

$$\begin{aligned}
& \langle \forall 0 \leq j < n : a[j] = v_j, n \geq 0 \rangle \\
& \langle \forall 0 \leq j < n : a[j] = v_j, 0 = 0, 0 < 1 + \frac{n}{2} \rangle \\
& i = 0; \\
& \langle \forall 0 \leq j < n : a[j] = v_j, i = 0, i < 1 + \frac{n}{2} \rangle \\
& \langle \forall i \leq j < \frac{n}{2} : a[j] = v_j \wedge a[n-1-j] = v_{n-1-j}, \\
& \quad \forall 0 \leq j < i : a[j] = v_{n-1-j} \wedge a[n-1-j] = v_j, \\
& \quad i < 1 + \frac{n}{2} \rangle \\
& \text{while } (i < n/2) \{ \\
& \quad \langle \forall i \leq j < \frac{n}{2} : a[j] = v_j \wedge a[n-1-j] = v_{n-1-j}, \\
& \quad \quad \forall 0 \leq j < i : a[j] = v_{n-1-j} \wedge a[n-1-j] = v_j, \\
& \quad \quad i < 1 + \frac{n}{2}, i < \frac{n}{2} \rangle \\
& \quad \langle \forall i+1 \leq j < \frac{n}{2} : a[j] = v_j \wedge a[n-1-j] = v_{n-1-j}, \\
& \quad \quad \forall 0 \leq j < i : a[j] = v_{n-1-j} \wedge a[n-1-j] = v_j, \\
& \quad \quad i+1 < 1 + \frac{n}{2}, a[i] = v_i, a[n-1-i] = v_{n-1-i} \rangle \\
& \quad \quad e = a[i]; \\
& \quad \langle \forall i+1 \leq j < \frac{n}{2} : a[j] = v_j \wedge a[n-1-j] = v_{n-1-j}, \\
& \quad \quad \forall 0 \leq j < i : a[j] = v_{n-1-j} \wedge a[n-1-j] = v_j, \\
& \quad \quad i+1 < 1 + \frac{n}{2}, e = v_i, a[n-1-i] = v_{n-1-i} \rangle \\
& \quad \quad a[i] = a[n-1-i]; \\
& \quad \langle \forall i+1 \leq j < \frac{n}{2} : a[j] = v_j \wedge a[n-1-j] = v_{n-1-j}, \\
& \quad \quad \forall 0 \leq j < i : a[j] = v_{n-1-j} \wedge a[n-1-j] = v_j, \\
& \quad \quad i+1 < 1 + \frac{n}{2}, e = v_i, a[i] = v_{n-1-i} \rangle \\
& \quad \quad a[n-1-i] = e; \\
& \quad \langle \forall i+1 \leq j < \frac{n}{2} : a[j] = v_j \wedge a[n-1-j] = v_{n-1-j}, \\
& \quad \quad \forall 0 \leq j < i : a[j] = v_{n-1-j} \wedge a[n-1-j] = v_j, \\
& \quad \quad i+1 < 1 + \frac{n}{2}, a[n-1-i] = v_i, a[i] = v_{n-1-i} \rangle \\
& \quad \langle \forall i+1 \leq j < \frac{n}{2} : a[j] = v_j \wedge a[n-1-j] = v_{n-1-j}, \\
& \quad \quad \forall 0 \leq j < i+1 : a[j] = v_{n-1-j} \wedge a[n-1-j] = v_j, \\
& \quad \quad i+1 < 1 + \frac{n}{2} \rangle \\
& \quad \quad i = i + 1; \\
& \quad \langle \forall i \leq j < \frac{n}{2} : a[j] = v_j \wedge a[n-1-j] = v_{n-1-j}, \\
& \quad \quad \forall 0 \leq j < i : a[j] = v_{n-1-j} \wedge a[n-1-j] = v_j, \\
& \quad \quad i < 1 + \frac{n}{2} \rangle \\
& \quad \} \\
& \quad \langle \forall i \leq j < \frac{n}{2} : a[j] = v_j \wedge a[n-1-j] = v_{n-1-j}, \\
& \quad \quad \forall 0 \leq j < i : a[j] = v_{n-1-j} \wedge a[n-1-j] = v_j, \\
& \quad \quad i < 1 + \frac{n}{2}, i \not< \frac{n}{2} \rangle \\
& \quad \langle \forall 0 \leq j < i : a[j] = v_{n-1-j} \wedge a[n-1-j] = v_j, i = \frac{n}{2} \rangle \\
& \quad \langle \forall 0 \leq j < n : a[j] = v_{n-1-j} \rangle
\end{aligned}$$