A Proof

As well we know, the the mutual information (MI) of X and Y is defined as

$$
\begin{aligned}
I(X;Y) &= H(X) - H(X \mid Y) \\
&= H(Y) - H(Y \mid X)
\end{aligned}
\tag{8}
$$

where $H(\cdot)$ denotes the entropy.

Obviously, we can get

$$
\begin{aligned}
H(l \mid c, \{r_k\}_{k=1}^N) &= H(l \mid c, r_i, \{r_k\}_{k=1}^N \setminus r_i) \\
&\leq H(l \mid c, r_i).
\end{aligned}
\tag{9}
$$

Then, we can compare the MI of using the feasible latent reference information and not as follows

$$
\begin{aligned}
I(l; c, \{r_k\}_{k=1}^N) &= H(l) - H(l \mid c, \{r_k\}_{k=1}^N) \\
&\geq H(l) - H(l \mid c, r_i) \\
&= I(l; c, r_i).
\end{aligned}
\tag{10}
$$

where we can observe the MI is enhanced.