another implies the existence of more than one actual world. There could be one world, containing many different mutually irreducible domains. The fact that one domain cannot be reduced to another does not exclude the possibility that each of these domains is contained within a single world. There may be weaker relations, such as supervenience, which hold between these different domains. If, on the other hand, we use the word 'world' as Scheffler seems to be using the term, as synonymous with 'the domain of a science', then the claim that there is more than one world may be true, but not as metaphysically radical as it first seemed. Plurealism, construed in this way, would just be another way of stating a non-reductionist account of the sciences.

At times, the monograph within *Worlds of Truth* reads like a collection of notes. For instance, the third chapter contains a brief, inconclusive discussion of the nature of ethics, raising well-known objections against Ayer and Moore without putting forward a clear alternative metaethical theory. An account of how Scheffler sees his general views on epistemology, truth and metaphysics in relation to metaethics would have added significantly to the book. This section on ethics is followed by a discussion of the role of religious rituals within culture that has little relation to the issues discussed throughout the rest of the text.

Worlds of Truth will be of interest to readers of Scheffler's previous works and to philosophers interested in pragmatist metaphysics and epistemology.

FRITZ J. MCDONALD
Oakland University
Rochester, MI 48309–4401, USA

Reference

Carnap, R. 1949. Truth and Confirmation. In *Readings in Philosophical Analysis*, eds H. Feigl and W. Sellars, 119–27. New York: Appleton-Century-Crofts.

Representing Time: An Essay on Temporality as Modality

By K. M. JASZCZOLT

OXFORD UNIVERSITY PRESS, 2009. XIV + 192 £60.00 CLOTH, £24.99 PAPER

Representing Time: An Essay on Temporality as Modality provides a thought provoking look at the nature of time and our representation of it in language and thought. Jaszczolt's central concern is the foundation and interrelation of two potentially conflicting concepts of time: *real time* and *internal time*. As Jaszczolt understands it, the concept of real time is the concept of time given to us by modern physics according to which there is no moment that is objectively present and time does not flow. The concept of internal time is the concept of time given to us by everyday experience: 'that there is something that we can univocally call the past, the present and the future' and that time flows (5). The main claims of Jaszczolt's book are summarized by what she calls the Thesis of Supervenience which is the conjunction of the following three claims: (i) internal time supervenes on a more basic concept of

epistemic detachment, (ii) real time supervenes on probabilities of states of affairs and (iii) internal time indirectly supervenes on real time (14).

In the first chapter, Jaszczolt characterizes the distinction between real time and internal time. Rather than endorsing either the A-series or the B-series, she claims that we need both: B-series resources are necessary in order to characterize real time whereas A-series resources are necessary in order to characterize internal time. In the second chapter, she argues for the first conjunct of the Supervenience Thesis: that internal time supervenes on the more basic notion of epistemic detachment and is inherently modal in nature. In Chapters 3 and 4, Jaszczolt turns to the question of how internal time is semantically represented. Chapter 3 considers what the basic unit of epistemic detachment is. Jaszczolt argues that *merged propositions,* rather than events, are the units of epistemic detachment. In Chapter 4, Jaszczolt employs the framework of her Default Semantics in order to show how internal time can be semantically represented in terms of epistemic detachment.

The bulk of the book is a defence of the claim that internal time supervenes on the more basic concept of epistemic detachment. According to Jaszczolt, what accounts for the difference between our ordinary concepts of the past, present and future is a difference in degree of certainty. Her evidence for this claim is based on observations about the connection between tensed and modal discourse in various world languages. In one such argument, Jaszczolt considers the following four sentences:

(1) Peter goes to London tomorrow morning ('Tenseless' future).
(2) Peter is going to London tomorrow morning (Futurative progressive).
(3) Peter is going to go to London tomorrow morning (Periphrastic future).
(4) Peter will go to London tomorrow morning (Regular future).

Jaszczolt claims that the above sentences can be ordered according to the degree of epistemic commitment that the speaker has to the proposition expressed. She claims that sentences in the 'tenseless' future involve the strongest epistemic commitment to the proposition expressed and sentences in the regular future involve the weakest epistemic commitment. She orders the epistemic commitment associated with each of the above tenses as follows (where '>' denotes 'involves a stronger epistemic commitment than'):

tenseless future > futurative progressive > periphrastic future > regular future

Jaszczolt concludes from this that, 'such scales pertaining to degrees of speaker's commitment to the proposition and the degrees of certainty with which the speaker issues a judgement testify to a very intimate connection between time and modality. And since these scales are scales of modality, modality is the basis for temporal supervenience in the case of expressions of the future' (45). By observing the way in which tensed discourse relates to epistemic commitment in examples in English and in a number of other world languages, Jaszczolt concludes that our ordinary concept of time supervenes on the more fundamental modal notion of epistemic detachment.

I will cite two difficulties with Jaszczolt's central claims before concluding with some stylistic remarks. First, the data she provides in favour of the claim that sentences of differing tenses can be classified according to degrees of epistemic commitment is unconvincing. It seems that a subject who is in a strong epistemic position with respect to the occurrence of future events, such as a brilliant psychologist who can predict human behaviour, a clairvoyant, or God, could make use of any of the future

tenses above without holding varying degrees of epistemic detachment from the pro-
position expressed. I would place no less confidence in an oracle that restricts herself
to proclamations in the regular future than one who restricts herself to proclamations
in the 'tenseless' future. In the example involving sentences (1) through (4), and in the
many other linguistic examples Jaszczolt considers, I find the claim that statements of
differing tenses can be ordered according to epistemic commitment on the part of the
speaker to be unconvincing.

   Second, the conclusion that she arrives at, namely that our ordinary concept of time
is nothing over and above epistemic detachment seems implausible. There is good
reason to think that the concept of time given to us by everyday experience cannot be
characterized in terms of epistemic detachment alone. Jaszczolt claims that there is a
logical dependence of our ordinary concept of time on epistemic detachment 'where
differences on the level of temporality are explained by the differences on the level of
modality' (137). However, it seems possible for a subject to have the same epistemic
detachment with respect to, say, propositions about the past and propositions about
the future, yet nonetheless have differing conceptions of the past and the future.
Consider someone who suffers from amnesia and is as uncertain about the past as
he is about the future. Our amnesiac may nonetheless believe that the past is fixed,
whereas the future is open. He may also believe that time has a directionality. Such
beliefs are part of our ordinary conception of time, yet given that our amnesiac is as
epistemically committed to propositions about the future as he is to propositions
about the past, such differences in belief about the past and the future do not super-
vene on epistemic commitment. A similar objection could be given in the case of a
subject whose knowledge of the past is not impoverished, but whose knowledge of the
future is as robust as her knowledge of the past.

   Stylistically, *Representing Time* leaves much to be desired. The arguments are
difficult to locate and the language is vague and imprecise. The prose is oftentimes
unfocussed, jumping between works of fiction, contemporary physics, continental and
analytic philosophy of time and linguistic analysis. Frequently, the author makes bold,
sweeping claims with little or no supporting arguments, as in the following represen-
tative passage:

> Finally, just as I can halt at any point of my walk, or the plane can land in
> emergency before reaching the destination, so can I, only in theory of course,
> slow my travel along the time line when I move with the required speed. If not for
> this anthropic constraint, the whole areas of philosophy and semantics would be
> redundant: our perception of time is precisely our anthropic limitation (75).

Despite these stylistic worries, *Representing Time* is to be commended for urging us to
take a closer look at the relation between our ordinary conception of time and the
notion of epistemic commitment. Furthermore, it provides a wealth of linguistic data,
culled from many world languages, that demonstrates the interconnectedness of
modal and temporal discourse. Any linguist or philosopher of language concerned
with the interface of these two domains will find much of interest here.

STEPHAN TORRE
Oriel College, University of Oxford
Oriel Square, Oxford OX1 4EW, UK
stephan.torre@philosophy.ox.ac.uk