ON EPISTEMIC OPACITY [*]

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In a recent article, [1] Eddy Zemach takes up Quine's well known argument for epistemic opacity and claims that it rests on a mistake.

The object of this note is to meet Zemach's criticism.

I

Quine's argument for epistemic opacity may be rendered as follows: [2]

1. Tom believes (from now 'Bt') a
   sentence represented by 'p' ≡ Bt a sentence
   represented by '$\hat{x}(x = x . p) \equiv$
   $\hat{x}(x = x)$'.   Assumption
2. q   "
3. Bt{q}   "
4. ~r   "
5. Bt{r}   "
6. q ≡ s . r ≡ t   "
7. Bt{$\hat{x}(x = x . q) = \hat{x}(x = x)$}   ⎧ 3,1,
8. Bt{$\hat{x}(x = x . r) = \hat{x}(x = x)$}   ⎪ 5,1,
9. $\hat{x}(x = x . q) = \hat{x}(x = x . s)$ ⎪ 6,
10. $\hat{x}(x = x . r) = \hat{x}(x = x . t)$ ⎬ 6,
11. Bt{$\hat{x}(x = x . s) = \hat{x}(x = x)$}   ⎪ 7,9, Ref.
                                                   ⎪ Transparency of 'Bt'
12. Bt{$\hat{x}(x = x . t) = \hat{x}(x = x)$}   ⎪ 8,10,
13. Bt{s} . Bt{t}   ⎩ 11,12,1,

That is, given that Tom believes one true and one false sentence and given that belief-contexts are referentially transparent, Tom believes every sentence.

Zemach contends that although 11 and 12 are sound, given 1 - 6, 13 is not. For we have no right to say in which form Tom expresses his belief, and hence cannot derive 13 via 11, 12, and 1.

But now even if Zemach is right about 13, the soundness of 11 and 12 given 1 - 6, is surely sufficient to show that some epistemic contexts are opaque. For if 11 and 12 are true, then the set of sentences that Tom believes are logically equivalent to the set of all sentences. Also, should we wish to maintain that what one believes are propositions and that logically equivalent sentences express the same proposition, then by 11 and 12 we have that Tom believes every proposition.

III

None of these detours however are necessary, for 13 is true, given 1 - 6. For if 11 and 12 are true, then what Tom believes *are* represented by '$\hat{x}(x = x . p) = \hat{x}(x = x)$' no matter how Tom represents them and hence by 1, Tom does believe s and t, i.e., the sentences represented by 'p'.

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