Computational Semantics (UE 903, EC2)

Consider the following abstract syntax together with its associated Montague-like semantics:

$$
\begin{array}{lcl}
\textsc{knight} & : & \mathrm{N} \\
\textsc{dragon} & : & \mathrm{N} \\
\textsc{every} & : & \mathrm{N} \to \mathrm{NP} \\
\textsc{a} & : & \mathrm{N} \to \mathrm{NP} \\
\textsc{seek} & : & \mathrm{NP} \to (\mathrm{NP} \to \mathrm{S})
\end{array}
$$

$$
\begin{array}{lcl}
[\![\textsc{knight}]\!] & = & \mathbf{knight} \\
[\![\textsc{dragon}]\!] & = & \mathbf{dragon} \\
[\![\textsc{every}]\!] & = & \lambda mn.\, \forall x.\, (m\, x) \to (n\, x) \\
[\![\textsc{a}]\!] & = & \lambda mn.\, \exists y.\, (m\, y) \wedge (n\, y) \\
[\![\textsc{seek}]\!] & = & \lambda os.\, s\, (\lambda x.\, o\, (\lambda y.\, \mathbf{try}\, x\, (\lambda z.\, \mathbf{find}\, z\, y)))
\end{array}
$$

where:

$$
\begin{array}{lcl}
\mathbf{knight} & : & \mathrm{e} \to \mathrm{t} \\
\mathbf{dragon} & : & \mathrm{e} \to \mathrm{t} \\
\mathbf{find} & : & \mathrm{e} \to (\mathrm{e} \to \mathrm{t}) \\
\mathbf{try} & : & \mathrm{e} \to (\mathrm{e} \to \mathrm{t}) \to \mathrm{t}
\end{array}
$$

1. Compute the semantic representation of the sentence: *Every knight seeks a dragon*, whose abstract syntax is given by the following term:

$$\textsc{seek}\ (\textsc{a}\ \textsc{dragon})\ (\textsc{every}\ \textsc{knight})$$

2. Which reading do you obtain? Give a context that favors this reading.

3. Give two alternative semantic recipes for SEEK that lead to two other possible readings. Explain these two additional readings. Give contexts that favor them.

4. Is it possible to obtain an object-wide-scope *de dicto* reading? Explain why.