat the '*c* causes *e*' format *decisively* if my three counter-examples to *that* format aren't also counter-examples to *it*. And, as we'll now see, they aren't.

29.　First, the 'Q because P' format can easily distinguish *causing* something, like Fred's death, from *affecting* it by making it painless, as in **Note 13**. For in this case the format distinguishes two factual causes, that Fred has cancer, and that he has a painkilling injection, with two factual effects: that Fred dies, and that he dies painlessly. And the reason the second effect entails the first is simple: 'Fred dies painlessly' entails 'Fred dies'. But there's only one *event*: Fred's death – an event that his injection doesn't *cause* but does *affect*, by making it painless.

30.　The 'Q because P' format also copes with the causes and effects of *identities*, as in **Note 14**. The *contingent* fact, if it *is* a fact, that Trump is the US President in 2021, and the *necessary* fact that he's *Trump*, are quite *different* facts. That's why the one can have causes which the other one *doesn't* have. And similarly with the *effects* of identities. JFK's being the US President in 1963 had effects, like his being shot, which the quite different fact, of his being Joseph Kennedy's second son, *didn't* have.

31.　And similarly again when causes and/or effects are things *not* happening, or *not* being done, as in **Note 15**, like Fred's dying in pain because he's *not* given a painkilling injection; or *not* dying at all, because his operation was successful.

32.　The reason *these* cases fit the 'Q because P' format is, as I say in **Note 16**, that facts, unlike events, can be *negated*. That's because all it takes to make it a fact that Fred *doesn't* die is that 'Fred dies' is false; whereas the negation, i.e. the non-existence, of Fred's *death*, *can't* be another entity, Fred's *non*-death, since that entity would have to have incompatible properties.

33.　We can see this by noting first that if Fred *does* die, he'll die either painlessly or painfully; and *either* fact will entail that he *dies*. That's why a *painless* death must be a *death*, and a *painful* death must be a death. But with a *non*-death, these entailments go the other way; since if Fred *doesn't* die, he doesn't die *painlessly* and he doesn't die *painfully*. In other words, Fred's *non*-death would have to be both painless *and* painful, which of course it can't be. That's why there can be no such entity as Fred's non-death, and why entities generally can't have other entities as their negations.

34.　This then is how the 'Q because P' format handles the three kinds of causation that *don't* fit the '*c* causes *e*' format. But what about the causation that *does* fit it, as when Caesar's stabbing caused his death?

35.　On the 'Q because P' theory *three* facts make this instance of '*c* causes *e*' true, as I say in **Note 17**. The *first* fact, and the only *causal* one, is that *Caesar died because he was stabbed*. The *second* fact is that 'P' and 'Q' in this case are *existential* truths: 'P' is 'there *was* a stabbing of Caesar', and 'Q' is 'there *was* a death of Caesar'. That is, *there was a death of Caesar because there was a stabbing of Caesar*.

And the *third* fact is that the expressions 'the stabbing of Caesar' and 'the death of Caesar' are *definite descriptions* of the unique events whose existence makes 'P' and 'Q' true.

36. These three facts make 'Caesar's stabbing caused his death' not only *true* but *transparent*, since in *this* case all '*c* causes *e*' requires is that '*c*' and '*e*' pick out whatever satisfies the definite descriptions 'the stabbing of Caesar' and 'the death of Caesar'. That's why, if 'Caesar's stabbing caused his death' is true, so is 'The stabbing in Rome's Theatre of Pompey on the Ides of March 44 BCE caused the death of the Roman Republic's Dictator'.

37. Well, that's how the 'Q because P' format can accommodate *transparent* causal truths. The main question, however, especially when causes and/or effects are *actions*, is how 'Q because P' can be *opaque*. We know it *can* be opaque, because, as we've seen, it *has* to be opaque when 'P' or 'Q' is a transparent *identity* truth. The question is *how*.

38. The answer, in **Note 18**, is simple. What enables 'Q because P' to be opaque, even when 'P' and 'Q' are *transparent*, is that it *isn't* a complete truth function of 'P' and 'Q'. For if it were, it would *have* to be *transparent* when 'P' and 'Q' are, because *its* truth value would then be entailed by *their* truth values.

39. But 'Q because P' obviously *can't* be a complete truth function of 'P' and 'Q'. For while *it* entails *them*, *they* can't entail *it* – *and* they can't entail its *negation*. For if they emailed *it*, all facts would cause all other facts, which they don't; and if they entailed its *negation*, there wouldn't *be* any causation, and there is.

40. This of course is why the main job of theories of causation is to say what, if not entailment, *does* make 'Q because P' true when 'P' and 'Q' are true. But that again isn't my concern here. What concerns me *here* is the fact that, since 'Q because P' *can* be opaque, it *can* do what the transparent '*c* because *e*' statements *can't* always do: namely say how intentional mental states like beliefs and desires cause *actions*.

41. The reason is, of course, that while identity *truths* like 'Caesar was Calpurnia's husband' *are* transparent, *beliefs* about them *aren't*: you can believe that Caesar was Calpurnia's husband without believing he was the man who was trying to become Emperor, which he was. So these beliefs are *different*, which they can only be because they're *opaque*. Which is why, as I say in **Note 19**, although Brutus and co *did* of course believe Caesar was Calpurnia's husband, that's not why they stabbed him: they stabbed him because they believed he was trying to become Emperor.

42. And as in this case, so in many others: only *opaque* instances of 'Q because P' can distinguish in all cases the intentional states that *do* cause an action from all the ones that *don't* cause it. And one very useful consequence of this fact about the 'Q because P' format is that there's nothing mysterious or problematic about *mental* causation. The *opacity* of our beliefs, desires and intentions *doesn't* make them any less able to be causes and effects than non-opaque physical states.

43. That then is my four-part case for making the 'Q because P' the canonical format for reporting singular causation. (1) Covering-law, counter-factual and probabilistic theories of causation all *imply* it; (2) it can easily distinguish *affecting* something from *causing* it; (3) it can express the causes and effects of things *not* happening, or *not* being done; and (4), perhaps most importantly, it can say how what we do – or don't do – is caused or affected by what we believe, want or intend.

44. Finally, a few *ontological* implications of the 'Q because P' format. The most obvious one is that since singular causes and effects are *truths*, not entities, causation isn't a *relation*. That's why it's best represented not by the relational *predicate* 'causes' but by the sentential *connective* 'because'. For while there *are* singular causal truths of the form '*c* causes *e*', what makes those truths *causal* is that they're instances of 'Q because P' where 'P' and 'Q' are *existential* truths made true by the existence of *c* and *e*.

45. And that raises the *last* matter I want to touch on, which can be put in one of two ways. The more fashionable but to me unenlightening way is this: when 'Q because P' is *true*, *in virtue of what* is it true? The other, clearer and less pretentious, way if putting it, which I prefer, is this: when 'Q because P' is true, what *makes* it true?

46. My answer to this question rests on an admittedly contentious *non-maximalist* theory of *truthmaking*, in **Note 20**: i.e. on a truthmaker theory that doesn't credit *all* truths with their own non-propositional, non-linguistic truthmakers. And while I can't of course articulate and defend that theory here, what I can and will do is say briefly how it answers my question about the ontology of singular causation.

47. On non-maximalist truthmaker theories, as summarised by Peter Forrest and Drew Khlentzos, 'only *some* truths, the primary ones, have truthmakers, while other truths and falsehoods are derivable from the primary truths by means of truth conditional semantics'.

48. And on *my* version of this, the *primary* propositions – the ones that *need* truthmakers to make them true – include those that credit *things* with natural properties like masses or temperatures, *events* with durations, spacetime *regions* with local curvatures, and so on.

49. The *non*-primary propositions, which *don't* have their own non-propositional truthmakers, are the *negations*, *disjunctions*, *conjunctions* and all other *complete truth functions* of primary propositions. So for example, if a primary proposition 'V' is *false*, what makes 'not-V' true isn't the existence of *its* truthmaker – it doesn't *have* one – but the *non*-existence of *'V'*'s truthmaker.

50. Similarly for *disjunctions* and *conjunctions*. If 'V' and 'W' are primary propositions, 'V *or* W' will be true if and only if at least *one* of their truthmakers exists, and 'V *and* W' will be true if and only if *both* of their truthmakers exist; and so on. 'V *or* W' and 'V *and* W' need *no* truthmakers of their own to make them true, and nor therefore do any complete truth functions of *them*.

51. But, as I've noted, 'Q because P' *isn't* a complete truth function of 'P' and 'Q': it entails 'P' and 'Q' but they don't entail it, and they don't entail its negation. So, as I say in **Note 21**, while 'P' and 'Q' may or may not be made true by truthmakers, depending on whether *they* are primary truths, 'Q because P' *always* needs a truthmaker or truthmakers of its own to make it true.

52. And in many cases there's no mystery about what those truthmakers *are*: they're things having dispositional properties like *masses*: as in Newton's second law of motion. This says that when an object *o* accelerates at A metres/second^2 *because* a force of F Newtons is being applied to it, what makes that *true* is the object's having an inertial mass M of F/A kilograms.

53. And in the special case of Newton's *first* law, when *o*'s acceleration A is *zero* because F is zero – i.e. when *o doesn't* accelerate, because *no* force is applied – what makes *that* true is *o*'s having *some* mass. In that situation, there's no *cause* event, i.e. no applied force, and no *effect* event, i.e. no acceleration: there's just an instance of 'Q because P', where 'P' and 'Q' are negative existentials, that's made true by *o*'s having some non-zero inertial mass.

54. And as in this case, so – to take a simpler example – with *solubility*. When salt dissolves because it's immersed in water, what makes *that* true is salt's having properties that *dispose* it to dissolve in water. While when salt *doesn't* dissolve because it's *not* immersed in water, what makes *that* true is its having properties that dispose it *not* to dissolve, i.e. not to evaporate, in air.

55. Similarly when an event is *affected* by something that doesn't *cause* it: as when our cancer patient Fred dies *painlessly* because he's given an injection. That instance of 'Q because P' is *also* made true by dispositional properties: in this case, by the analgesic properties of Fred's injection.

56. And similarly again, with *probabilistic* trimmings, in cases of *indeterministic* causation, like Fred dying because he has cancer, or atoms decaying because they're radioactive. *Those* instances of 'Q because P' are made true by *chancy* dispositions: like those of Fred's cancer-ridden metabolism, and those of radioactive nuclei.

57. Of course the detail of all this is important, and much of it is controversial, not least my *realist* view of *dispositions*, and of *chances*. But again, that's not what matters here. What matters *here* is that causal instances of 'Q because P' *aren't* made true by causes and effects being *entities* that have certain causal properties, or are related in some causally relevant way.

58. All 'P' and 'Q' contribute to the truth of 'Q because P' is their non-causal *truth*, which may have no ontological truthmakers. All the *causal* content of a true 'Q because P' comes from whatever will make *it* true if 'P' and 'Q' are true.

59. This is why I deny that the ontology of singular causation consists of *causes* and *effects* which may or may not be causally related. On the contrary, it consists in whatever makes certain empirical truths, positive or negative, depend contingently, and often chancily, on other such truths.

60. In other words, whereas '*c* causes *e*' theorists, Humeans for example, can accept singular causes and effects as entities while denying that there's any singular *causation*, we 'Q because P' theorists go the other way. *We* accept singular causation while denying that there need be any such *entities* as causes and effects: an admittedly rather melodramatic change of ontological priority, but one I think we should accept given its ability to meet so many otherwise intractable objections to '*c* causes *e*' theories of causation.