COMMENTS AND CRITICISM

STOPPING TO REFLECT*

Our note is prompted by a recent article by Frank Arntzenius, "Some Problems for Conditionalization and Reflection."[1] Through a sequence of examples, that article purports to show limitations for a combination of two inductive principles that relate current and future rational degrees of belief: *Temporal Conditionalization* and *Reflection*:

[illegible]

agent's corpus of knowledge changes between *now* and *later* solely by

[illegible]

restrictions or limitations beyond what is already assumed as familiar in problems of stochastic prediction.

To the extent that a rational person does not know *now* exactly what she or he will know in the future, anticipating one's future

[redacted]

satisfied (as its antecedent fails), but then Reflection fails unless what

[redacted]

Time is indexed for the agent b

value of $P_{later}(A)$ and knowing it is this quantity, one may calculate T exactly and thus know the outcome of the $n+1^{st}$ toss, which is heads

[redacted]

then know that *later* has arrived. Thus, *later*, he is not in a position to use the extra information that he would get from knowing when T

[redacted]

or if $A = H_i$ then $y_t(A) = \frac{P_{now}(H_t \mid P_{later}(A) = r)}{P_{now}(H_t \mid P_t(A) = r)} = 1$. Thus, $P_{now}(A \mid P_{later}(A) = r) = r$. That is, even though *later* is not a stopping time, Reflection holds in this case since, given that $P_{later}(A) = r$, no new (relevant) evidence about A is conveyed through knowing that *later* value $E_P(X|C)$ exist with respect to the probability P. Let A be an event and let $X = P(A|Y)$ be a random variable, a function of the random variable Y. Then, as a consequence of the law of total probability, with C also a function of Y,

$$(1.1) \quad P(A|C) = E_P[X|C].$$

Assume that the agent's degrees of belief *now* include his *later* de-

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agent's current degrees of belief. Suppose that, *now*, the agent anticipates using (i) Temporal Conditionalization in responding to the new evi-

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not change this value, that is,

$$(2.1)\quad P_{t_1}(E) = P_{t_1}(E \mid P_{t_2}(E) = r)$$

for a set of r-values of probability 1 under P_{t_1}. But, since it is known at t_1 that E will be forgotten at t_2, $P_{t_1}(0 < P_{t_2}(E) < 1) = 1$. Hence Reflection fails as $0 < r < 1$ in (2.1).

Proof of Result 3. Assume that the agent's information sets form a filtration over time and that Temporal Conditionalization holds between *now* and *later* but that *later* is not a stopping time for the