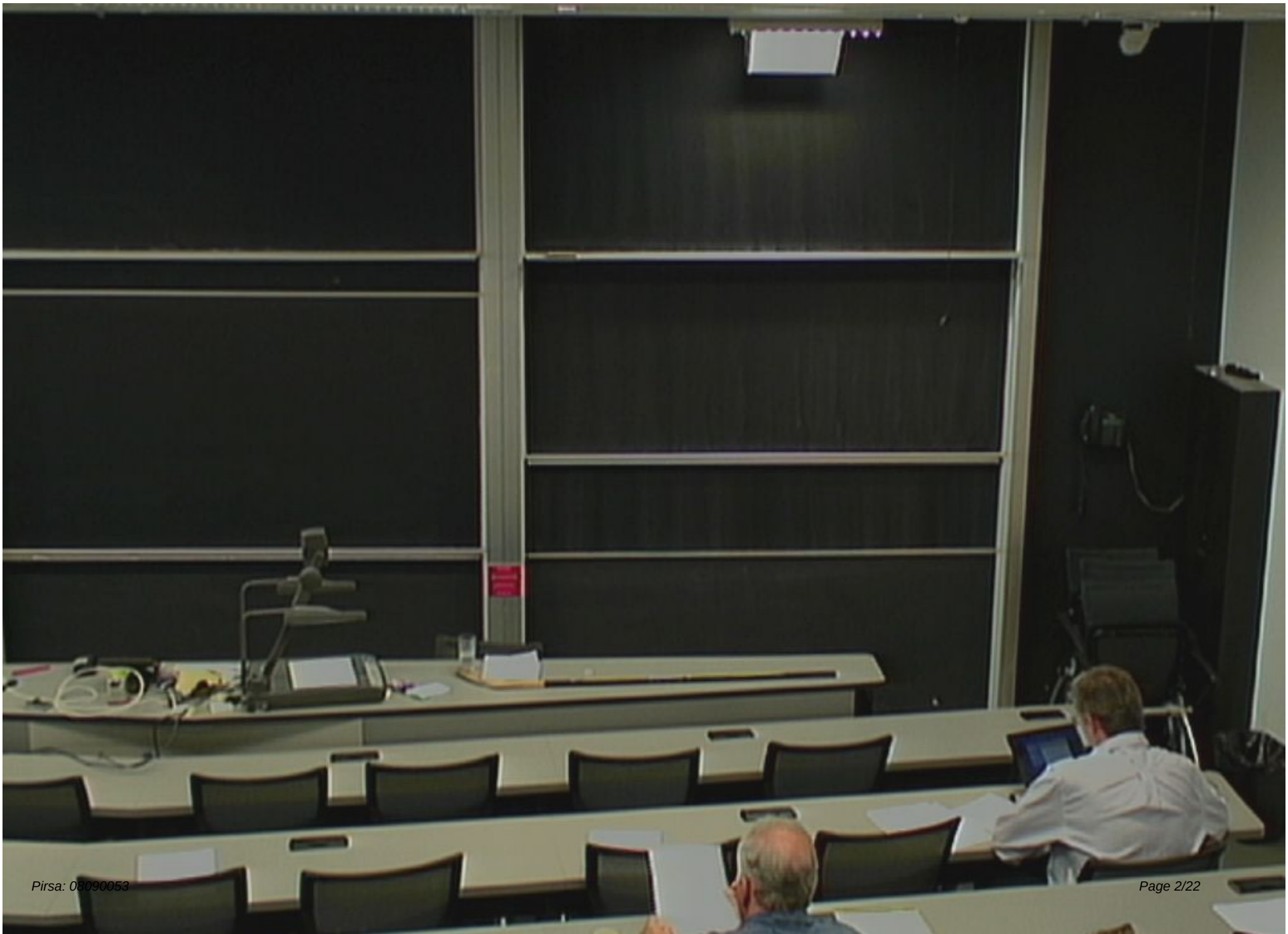
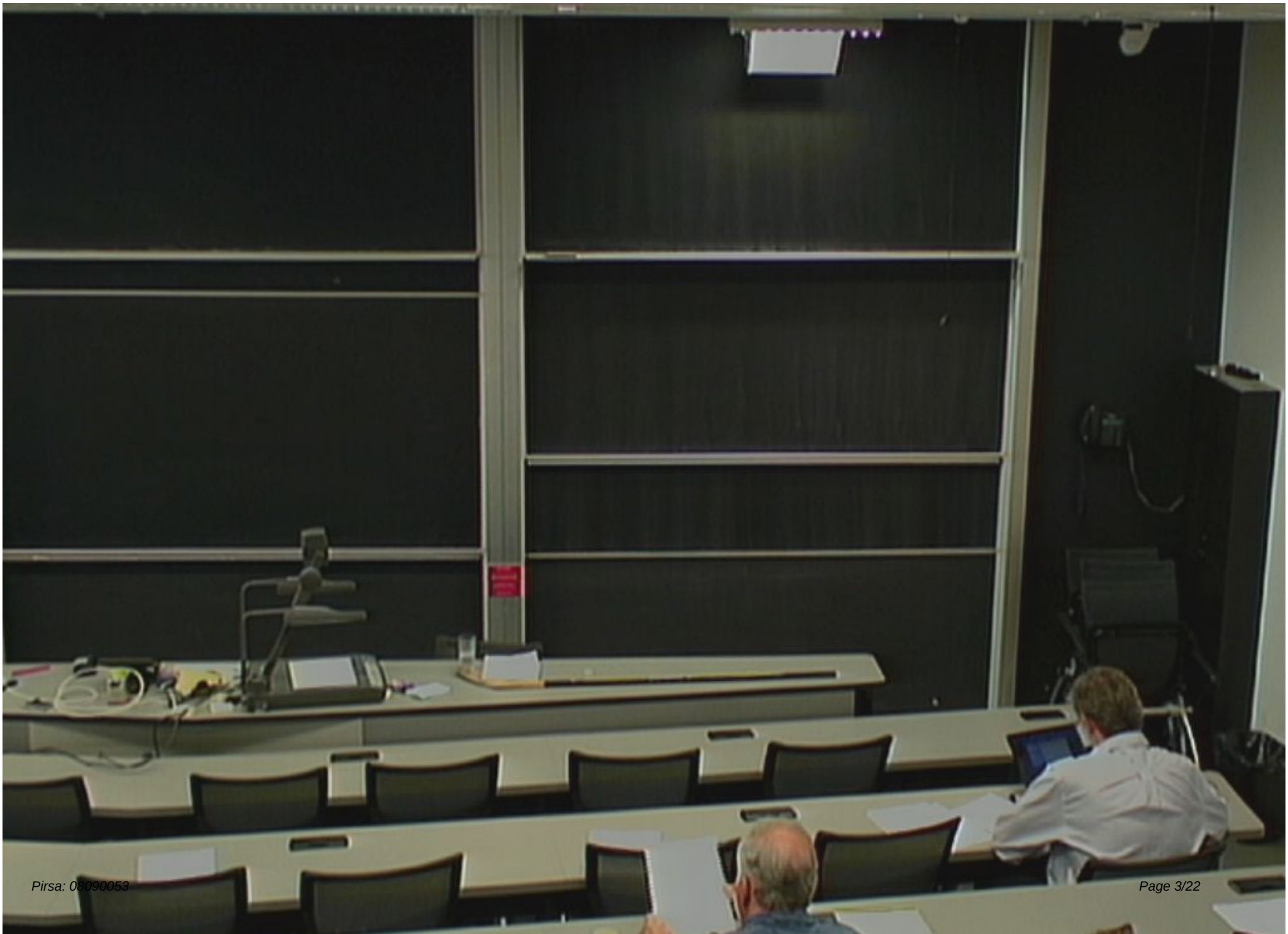
Title: Probability in the many worlds interpretation (II)

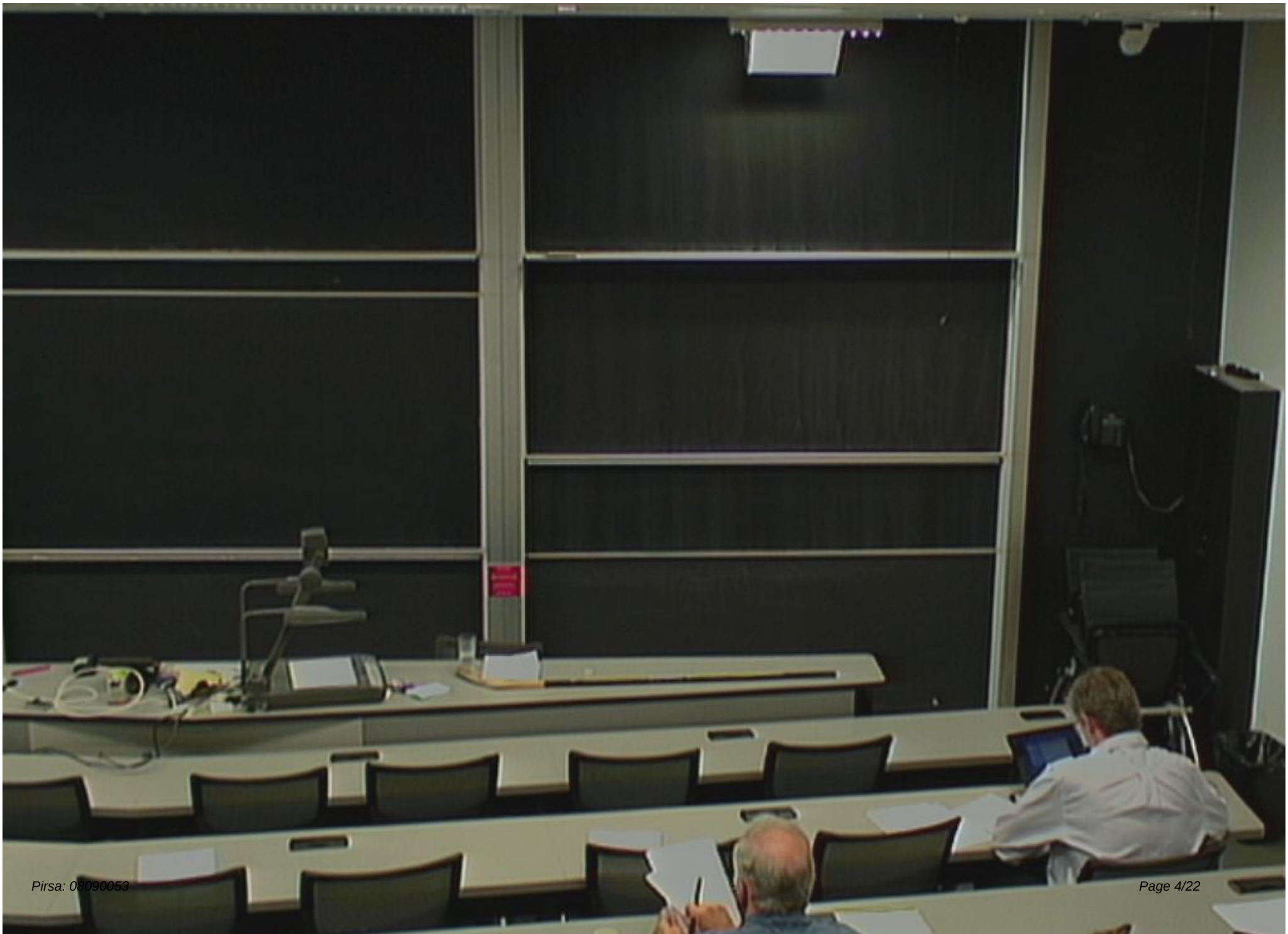
Date: Sep 04, 2008 08:30 AM

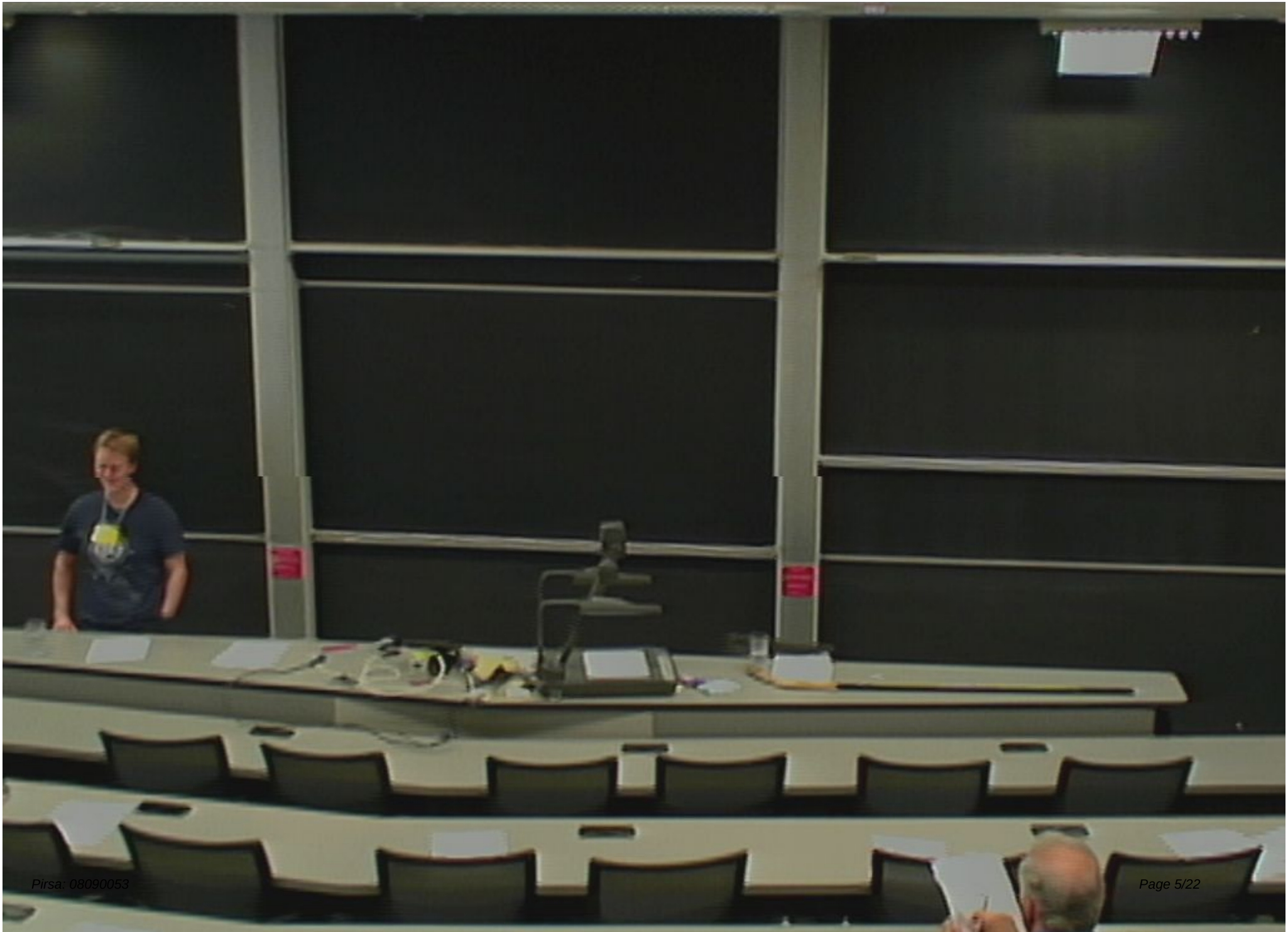
URL: http://pirsa.org/08090053

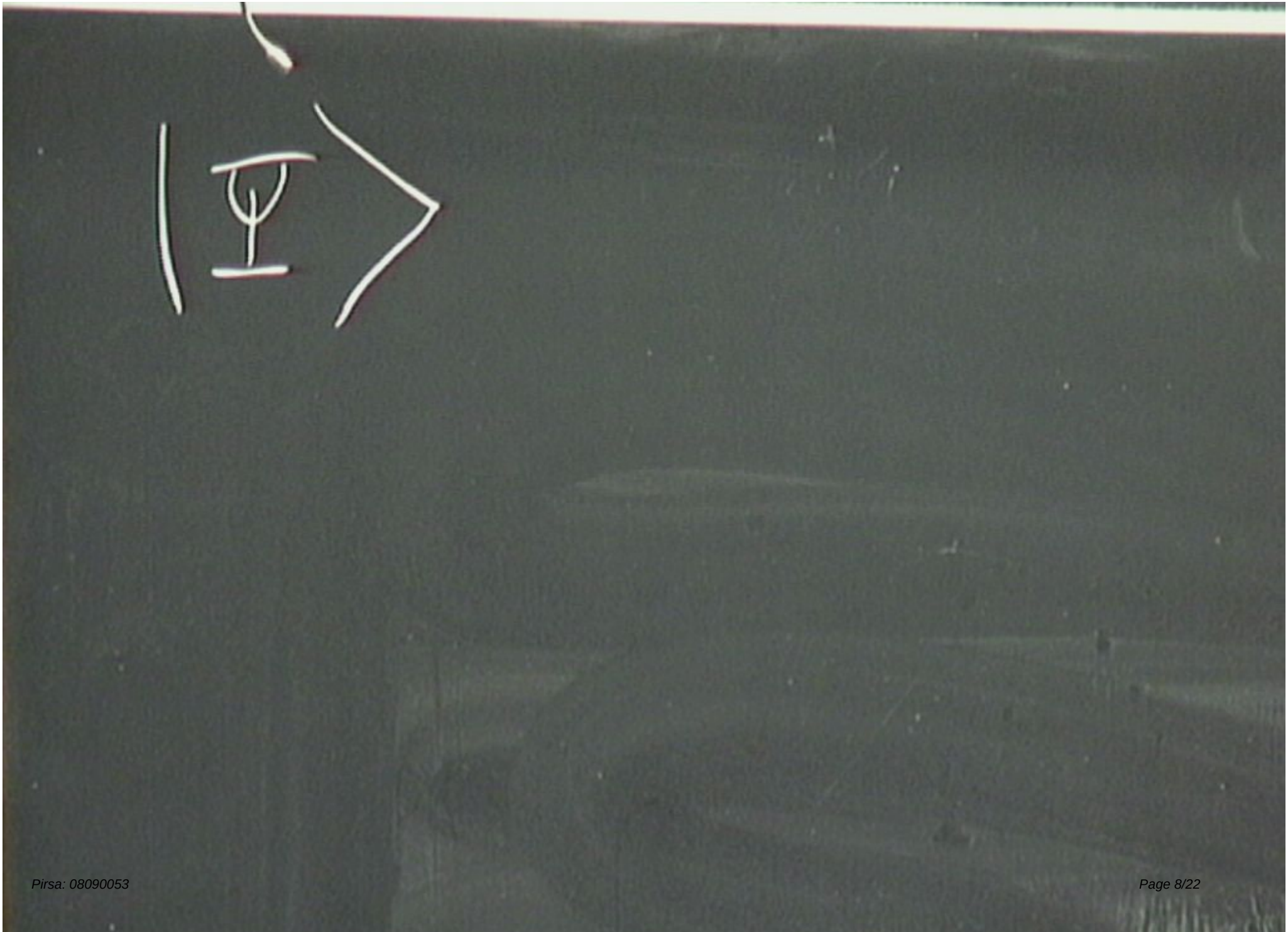
Abstract:







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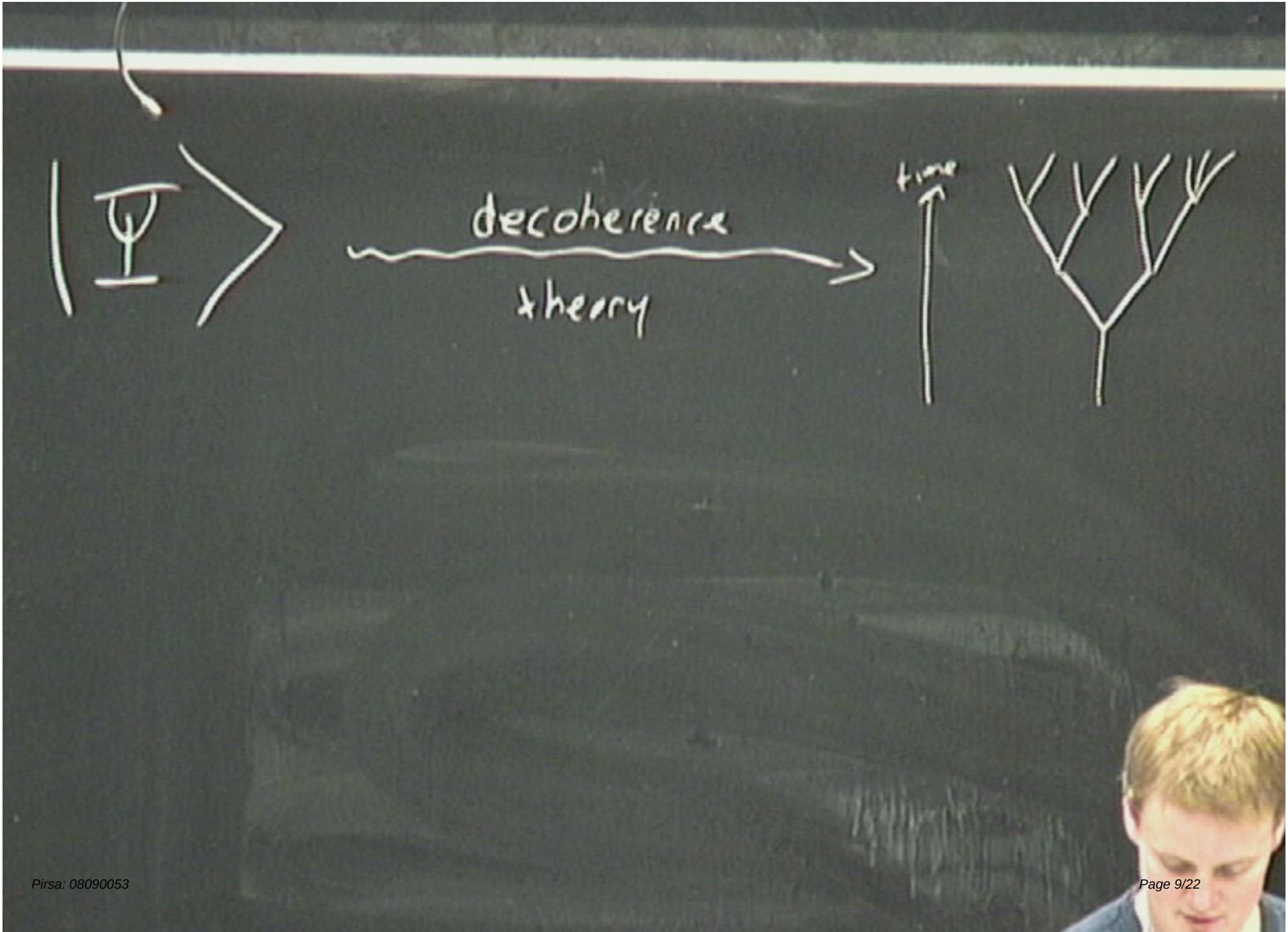
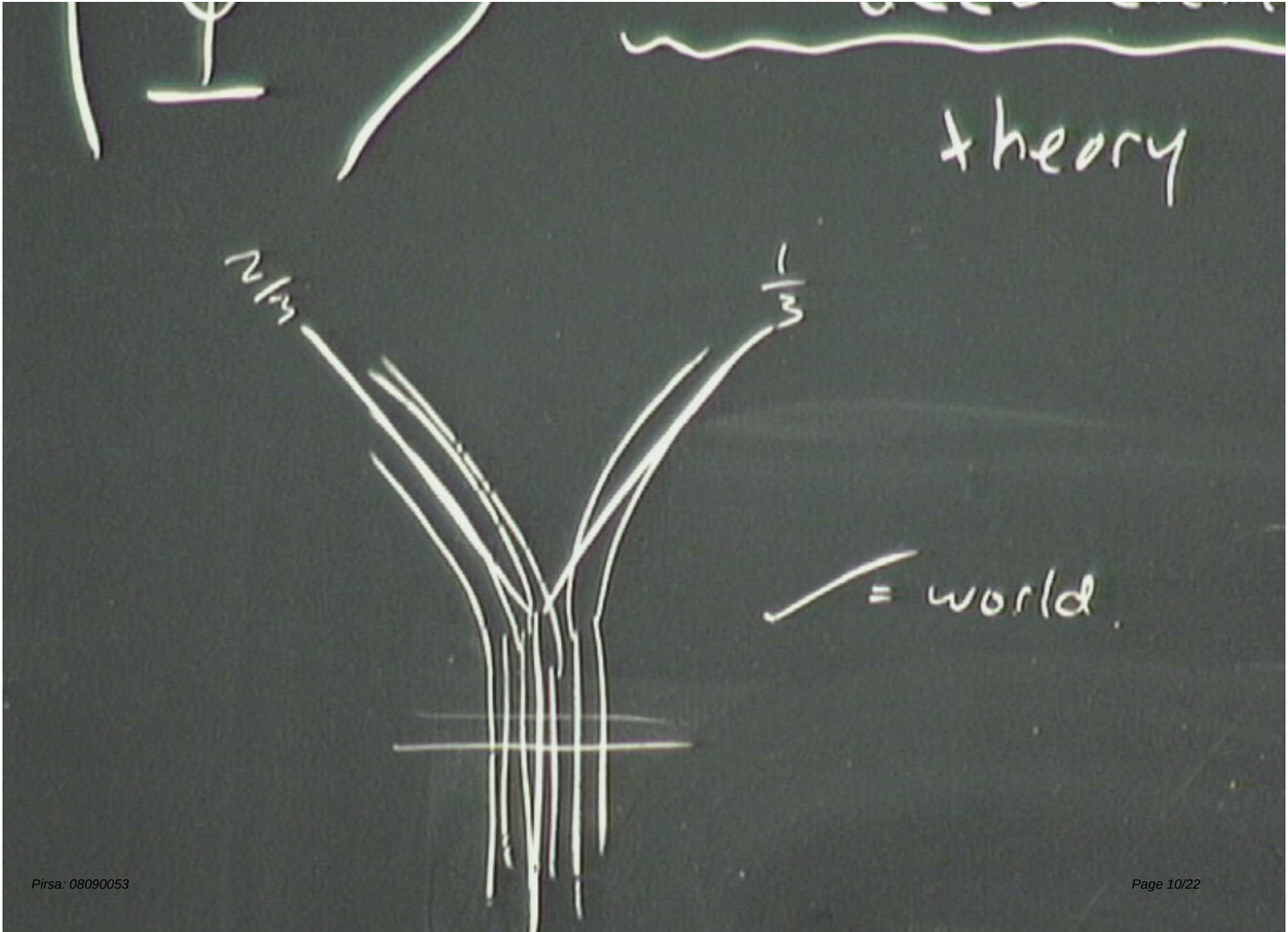
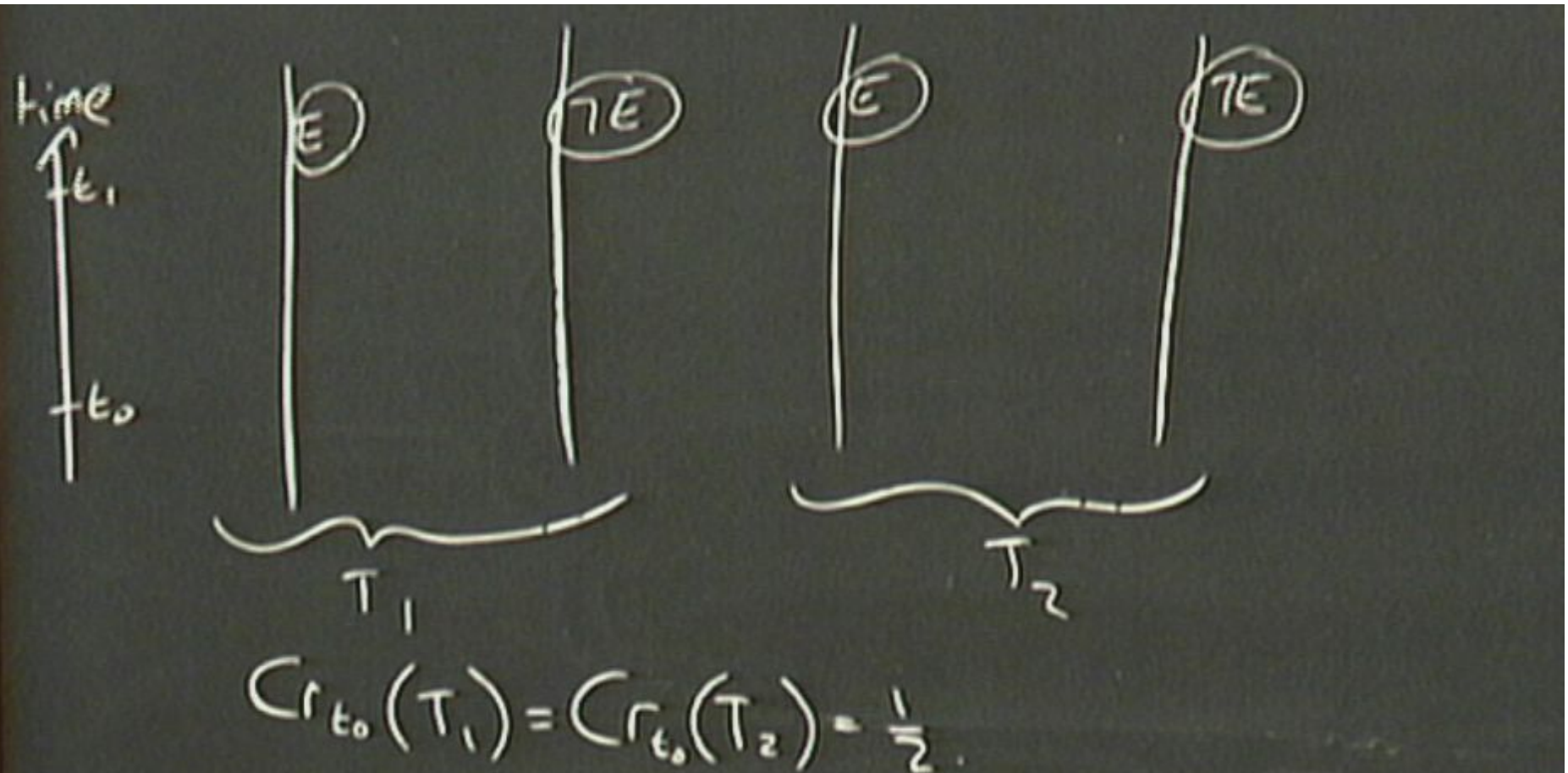

|Ψ>
decoherence
+ theory
time

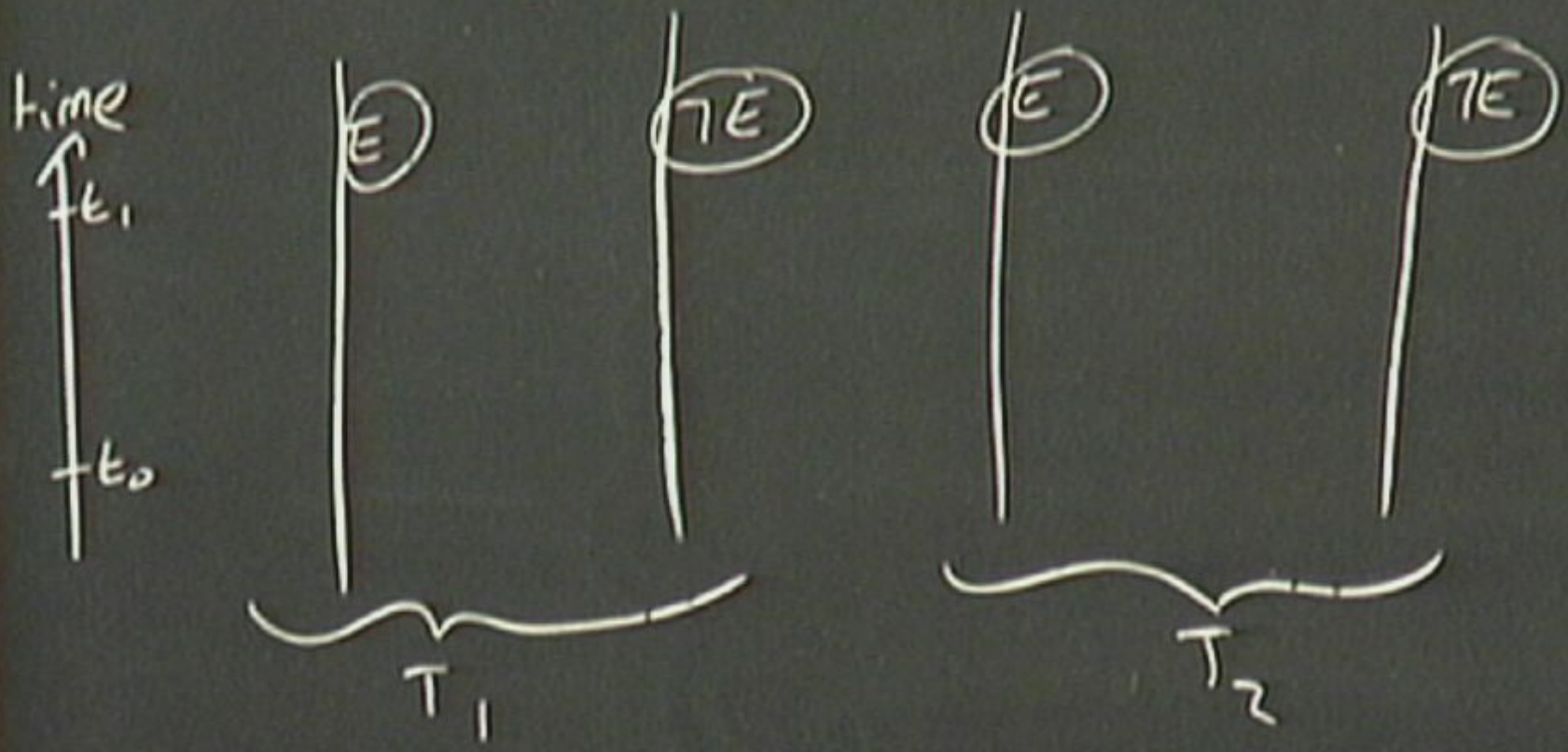

theory
2/3
1/3
= world

(CC) If Theory T assigns higher chance to outcome X than do rival theories, and outcome X is observed, then T is confirmed relative to those rival theories.

(CW) If Theory T assigns higher branch weight to outcome X than do rival theories, and outcome X is observed, then T is confirmed relative to those rival theories.

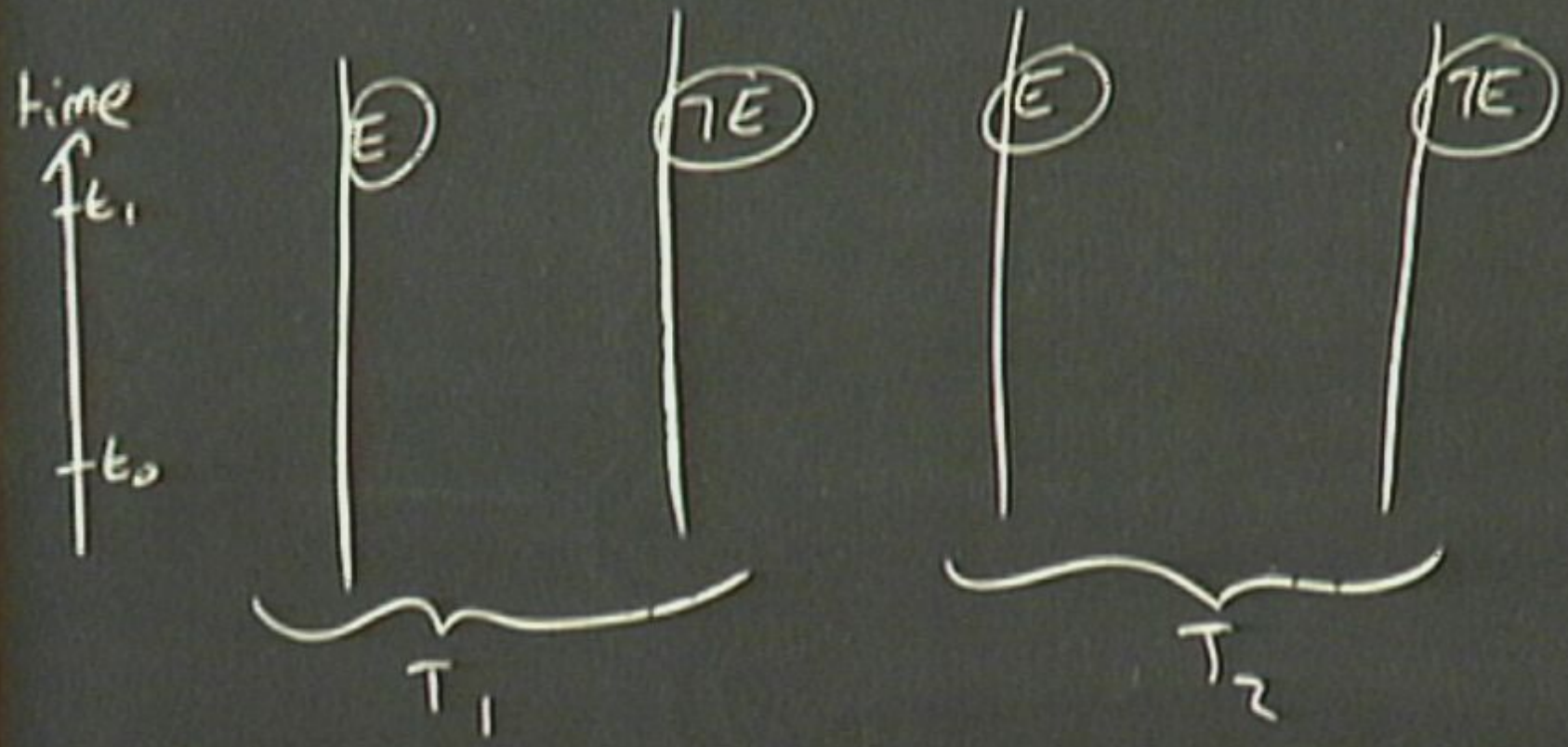


$$Cr_{t_0}(T_1) = Cr_{t_0}(T_2) = \frac{1}{2}.$$



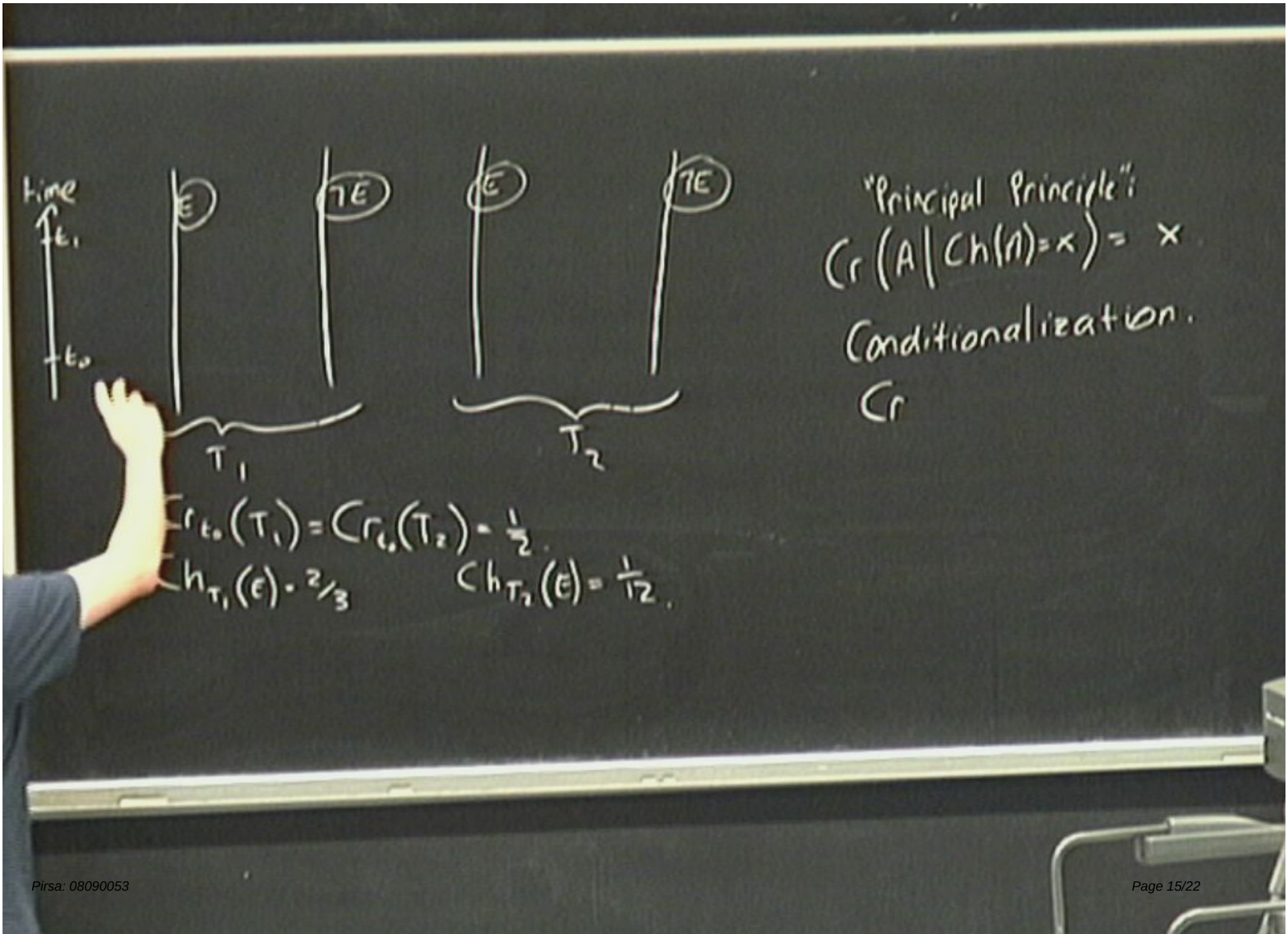
$Cr_{t_0}(T_1) = Cr_{t_0}(T_2) = \frac{1}{2}$.

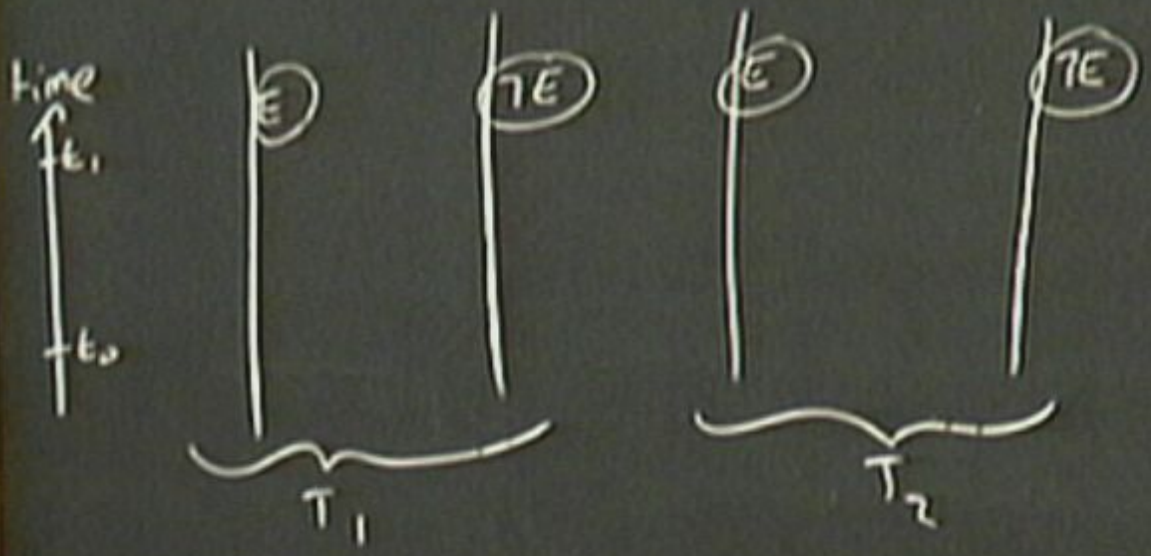
$Ch_{T_1}(\epsilon) = 2/3$ $\quad$ $Ch_{T_2}(\epsilon) = \frac{1}{12}$.



$Cr_{t_0}(T_1) = Cr_{t_0}(T_2) = \frac{1}{2}$.

$Ch_{T_1}(E) = 2/3$ $\quad Ch_{T_2}(E) = \frac{1}{12}$.


time
t_1
t_0
E
~E
E
~E
T_1
T_2
"Principal Principle":
$Cr(A \mid Ch(\Pi) = x) = x$
Conditionalization.
Cr
$Cr_{t_0}(T_1) = Cr_{t_0}(T_2) = \frac{1}{2}$
$Ch_{T_1}(E) = 2/3$
$Ch_{T_2}(E) = \frac{1}{12}$



"Principal Principle":

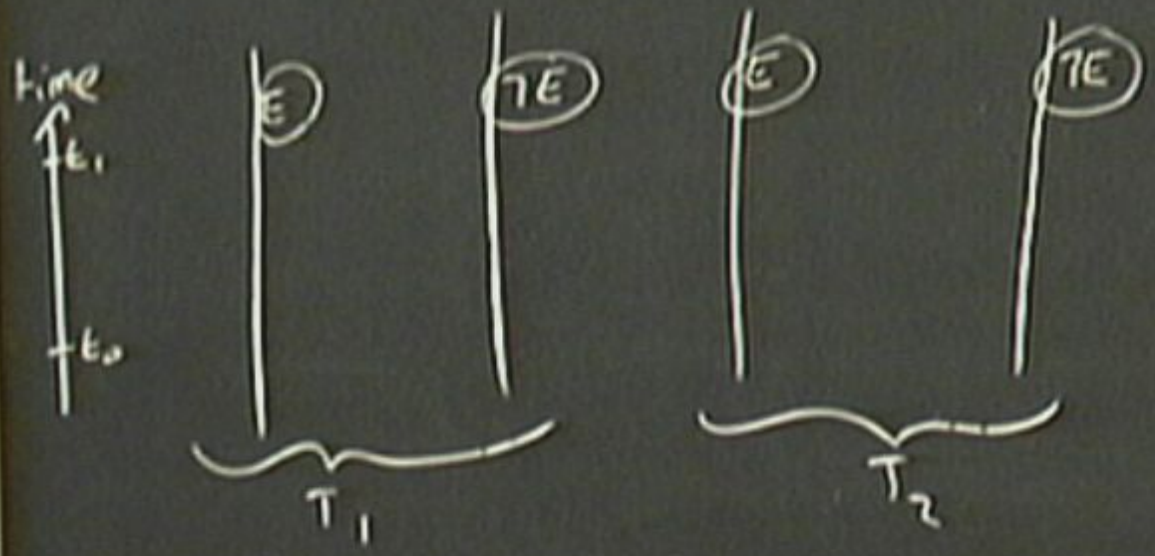
$Cr(A \mid Ch(A) = x) = x$

Conditionalization.

Cr

$Cr_{t_0}(T_1) = Cr_{t_0}(T_2) = \frac{1}{2}$

$Ch_{T_1}(E) = 2/3$ $\quad Ch_{T_2}(E) = \frac{1}{12}$



"Principal Principle":

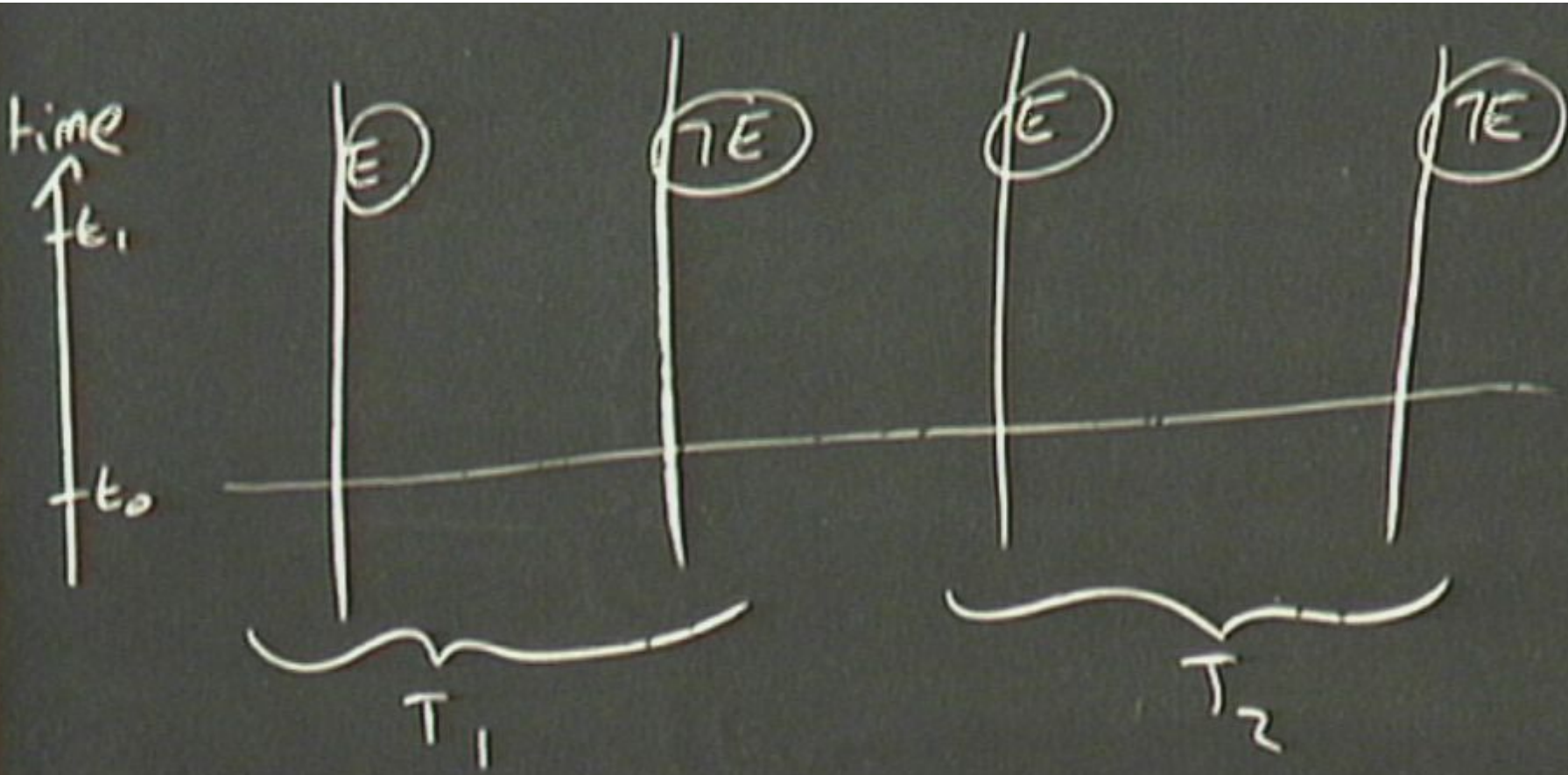
$Cr(A \mid Ch(A) = x) = x$

Conditionalization.

$Cr_E(\cdot) = Cr(\cdot \mid E)$

$Cr_{t_0}(T_1) = Cr_{t_0}(T_2) = \frac{1}{2}$.

$Ch_{T_1}(E) = 2/3$ $\quad Ch_{T_2}(E) = \frac{1}{12}$.



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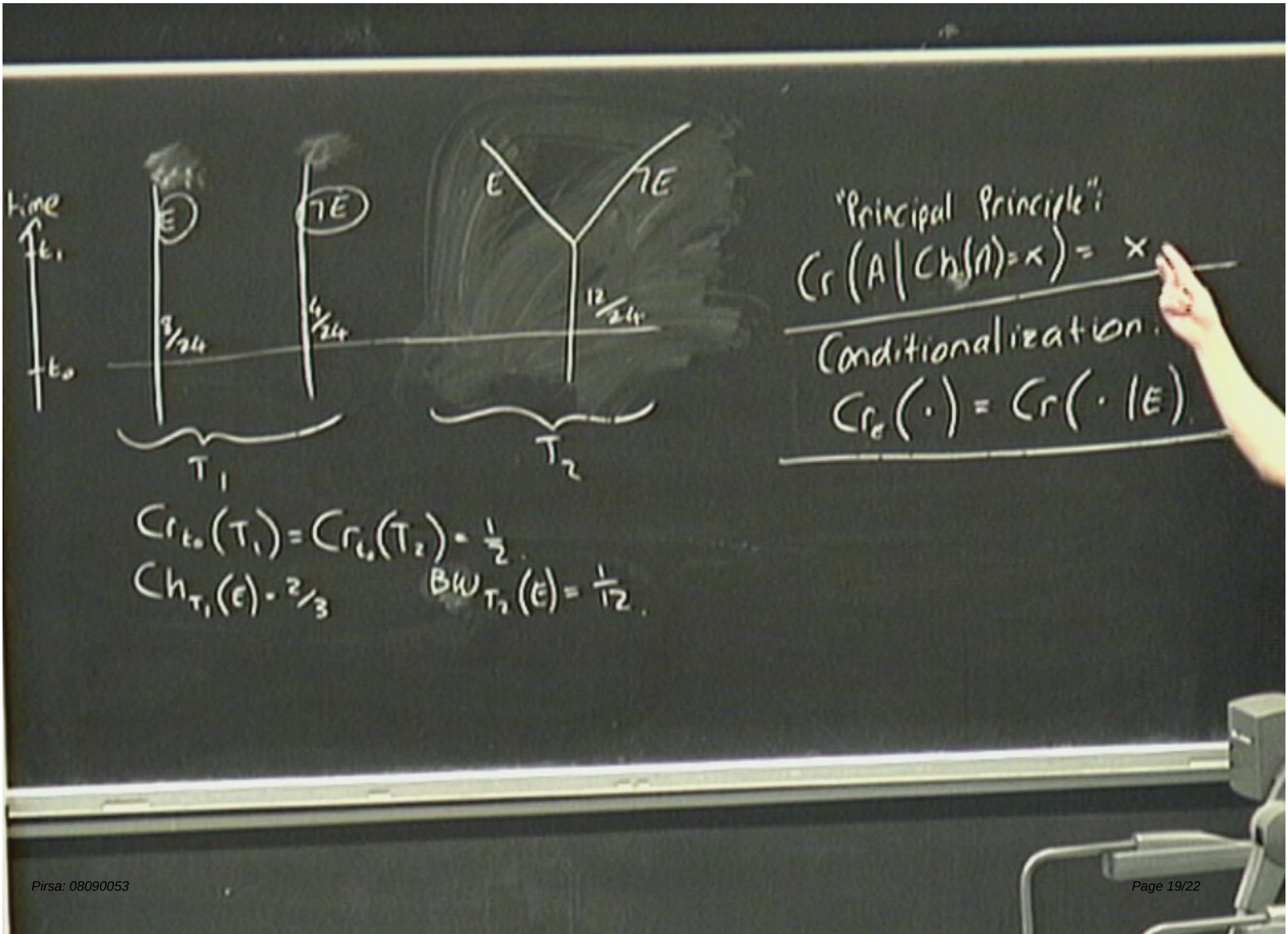
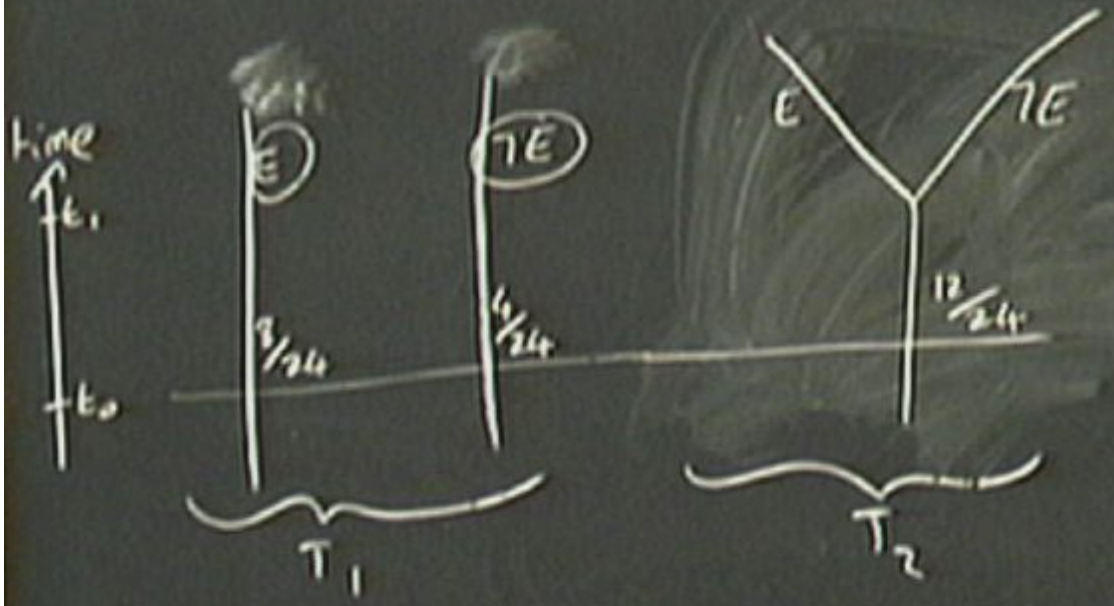
$$Ch_{T_1}(\epsilon) = 2/3 \qquad Ch_{T_2}(\epsilon) = \frac{1}{12}.$$


Time
t_1
t_0
E
7E
3/24
4/24
E
7E
12/24
T_1
T_2
"Principal Principle":
$Cr(A \mid Ch_{t_0}(A) = x) = x$
Conditionalization:
$Cr_E(\cdot) = Cr(\cdot \mid E)$
$Cr_{t_0}(T_1) = Cr_{t_0}(T_2) = \frac{1}{2}$
$Ch_{T_1}(E) = 2/3$
$BW_{T_2}(E) = \frac{1}{12}$



"Principal Principle":

$$Cr(A \mid Ch_{t_0}(A) = x) = x$$

Conditionalization.

$$Cr_E(\cdot) = Cr(\cdot \mid E)$$

$$Cr_{t_0}(T_1) = Cr_{t_0}(T_2) = \tfrac{1}{2}$$

$$Ch_{T_1}(E) = 2/3 \qquad BW_{T_2}(E) = \tfrac{1}{12}$$

Albert's first objection:

"The worry … is that the question at which this entire program is aimed, the question out of which this entire program arises, seems like the wrong question. The question to which this program is addressed are questions of what we would do if we believed that the fission hypothesis were correct. But the question at issue here is precisely whether to believe that the fission hypothesis is correct! And what needs to be looked into, in order to answer that question, has nothing whatever to do with how we would act if we believed that the answer to that question were 'yes'. What needs to be looked into… is the empirical adequacy of that hypothesis. What needs to be looked into… is whether or not the truth of that hypothesis is explanatory of our empirical experience. … And the fission hypothesis (since it is committed to the claim that all such experiments have all possible outcomes with all possible frequencies) is structurally incapable of explaining anything like [particular relative frequencies].

"The decision-theoretic program seems to act as if what primarily and in the first instance stands in need of being explained about the world is why we bet the way we do. But this is crazy!"

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"The worry … is that the question at which this entire program is aimed, the question out of which this entire program arises, seems like the wrong question. The question to which this program is addressed are questions of what we would do if we believed that the fission hypothesis were correct. But the question at issue here is precisely whether to believe that the fission hypothesis is correct! And what needs to be looked into, in order to answer that question, has nothing whatever to do with how we would act if we believed that the answer to that question were 'yes'. What needs to be looked into… is the empirical adequacy of that hypothesis. What needs to be looked into… is whether or not the truth of that hypothesis is explanatory of our empirical experience. … And the fission hypothesis (since it is committed to the claim that all such experiments have all possible outcomes with all possible frequencies) is structurally incapable of explaining anything like [particular relative frequencies].

"The decision-theoretic program seems to act as if what primarily and in the first instance stands in need of being explained about the world is why we bet the way we do. But this is crazy!"

FALSE
TRUE
FALSE
TRUE
(TRUE, BUT POSSIBLY MISLEADING)
FALSE
FALSE
WOULD BE