A lively discussion is under way at Sunrise Software, where you are a project manager.

The main question is whether the person-days concept has limitations. In other words, if a task will require 100 person-days, does it matter whether two people in 50 days, five people in 20 days, ten people in 10 days, or some other combination that adds up to 100 performs the work? Two programmers on the project seem to think it doesn’t matter. On the other hand, one of the project’s systems analysts says it is ridiculous to think that any combination would work. To support his point, this extreme example was offered:

Could 100 people accomplish a task estimated at 100 person-days in one day? They might, unlikely, but possible.

Is the systems analyst correct? Yes it is ridiculous to think that any combination [of people] would work.

If so, what are the limits in the “people versus days” equation? The limits will vary by task.

Taking the concept a step further, is there an optimum number of people to be assigned to a task? Quite possible.

If so, how would that number be determined? From experience and if there isn't anyone with experience then samples of work with different numbers of people for a set time period.

You need to offer some guidance at the next project team meeting. What will you say?

I would tell the system analyst that they are correct, it is ridiculous to think any combination of people will produce an equal amount of work based on time. It is just as ridiculous to think there aren't any combinations that will work. It is quite possible two people can get a 100 person day job done in 49 or 48 days if the work is divided up into categories that closely match the person’s skill.

The first thing we need to find out is if this is a critical task. If it isn’t then we need to know if there are any dependent tasks. These issues will help determine how important it is to reduce the 100 days.

If we decide to reduce the number of days, then we will worry about the effectiveness of adding people.