

Time:

# A-Series and B-Series

Reconsidering the Reality of Time

# The Elusive Familiar

- For what is time? Who can easily and briefly explain it? Who can even comprehend it in thought or put the answer into words? Yet is it not true that in conversation we refer to nothing more familiarly or knowingly than time? And surely we understand it when we speak of it; we understand it also when we hear another speak of it. What, then, is time? If no one asks me, I know what it is. If I wish to explain it to him who asks me, I do not know. (*Confessions* XI, 14)

# Defining Time

- We would answer Augustine if we could complete the following:
  - time =<sub>df</sub> . . .

# Two Temporal Series

- A-Series
  - being present, being two days in the past, being one week in the future
    - these are specified as monadic predicates
      - orders events in terms of past, present, and future
- B-Series
  - being two weeks earlier than, being simultaneous with, being seventeen years later than
    - these are specified as dyadic relations
      - orders events in terms of earlier than, simultaneous with, or later than

# A Crucial Difference

- A-series positions are dynamic, ever changing
- B-series positions are static, remaining forever fixed

# McTaggart's Argument (MA)

- Time is Unreal
  - (1) Time requires the existence of the A-Series
  - (2) The A-Series is implicated in a contradiction.
  - (3) So, time is implicated in a contradiction.
  - (4) If (3), time is unreal.
  - (5) So, time is unreal.

# On Behalf of (MA-1)

- (1) Time requires change.
- (2) Change requires the existence of the A-Series.
- (3) So, time requires the existence of the A-Series (= MA-1).

# On Behalf of (MA-2)

- (1) According to the A-Series, every event  $e$  has the properties of being past, present, and future.
- (2) It is a contradiction to say that anything is past, present, and future (or past and future, or future and present, or . . .)
- (3) If (1) and (2), the A-Series is implicated in a contradiction.
- (4) So, the A-Series is implicated in a contradiction (= MA-2)



# Buying Time

- Perhaps we should say *not*:
  - $e$  is past,  $e$  is present, and  $e$  is future
- but rather:
  - $e$  has been future,  $e$  is present, and  $e$  will be past
- But then it is true that  $e$  is present at the present time *and* will soon be present at a future time *and* so also present at a past time. . .

# Two Contemporary Attitudes

- B-Theorists: all talk of tense is reducible to fixed, static, untensed conceptions of time.
- A-Theorists (Serious Tensors): all talk of tense is primitive and irreducible.

# B-Theorists

- To say, e.g.,
  - WWII is past.
- is simply to say:
  - WII is earlier than the moment of this utterance.
- This latter statement is fixed, undynamic, and static.

# B-Theorists

- thus favour eternalism
- thus favour the block theory
- thus treat time and space as directly analogous
- thus prefer 4-D as an account of diachronic identity

# One Upshot

- If time is dynamic, and change is real, then we have further motivation for investigating the plausibility of 3-D accounts diachronic identity
- We thus also have grounds for:
  - taking tense seriously
  - taking presentism seriously
  - and further investigating the putative contradictions of the A-series

# Taking Tense Seriously

- Two Questions:
  - Are there objective differences between what is past, present, and future?
  - Are present events and things somehow more real than those wholly past or future?
- Strong Tensors: Yes, to both
- Preferable: Yes, to the first; reject the second as misguided

# One Bit of Terminology

- A property  $\Phi$  is subjective =<sub>df</sub>  $\Phi$  *constitutively* depends on the psychological attitudes or responses an observer has to some phenomenon.
- A property  $\Phi$  is objective =<sub>df</sub>  $\Phi$  is not subjective.

# Types of A-Theories

- Presentism: only what exists in the present exists
- Moving spotlight: everything past present and future exists; but present is privileged, because 'lit up' as it were.
- Growing block: past and present exist; the universe is a growing block, with the future its ever moving cutting edge



# Two Arguments for the A-Theory

- The Utterly Banal Argument
- A Phenomenal Argument

# Utterly Banal

- It's just common sense: there's a difference between space and time:
  - I could, in principle, *go* to some place far away in space; I cannot, even in principle, go to the day after tomorrow, or, for that matter, the day before yesterday
  - Things recede into the past; the future is the realm of possibility, not of actuality
  - Any revision to common sense here would need to be sharply motivated; but no reason has been forthcoming

# A Phenomenal Argument

- (1) Certain subjective phenomena, such as headaches, exist when and only when, experienced.
- (2) Necessarily, experiential states can be experienced only in the present.
- (3) So, certain subjective phenomena exist only in the present.
- (4) So, presentism is true of subjective phenomena.
- (5) If presentism is true for some phenomena, then it is true generally.
- (6) Hence, presentism is true generally.

# Rejecting Arguments Against

- The Argument from Truth-Makers
- The Argument from Relativity

# The Argument from TM

- (1) Every truth has a truth-maker (TM).
- (2) If presentism is true, then the world does not contain past or future objects.
- (3) If the world does not contain past or future objects, then there are no truth-makers for past-tensed or future-tensed propositions.
- (4) So, no future- or past-tensed statement is true.
- (5) At least some future- or past-tensed statements are true.
- (6) So, either presentism is false or TM is false.
- (7) So presentism is false.

# A Response: (3) is false

- (3) holds: If the world does not contain past or future objects, then there are no truth-makers for past-tensed or future-tensed propositions.
- But present-day objects may (or, do) manifest backward-looking properties
- Future looking properties are not so easy to come by—but, then again, neither are future truths.

# ST Manifold

- (1) If SR, then the universe is a 4-D ST manifold.
- (2) If the ST manifold is 4-D, then more than one temporal 'slice' of it exists.
- (3) Presentism is constrained to hold that only one temporal slice of it exists.
- (4) So, presentism is false.

# Response: (3) is false

- (3) holds: Presentism is constrained to hold that only one temporal slice of it exists.
- But presentism is a thesis about events or objects in time, and not a theory about time.
- Note, however, that this begins to compromise presentism in its purest, most straightforward and original form