1038-05-196 **Tao Jiang** (jiangt@muohio.edu), Department of Mathematics and Statistics, Miami University, Oxford, OH 45056, **Zevi Miller*** (millerz@muohio.edu), Department of Mathematics and Statistics, Miami University, Oxford, OH 45056, and **Dan Pritikin** (pritikd@muohio.edu), Department of Mathematics and Statistics, Miami University, Oxford, OH 45056. *Separation in trees.* Preliminary report.

Let G be a graph on n vertices. Given a labeling f of $V(G)$ with the integers 1 through n, define the separation of f to be

$$s(f) = \min\{|f(u) - f(v)| : uv \in E(G)\}.$$

Then the separation number of G is defined as

$$s(G) = \max\{s(f)\} \text{ over all such labelings } f \text{ of } G.$$

Focusing our attention on the separation of trees, we obtain the following results.

1. Let F be a forest in which every component is a star. Then $s(F) = 1/2(n - \mu)$, where μ is the minimum difference of sizes of the two partite sets over all bipartitions of F.

2. Let d be the maximum degree of a tree. Then

a) $s(T) \geq n/2 - C\sqrt{nd}$, when $n^{1/3} < d < n$

b) $s(T) \geq n/2 - Cd^2 log(n)/log(d)$ when $d < n^{1/3}$

as n grows, where C is some constant.

We give constructions showing that the bound a) is sharp, and that b) is sharp for d in the range $n^p < d < n^{1/3}$ for any constant $0 < p < 1/3$. (Received February 10, 2008)