Notes on Tree Construction

Quill Healey

December 24, 2023

Notation

The **Maximum-Entropy Sampling Problem** is defined by the following mathematical program:

$$z(C, s) := \max \{\mathbf{ldet}\, C[S, S] : S \subset N, |S| = s\}$$

- $\mathbf{ub}L \equiv \mathbf{ub}(L)$ be the value of a selected upper-bounding method applied to $L \in \mathcal{L}$
- $z^{UB} = \max\{\}$

Algorithm 1: Solve Tree

```
k = 0, d_0 = 1, C = 0;
for k = 0, 1, 2, ... do
    C = C + d_k C(α_k)
    n_k = |D(α_k)|;
    if n_k = 0 then
        return C;
    else
        choose α_{k+1} at random from D(α_k)
        d_{k+1} = d_k n_k;
    end
end
```