	Question 4.
w	O Logical model: (0 ar A) (8 3A) = (8 r A) 9 = (A)
2	If we define 'goat in A' as A'; 'goat "in B' as B'; 'goat in C' as 'C'
(we have model the mfo as follows:
	{ A V B V C
	A => 7B ATC == (8110) 9=0) was sold sold
	$B \Rightarrow 7A \land 7C$
	ME C > "A A BEE MOS SOURCE SAN OPER SAN YOUNG
	We neve AvC. "But will can will not tell which is a
	@ probabilistic model.
	with no prior & knowledge, we have $P(A) = P(B) = P(CC) = \frac{1}{3}$
in(e)	(3) the probability we conjuted from probabilistic medel
8 / (6)	from logical model, we can not judge which action is a better
	choice. I have A regarded subdit regland in
1 (0)	From probabilistic model, P(A)=P(B)=P(C), so there is not an
	obvious choice of a best action.
mediu (d)	if we choose location A, and CBMHBot tells there is not not
	a goat in location B, so we have 713.
dient	- 13 => 7A77C+=
	went B => AVC strong on - strong on
(e)	Update probabilistic model situal sold 2508 00
	4

	\$ 240 Early 1
	D (A) = P(A 7B) = P(A*,7B) P(A,7B,C)+P(A,7B,7C) = 3
121 6	$P_{\text{new}}(A) = P(A 7B) = \frac{P(A‡,7B)}{P(7B)} = \frac{P(A,7B,C) + P(A,7B,7C)}{1 - P(B)} = \frac{\frac{1}{3}}{\frac{1}{3}} = \frac{1}{2}$ [* : A and C can not be true at the same time, So $P(A,7B,C) = 0$]
9 80	14: A 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
	(* : A and C can not be true at the same time, SO P(A,7B,C)=0)
	JAENY 6
	like above, $P_{\text{new}}(c) = P(c 7B) = \frac{1}{2}$
	JENAT C
CF)	under the info we inferred from togistic logical model in (d),
	We have 'Avc'. But we can still not tell which is a better
	choice between A and C
7	with no prior is knowledge, we have PLAD = PLBJ = PCCD =
(8)	
19/19/ 3	we have $P(A)^{\frac{1}{2}}$ and $P(C) = \frac{1}{2}$, Still, we can not tell which is
	a better choice between A and C.
34(h)	12/ke what we describe in (f), we can not decide whether to stick
	with location A or change.
100 E (6)	goat ino gout to the finding goat when
	changing choice)
	$\frac{1}{3} + \frac{1}{3} = \frac{2}{3} $ (prob of fineling goat
Market Market	no goat no goat when changing choice)
	ERMIT BOE'S Choice
	CD Bot's choice CBMHBot's choice
East a	F.

94 72	As we can see from the graphe above, the skicking to the initial
98 T	1
187t	While changing the choice leads to a probability of tracking - goods
	3 of finding a goat. It has she have 8 to 24 of 2
	Principal (2) - President
(i)	From atom all the analysis before, we probabilistic Goat Discovery Bot
	3s more successful. When under the hote of CBMHBot , Probabilistic
	Goat Discovery Bot reach a probability of 3 of finding a goat.
	While Ingical Gout Discovery Bot only has a probability of \$ of
	While Logical Goat Discovery Bot only has a probability of \$\frac{1}{2}\$ of finding a goat.
Bonu	5. set the utility of finding a goat' = 1
, p	5: set the utility of finding a goat' = 1 goat progoat in B no goat in C
	A Att wor work
	2 - nayour
	no gout in a gout in a gout in a gout in B
	o no goat in a goat in B
	utsisty of sticking = $\frac{1}{3} \times 1 + \frac{2}{3} \times 0 = \frac{1}{3}$
	utility of changing to $C = \frac{2}{3} \left(\frac{1}{2} + \frac{1}{3} \right) \left(\frac{1}{2} + \frac{1}{3} + \frac{1}{3} \right) \left(\frac{1}{2} + \frac{1}{3} + \frac{1}$
	Rational choice is to change to c, regardless of P.
	Ray with the second
	* redo Bonus in Next Page!
800	

set let in; represent goat in i location. Or represent comment the
place CBMHBot looks cut; C; represent the location we choose
: P(ing 102, C,) represent given that we choose A, CBMHBot
12 looks at B, and the goat is in the C
$P(3n_3 \mid O_2, C_1) = \frac{P(D_2 \mid 3n_3, C_1)P(3n_3 \mid \frac{C_1}{2})}{P(3n_3 \mid \frac{C_1}{2})}$
(1) From see all the analysis he (02 1C1) of Polastille Coat D
p(02/3n3, C1) · P(3n3/C1)
El P(Q/Zinz, Ci) P(inz/Ci)
to while legical wont Discount Town Lot & x/2 has a polaristic of
1x\$ + 0x\$ + px\$ doop a public
which we will be to the down the first the first
Bonus, set the cettless of the dieg a poor"
So changing leads to 17.
110 > 3 + 10 PZ
-: P<1 :: 1 > 1/3
: rectional choice is to change to c , regardless of p
7 met 2 v. met 2 v. v. a
FEDXETIXE = POLYE + MINEN THE SALE
18 18 4 Sandy 10 C = = = = = = = = = = = = = = = = = =
The sent that choice is to everye to c. resported of P
And the second of the second o
Fredo Bonds in Nest Page 1