

1.3 Addressing Array Elements

1. “Elements of an array can be accessed quickly if the elements are stored in a block of consecutive locations.” The equation is

$$A[i] = A_{base} + (i - lower-bound) \times width$$

Various means of computing this equation in the semantic actions can be performed depending on how the declaration of the array is handled. For example, the algebraic rewrite of $A[i]$ is

$$A[i] = A_{base} - lower-bound \times width + i \times width$$

The first sum

$$C = A_{base} - lower-bound \times width$$