A Future for R: Controlling Default Future Strategy

The default is to use synchronous futures, but this *default* can be overridden via R options, system environment variables and command-line options as explained below as well as in `help("future.options", package = "future")`.

R options

The default strategy for resolving futures can be controlled via R option `future.plan`. For instance, if we add

```
options(future.plan = "multiprocess")
```

to our `~/.Rprofile` startup script, the future package will resolve futures in parallel (asynchronously using all available cores), i.e.

```
$ Rscript -e "class(future::plan())"
[1] "multiprocess" "future"       "function"
```

Option `future.plan` is ignored if command-line option `--parallel` (`-p`) is specified.

Environment variables

An alternative to using `options()` for setting option `future.plan` is to specify system environment variable `R_FUTURE_PLAN`. If set, then the future package will set `future.plan` accordingly *when loaded*. For example,

```
$ export R_FUTURE_PLAN=multiprocess
$ Rscript -e "class(future::plan())"
[1] "multiprocess" "future"       "function"
```

Environment variable `R_FUTURE_PLAN` is ignored if either option `future.plan` or command-line option `--parallel` (`-p`) is specified.

Command-line options

When loaded, the future package checks for the command-line option `--parallel=ncores` (short `-p ncores`) and sets the future strategy (via option `future.plan`) and the number of available cores (via option `mc.cores`) accordingly. This provides a convenient mechanism for specifying parallel future processing from the command line. For example, if we start R with

```
$ R --quiet --args --parallel=2
```

then future will interpret this as we wish to resolve futures in parallel using 2 cores. More specifically, we get that

```
> future::availableCores()
mc.cores
       2
> class(future::plan())
[1] "tweaked"      "multiprocess" "future"       "function"
```

We can use this command-line option also with `Rscript`, which provides a convenient mechanism for launching future-enhanced R scripts such that they run in parallel, e.g.

```
$ Rscript analysis.R --parallel=4
```

This does, of course, require that the script uses futures and the future package.

If `--parallel=1` is specified, or equivalently `-p 1`, then futures are resolved using a single process.

Specifying these command-line options override any other startup settings.