Simple argument from foreknowledge—I can't but eat lobster tonight!

Let p = I will eat lobster tonight. Suppose someone, x, knows that p

F1.	x knows that p
F2.	If x knows that p, x can't be wrong
F3.	If it were possible that not-p, x could be wrong
F4.	It isn't possible that not-p

Solution: distinguish between: F2′. $K_x p \rightarrow [\_]p$ and: F2″. $[\_](K_x p \rightarrow p)$

Argument from God's necessary omniscience

G1.	p	
G2.	God is necessarily omniscient	
G3.	God necessarily knows that p	G1,G2 × modus ponens
G4.	Necessarily if God knows that p, then p	Factivity of knowledge
G5.	Necessarily p	G3,G4 by modal logic

Solution: distinguish between: G2′. $\forall p(p \rightarrow [\_]K_{God}p)$ and: G2″ $[\_]\forall p(p \rightarrow K_{God}p)$

The Master Argument of Diodorus Cronus

D1. Whenever anything has been the case, it cannot but have been the case

D2. Whatever is entailed by anything possible is itself possible

D3. When anything is the case, it has never been the case that it will not be the case

D4. When anything neither is nor will be the case, it has been the case that it won't be the case

D5. If something neither is nor will be the case, it is impossible that it should be the case

D1. $Pp \rightarrow \neg\Diamond\neg Pp$

D2. $(\Diamond p \wedge [\_](p \rightarrow q)) \rightarrow \Diamond q$

D3. $p \rightarrow \neg P\neg Fp$

D4. $(\neg p \wedge \neg Fp) \rightarrow P\neg Fp$

D5. $(\neg p \wedge \neg Fp) \rightarrow \neg\Diamond p$

To deduce D5 from D1-4 , suppose		1	$\neg p \wedge \neg \mathrm{F}p$
$\neg p \wedge \neg \mathrm{F}p$ + D4 × modus ponens	$\Rightarrow$	2	$\mathrm{P}\neg \mathrm{F}p$
Substitute $\neg \mathrm{F}p$ for p in D1	$\Rightarrow$	3	$\mathrm{P}\neg \mathrm{F}p \rightarrow \neg\Diamond\neg \mathrm{P}\neg \mathrm{F}p$
2 + 3 × modus ponens	$\Rightarrow$	4	$\neg\Diamond\neg \mathrm{P}\neg \mathrm{F}p$
For reductio, assume		5	$\Diamond p$
5 + D3 × D2	$\Rightarrow$	6	$\Diamond\neg \mathrm{P}\neg \mathrm{F}p$
4 + 6 × reductio	$\Rightarrow$	7	$\neg\Diamond p$
1-7 × conditional proof	$\Rightarrow$	D5	$(\neg p \wedge \neg \mathrm{F}p) \rightarrow \neg\Diamond p$

Rejecting* D4 *Indeterminism & 3-valued logic

$p \wedge q$ (p \ q)	t	n	f
t	t	n	f
n	n	n	f
f	f	f	f

$p \rightarrow q$ (p \ q)	t	n	f
t	t	n	f
n	t	t	n
f	t	t	t

p	$\neg p$
t	f
n	n
f	t

The structure of time

Assuming discreteness of time, we can argue:

suppose	1	$\neg \mathrm{P}\neg \mathrm{F}p$ at t	
suppose	2	$\neg \mathrm{F}p$ at t - 1	
then	3	$\mathrm{P}\neg \mathrm{F}p$ at t	
so	4	$\neg\neg \mathrm{F}p$ at $t - 1$	1,3 × reductio
so	5	$\mathrm{F}p$ at $t - 1$	4 × DNE
so either	6	p at t or p at $t+n$ for some $n \geq 1$	5
either way	7	$p \vee \mathrm{F}p$ at t	
so	8	$\neg(\neg p \wedge \neg \mathrm{F}p)$ at t	7 × de Morgan law
hence	9	$\neg \mathrm{P}\neg \mathrm{F}p \rightarrow \neg(\neg p \wedge \neg \mathrm{F}p)$	1-8 × conditional proof
hence	10	$\neg p \wedge \neg \mathrm{F}p \rightarrow \mathrm{P}\neg \mathrm{F}p$	9 × contraposition

But without assuming discreteness, the argument breaks down at 6. We must replace 2 by

2′ $\neg \mathrm{F}p$ at $t - j$ for $j > 0$

which gives 6′ p at t' for $t' > t - j$ instead of 6

We must then consider two alternatives: $t' < t$ or $t' \geq t$

—we can prove $p \vee \mathrm{F}p$ at t from $t' \geq t$, but *not* from $t' < t$