

Arrays

Arrays are the most common and important composite data type. Unlike **records**, which group related fields of disparate types, arrays are usually homogeneous. Semantically, arrays can be thought of as a mapping from an **index type** to a **component type**.

Some languages (notably scripting languages) allow nondiscrete index types. The resulting associative arrays must generally be implemented with hash tables or search trees. Associative arrays also resemble the **dictionary** or **map** types supported by the standard libraries of many object-oriented languages. We assume that array indices are discrete. This allows for a contiguous allocation scheme. We also assume arrays are dense—that is, a large fraction of their elements are not equal to zero or some other default value.