Cross-temporal grounding

1 | THE PROBLEM OF TRUTH, THE PROBLEM OF TRUTHMAKING, AND THE PROBLEM OF GROUNDING

Topic：Fact/ SOA about the past: Caesar was alive.
Also Called: The past-directed fact

Correia sorts the problems about true propositions about the past for presentism into three questions.
A. The problem of truth: how is the proposition true?
presentism holds that reality coincides with present. So how is a true proposition talking about something not belongs to reality?
B. The problem of truthmaker: what's its truthmaker?
The past is normally taken be the truthmaker. But how could that be if they don't belong to reality? (e.g. Caesar is truthmaker)

Each question has three kinds of answers
Uncompromising answer: Denial the premise directly
e.g. quasi truth; fictionalism
Creative answer: creatively replace something with present things
e.g. haecceity; 'Lucretian' properties
Appeasing answer: accept the premises, without any tricks
e.g. accept quantification to include individual Caesar; truthmaker is "the way things were" (Caplan, B., & Sanson, D. (2010). The way things were.)
truthmaker: (1) The proposition that Caesar was alive is true because Caesar was alive

C. The problem of grounding: what grounds the corresponding fact?
The truth (true proposition) is made true by its corresponding fact, the way things were.
"After all, that Caesar was alive is a 'hypothetical' fact, rather than a 'categorical' one—it **'points' beyond itself** rather than characterizing some actual, present-tensed aspect of reality"
But what grounds this fact?
i.e. suppose we can explain the true proposition about the past, with the fact about the past. But what explains this fact?
Not: (1*) Caesar was alive because Caesar was alive
Not: Caesar was alive because Caesar's being alive
The appeasing respond to the problem of grounding:
(2) Caesar was alive because-in-the-past Caesar is alive
(A present fact about the past and a past fact)

Premises:

A.   Suppose presentism is right, then see if cross-temporal grounding works.

B.   Metaphysical explanation "because" can be seen as a grounding relation.

C.   Neutral on whether grounding is operational or predicational.

Main aim:

Build the foundation for further research in cross-temporal grounding

What is the foundation? The possibility of a grounding relation in which the relata are free of tense.

2 | INTRODUCING CROSS-TEMPORAL GROUNDING

A past fact, is SOA that obtained in the past but may or may not obtain in the present.

The grounding problem, violates two common principles:

A.   Grounding is synchronic, not diachronic.

There are papers against these principles. Some say grounding is diachronic.

Some grounding relations are only diachronic in form but in essence they are synchronic.

(4) I believe that Montana is beautiful partly because I had causal interaction with Montana

B.   grounding relation is factive.

Cross-temporal grounding doesn't demand the ground be factive, but does demand the grounded be factive.

Litland want grounding be non-factive. The idea in particular is that, though any relata needs not be factive, but there's a conditional required: if one is factive, the other should also be facitve.

But cross-temporal grounding is between one explaining non-fact and a fact explanandum

3 | THE ARGUMENT FROM INTIMACY AND THE ARGUMENT FROM PAST EXPLANATION

Q: why think the grounding should be diachronic like that?

Two arguments. From first argument, we prefer there really is a grounding relation between past fact and past directed facts.

A.   First argument, the argument of intimacy:

Compare the two utterances:

(5) Caesar is alive

(6) Caesar was alive

They differs in perspectival content. There are two perspectives, one at SOA Caesar being alive, and one at SOA Caesar having been alive.

They are the same in neutral content. All talking about the same thing. And this is more than the existence of a necessary correlation. They have "intimacy". Grounding is something more than just necessary correlation. (Problem)

Concede that we don't know what is the neutral content, and this grounding is indirect rather than direct. Footnote 18, P7: if something grounds A and grounds B, then there's a indirect grounding relation between A and B.

B.   Second argument: the argument from past explanation.

Claim: we prefer the grounding relatoin from past to present, not vice versa.

Caesar's first officer when he's alive says:

(10) It will be the case that Caesar was alive, because Caesar is alive. (**c<FPc,** c is short for proposition Caesar is alive)

the state of affairs of Caesar's having been alive—call it 'Caesar-past'

the state of affairs of Caesar's being alive—call it 'Caesar-present'

Caesar's second officer when he's **no longer** alive says: **(illustration)**

Not (10*) Caesar was alive because Caesar is alive

Not (1*) Caesar was alive because Caesar was alive

Not (10**) The following was the case: It will be the case that Caesar was alive, because Caesar is alive

So, unless explanatory relevance 'evaporates' across time, there must some type of explanatory relation that, 'pointing' towards the past in the way cross-temporal grounding does, connects past-directed facts:

(2) Caesar was alive because-in-the-past Caesar is alive

4 | CROSS-TEMPORAL GROUNDING AND CROSS-TEMPORAL EXPLANATIONS

Q：If the arguments are right, then what is the grounding relation supposed to mean by intuition?

We can investigate an analogy: causal relation.

A.　At t1, (11) The bomb is exploding because, ten seconds ago, Zorro lit the fuse

B.　At t0, (12) Because Zorro is lighting the fuse, in ten seconds, the bomb will be exploding

C.　During t0,t1, (13) Because Zorro is lighting the fuse...the bomb is exploding

If explanans or explanandum differs, then explanation relation differs too.

Then 11/12/13 are different explanations.

(14) The bomb is exploding because-ten-seconds-ago Zorro is lighting the fuse.

Because 14 means more or less the same as 13, 14 is an explanatory sentence.

Analogy to grounding:

(15) Caesar was alive 2069 years ago because-2069-years-ago Caesar is alive.

Generalize to in-the-past

(2) Caesar was alive because-in-the-past Caesar is alive

5 | TOWARDS A LOGIC OF CROSS-TEMPORAL GROUNDING

logic for cross-temporal grounding

Vocabulary

　-<<：cross temporal grounding

　C：it is the case that/ it was the case that/ it will be the case that

　O: P/ Pn,

　P means that sometimes in the past

　Pn means that exactly the time in the past

　Proposition as a variable: φ, ψ

Principles: (syntactics or semantics?)

Cross temporal grounding formulus "because-O φ, ψ", notation as "φ O-$\ll$ ψ"

Standard grounding formulus "because φ, ψ", notation as "φ < ψ"

This formulus represents a standard grounding formulus, by translation/ definition.

a) the Equivalence Thesis: **T('φ O-≪ ψ') = df 'OCφ < Cψ'**

For any cross-temporal grounding sentence 'Because-O φ, ψ' of the sort under consideration, the sentence and its translation via T have the same truth-value.

The equivalence thesis is not an explanation of Cross temporal grounding. It only says the two grounding sentences are equivalent actually and necessarily. And he only suggest that the left side can ground the right side and take for granted.

Axioms premises, principles

b) logic for operator C

(P1) Cφ ↔ φ

c) logic for O, P, Pn

any tense logic will be fine. P, F.

d) logic for <

pure structure principles:

many-one (several facts may jointly ground a further fact without individually doing it) and factive:

(P2) If φ, ψ, ... < ξ, then φ, ψ, ... and ξ

Transitive:

(P3) If φ < ξ and ξ < ψ, then φ < ψ

(P4) If φ, then φ < ~~φ

(P5) If φ, then φ < φ v ψ

(P6) If φ and ψ, then φ, ψ < φ & ψ

Logic for interaction

e) The interaction between C and O

(P7) COφ ↔ OCφ.

f) the interaction between < and C

(P8) If φ, then φ < Cφ

(P9) If φ, ψ, ... < ξ, then Cφ, Cψ, ... < Cξ

g) Impure interaction principles

(C1) If φ, then Cφ < C ~~φ

(C2) If φ, then Cφ < C(φ v ψ)

(C3) If φ and ψ, then Cφ, Cψ < C(φ & ψ)

h) the interaction between < and the temporal operators

(P10) If Pnφ, then Pnφ < Pφ

(P11) If O(φ, ψ, ... < ξ), then Oφ, Oψ, ... < Oξ

i) the interaction between <, C and O,

j)

(P12) If Oφ, then OCφ < COφ (**problem**)

(C4) If Oφ, then φ O-≪Oφ

From equivalence thesis and transitivity:

(C5) If φ O-≪ψ and Cψ < Cξ, then φ O-≪ξ

(C6) If φ O-≪ψ and O*Cξ < OCφ, then ξ O*-≪ψ

From (P9) and (P11)
(C7) If φ O-≪ ψ and ψ< ξ, then φ O-≪ξ   transitive
(C8) If φ O-≪ψ and O(ξ O*-≪ φ), then ξ OO*-≪ψ this says cross-temporal distance and add up==(C10) If φ Pn-≪ψ and Pn(ξ Pm-≪ φ), then ξ P(m+n)-≪ψ
(C9) If φ O-≪ψ and O(ξ < φ), then ξ O-≪ψ CUT principle

k)   Impure principles for cross-temporal grounding operator
(C11) If φ O-≪ ψ, then φ O-≪ ~ ~ ψ
(C12) If φ O-≪ ψ, then φ O-≪ ψ v ξ
(C13) If φ P-≪ψ and Pnφ, then φ Pn-≪ψ

l)   Generalization
Because-O1 φ1, because-O2 φ2,...,ψ
O1{φ1}, O2{φ2}, ... ≪ ψ
T(O1{φ1}, O2{φ2}, ... ≪ ψ) =df O1Cφ1, O2Cφ2, ... < Cψ
O1{φ1}, O2{φ2}, ... ≪ O{ψ}
T(O1{φ1}, O2{φ2}, ... ≪ O{ψ}) =df O1Cφ1, O2Cφ2, ... < OCψ
"Developing this maximally general theory strikes us as being of considerable interest"

Questions:

1 Is operator C too robust? Compare operator K of epistemic logic.
2 Will fragmentalism works? Suppose different time point is different fragment, and each has whole time order sequence, just one fragment obtains.
3 In higher-order contingentism, or hybrid contingentism, how can first order things no longer exist, while higher-order property like it is the case that p still exist?
4 suppose two things are similar and distinct. Can one of them ground the distinction? Can the distinction ground one of them?

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