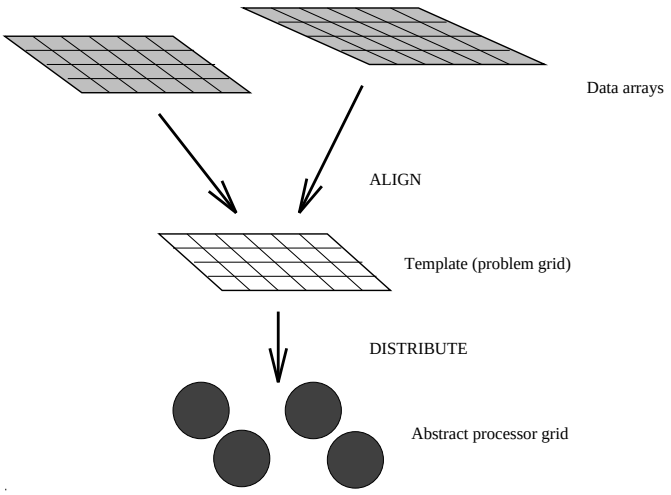

Figure 9: The stages of data data-mapping in HPF.

```
PROCESSORS P1 (4)
TEMPLATE T1 (17)
```

There are various ways in which `T1` may be distributed over `P1`. The four basic distribution formats are illustrated in figure 9. In the figure, each template element inhabits a particular memory area. This should be taken to mean that any data element aligned with a particular template element will be stored in the associated memory area (the template itself doesn't occupy any memory, of course).

Simple block distribution is specified by

```
DISTRIBUTE T1(BLOCK) ONTO P1
```

In this case, each processor gets a contiguous block of template elements. All processor get the same sized block, unless the number of processors doesn't divide the number of template elements, in which case the template elements are divided as evenly as possible, with the last processor holding fewer than the others, as illustrated.

Simple cyclic distribution is specified by

```
DISTRIBUTE T1(CYCLIC) ONTO P1
```

reasons attributes of a variable can be defined in separate statements to the type definition—the shape attribute can be defined in a separate `DIMENSION` statement. Fortran 90 adds a new clutch of allowed attributes. HPF extends the set again. In particular "distribution" is an attribute, in this sense, of a template.