NESTED FACTORS

A factor B is *nested* in factor A if each level of B occurs in conjunction with only one level of A. (In other words, there is a completely different set of levels of B for every level of A.)

Recall: Two factors A and B are *crossed* if every level of A occurs with every level of B.

Examples: In each of the following examples:
> a. Identify which pairs of factors are crossed and which are nested.
> b. Identify which factors are fixed and which are random.
> c. Decide which interactions between factors make sense.

1. The amount of vitamin A in a jar of baby food carrots might vary from brand to brand and might also vary between jars of the same brand. To study the effect of these two factors on vitamin A content, a researcher randomly selected five jars of baby carrots from each of the three brands of baby food sold in a particular city.

2. Gum arabic is used to lengthen the shelf length of emulsions. It comes from acacia trees and is processed for use in emulsions. Four raw gum arabic samples are obtained from each two different varieties of acacia tree (for a total of eight samples.) Each sample is split into two subsamples. For each sample, one of the subsamples is randomly chosen and given the experimental treatment. The other serves as a control The sixteen samples are dried, and an emulsion made from each. The response is the time until the emulsion begins to separate.