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1: procedure threshold_search( $n, r, H, \hat{B}, \overline{B}_n, \hat{T}$ ) do
2:   // Process rounds 1 and 2
3:   if  $((r = 1) \vee (r = 2)) \wedge (r \neq n)$  then
4:     for all  $(\alpha, \beta, p)$  in  $H$  do
5:        $p_r \leftarrow p, \quad \hat{B}_n \leftarrow p_1 \cdots p_r \hat{B}_{n-r}$ 
6:       if  $\hat{B}_n \geq \overline{B}_n$  then
7:          $\alpha_r \leftarrow \alpha, \quad \beta_r \leftarrow \beta, \quad \text{add } \hat{T}_r \leftarrow (\alpha_r, \beta_r, p_r)$  to  $\hat{T}$ 
8:         call threshold_search( $n, r + 1, H, \hat{B}, \overline{B}_n, \hat{T}$ )
9:   // Process intermediate rounds
10:  if  $(r > 2) \wedge (r \neq n)$  then
11:     $\alpha_r = \alpha_{r-2} + \beta_{r-1}$ 
12:     $p_{r,\min} = \overline{B}_n / (p_1 p_2 \cdots p_{r-1} \hat{B}_{n-r})$ 
13:     $C \leftarrow \emptyset$  // Initialize the country roads table
14:    for all  $\beta_r : (p_r(\alpha_r \rightarrow \beta_r) \geq p_{r,\min}) \wedge ((\alpha_{r-1} + \beta_r) = \gamma \in H)$  do
15:      add  $(\alpha_r, \beta_r, p_r)$  to  $C$  // Update country roads table
16:    for all  $(\alpha, \beta, p) : \alpha = \alpha_r$  in  $H$  and all  $(\alpha, \beta, p) \in C$  do
17:       $p_r \leftarrow p, \quad \hat{B}_n \leftarrow p_1 p_2 \cdots p_r \hat{B}_{n-r}$ 
18:      if  $\hat{B}_n \geq \overline{B}_n$  then
19:         $\beta_r \leftarrow \beta, \quad \text{add } \hat{T}_r \leftarrow (\alpha_r, \beta_r, p_r)$  to  $\hat{T}$ 
20:        call threshold_search( $n, r + 1, H, \hat{B}, \overline{B}_n, \hat{T}$ )
21:  // Process last round
22:  if  $(r = n)$  then
23:     $\alpha_r = \alpha_{r-2} + \beta_{r-1}$ 
24:    if  $(\alpha_r \text{ in } H)$  then
25:       $(\beta_r, p_r) \leftarrow p_r = \max_{\beta \in H} p(\alpha_r \rightarrow \beta)$  // Select the max. from the highway table
26:    else
27:       $(\beta_r, p_r) \leftarrow p_r = \max_{\beta} p(\alpha_r \rightarrow \beta)$  // Compute the max.
28:    if  $p_r \geq p_{\text{thres}}$  then
29:      add  $(\alpha_r, \beta_r, p_r)$  to  $H$ 
30:     $p_n \leftarrow p_r, \quad \hat{B}_n \leftarrow p_1 p_2 \cdots p_n$ 
31:    if  $\hat{B}_n \geq \overline{B}_n$  then
32:       $\alpha_n \leftarrow \alpha_r, \quad \beta_n \leftarrow \beta_r, \quad \text{add } \hat{T}_n \leftarrow (\alpha_n, \beta_n, p_n)$  to  $\hat{T}$ 
33:       $\overline{B}_n \leftarrow \hat{B}_n, \quad \hat{T} \leftarrow \hat{T}$ 
34:     $\hat{B}_n \leftarrow \overline{B}_n, \quad \hat{T} \leftarrow \hat{T}$  // Update the target bound and the best found trail
35:  return  $\hat{B}_n, \hat{T}$ 

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