

$$\begin{aligned} ap((1, 0, 0, 1, 0)^T, 2) &= \frac{1}{R} \sum_{k: \vec{r}_k=1} precision@k(\vec{r}, k) \\ &= 0.5 \cdot (1 + 0.5) \\ &= 0.75 \end{aligned}$$