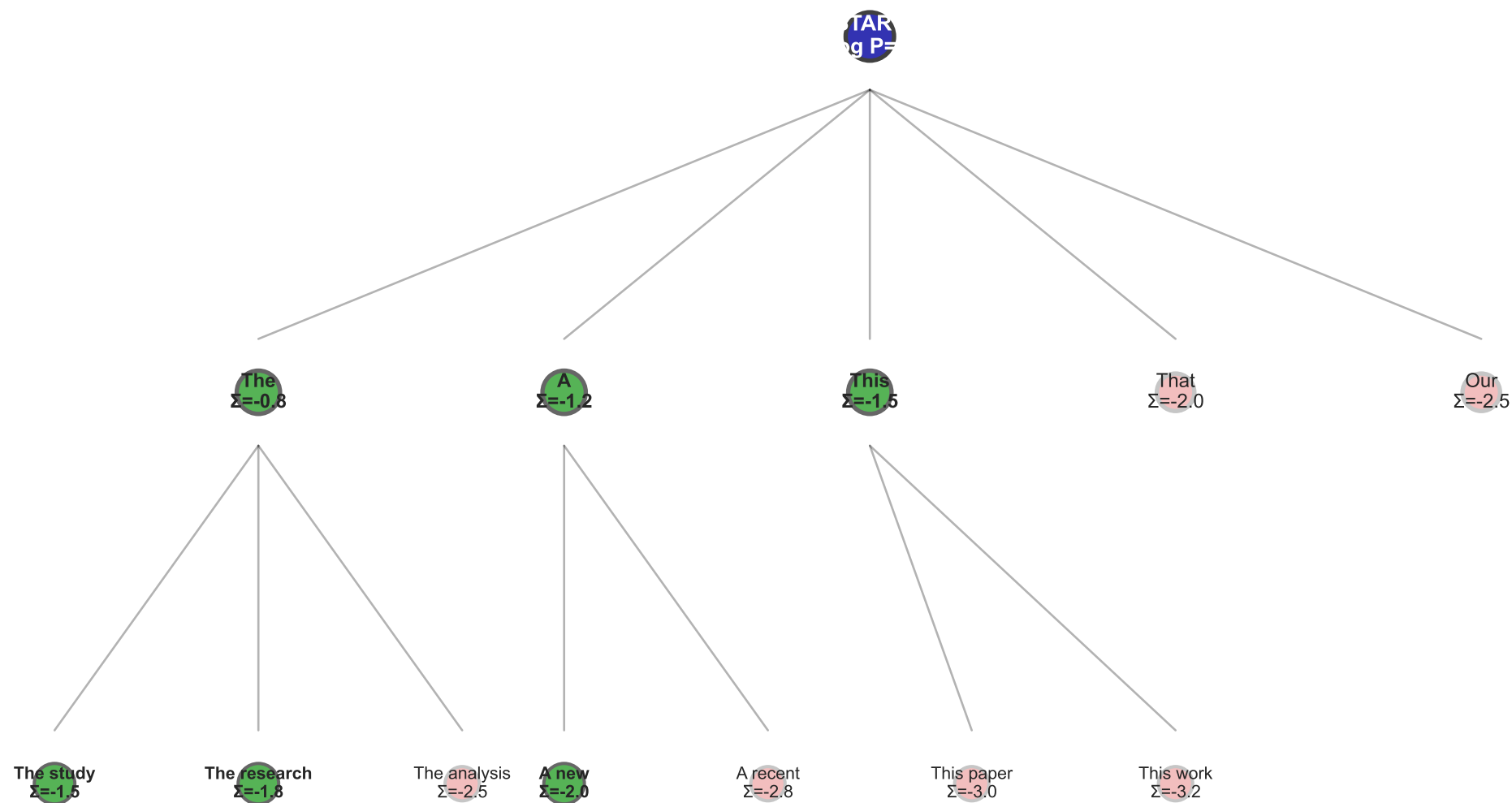# Beam Search: Mathematical Score Tracking (beam_width=3)

Step 1: 5 candidates → 3 kept
Step 2: 3×3 = 9 candidates → 3 kept
Total paths explored: 14
Paths kept: 3 (21%)

- Kept
- Pruned

Score Formula:

$$\text{Score} = \sum_{i=1}^{t} \log P(w_i | w_{1:i-1})$$