A separation of powers

For the most part, information in the system and project sections doesn’t overlap. In theory, if you’re using the X files, you could use them to configure a different project by plugging in a different Project.tmpl file. (This would also be true for any other set of files that splits parameters into system and project sections.)

In practice, it’s not always easy to achieve a clean separation of configuration information into system and project components, so the breakdown is sometimes imperfect. For instance, the structure of the system’s manual page hierarchy doesn’t vary according to the project you’re developing, so you might reasonably suppose that parameters relating to installation of manual pages into that hierarchy would go in the general system description section of the template.

That’s not always true in the X11 files. For instance, two symbols related to manual page installation are InstManFlags (which specifies flags to use for the install command) and ManDirectoryRoot (which specifies the root of the manual page hierarchy). InstManFlags is in the system parameters section of template, as you’d expect. But ManDirectoryRoot is tied to an X-related symbol Xman-LocalSearchPath (indentation added):

```c
#ifndef ManDirectoryRoot
  #ifdef ProjectRoot
    # define ManDirectoryRoot Concat(ProjectRoot,/man)
  #ifdef XmanLocalSearchPath
    # define XmanLocalSearchPath ManDirectoryRoot
  #endif
  #else
    #ifdef SystemV4
      # define ManDirectoryRoot /usr/share/man
    #else
      # define ManDirectoryRoot /usr/man
    #endif
  #endif
#endif
```

Due to this entanglement with an X-specific symbol, the definition of ManDirectoryRoot occurs in Project.tmpl.

A more convoluted example involves the specification of the make command used to build a Makefile. In Project.tmpl the variable IMAKE is assigned a value to specify the name of the make program. Where is IMAKE used? In IMAKE_CMD, which specifies the command line used to run make. To find IMAKE_CMD, you go to Makefile. If you look at the definition of IMAKE_CMD there, you find it uses IRULESRC to indicate the directory in which the configuration files should be found. Where is IRULESRC? Back in Project.tmpl!

Initially, you might view these excursions back and forth between the various configuration files with some sense of adventure. But as you trace through their turnings and begin to wind your way further and further into their passageways, the true nature of the situation begins to dawn on you. What you thought was a quest to unlock the mysteries of the configuration files, is now revealed with frightful clarity as a trap for the unwary. The true secret of the files is this: they are the Labyrinth of Daedalus. Trapped inside, you can only await the approach of the menacing inhabitant concealed within: the Minotaur—in body half-man, half-bull; in spirit unbridled fury throughout. And now, because none escape the Labyrinth alive, only dread and despair lie before you—the fate of all who dare explore the X11 configuration files.

Well, actually, purple prose aside (or whatever my editors left of it), things aren’t quite so bad as that. You’re still here alive and reading, after all. But the sometimes maze-like interaction between the various
X11 configuration files does take its toll on ease of comprehension. For the case just described (the definition of IMAKE_CMD), the difficulty in cleanly partitioning the information in the files comes about because they not only use a version of imake distributed with and located within the X project tree, they provide a way to install imake on your system for public use as well. This is a nice convenience because then you can use imake for other projects. However, it makes it more difficult to decide whether imake-related information is properly classified as a property of the X project or of the system at large. When you’re using the version of imake located within the source tree, its location is clearly a project parameter. But after imake is installed in a public directory, it isn’t part of the X project per se, and the location can be considered a system parameter.