**MACHINE**

|  |
| --- |
| **Sort** |

**SEES**

|  |
| --- |
| **C1** |

**VARIABLES**

|  |
| --- |
| a |

|  |
| --- |
| i |

|  |
| --- |
| aux |

|  |
| --- |
| state |

|  |
| --- |
| j |

**INVARIANTS**

|  |  |
| --- | --- |
| inv1   : | a ∈ 1‥5 → ℕ |

|  |  |
| --- | --- |
| inv2   : | i ∈ ℕ |

|  |  |
| --- | --- |
| inv3   : | aux ∈ ℕ |

|  |  |
| --- | --- |
| inv4   : | state ∈ S |

|  |  |
| --- | --- |
| inv5   : | j ∈ ℕ |

**EVENTS**

|  |
| --- |
| **INITIALISATION   ≙** |

**STATUS**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | **ordinary** |   **BEGIN**   |  |  | | --- | --- | | act1   : | a ≔ {1↦7, 2↦5, 3↦8, 4↦6, 5↦3} |  |  |  | | --- | --- | | act2   : | i ≔ 1 |  |  |  | | --- | --- | | act3   : | aux ≔ 0 |  |  |  | | --- | --- | | act4   : | state ≔ init |  |  |  | | --- | --- | | act5   : | j ≔ 2 |   **END**   |  | | --- | | **evt1   ≙** |   **STATUS**   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  | | --- | | **ordinary** |   **WHEN**   |  |  | | --- | --- | | grd1   : | i < 5 |  |  |  | | --- | --- | | grd2   : | a(i) > a(j) |  |  |  | | --- | --- | | grd3   : | j < 6 |  |  |  | | --- | --- | | grd4   : | state ∈ {init, interm} |   **THEN**   |  |  | | --- | --- | | act1   : | aux ≔ a(i) |  |  |  | | --- | --- | | act3   : | a(i) ≔ a(j) |  |  |  | | --- | --- | | act8   : | state ≔ interm1 |   **END**   |  | | --- | | **evt2   ≙** |   **STATUS**   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  | | --- | | **ordinary** |   **WHEN**   |  |  | | --- | --- | | grd1   : | i < 5 |  |  |  | | --- | --- | | grd2   : | a(i) < a(j) |  |  |  | | --- | --- | | grd3   : | j < 6 |  |  |  | | --- | --- | | grd4   : | state ∈ {init, interm} |   **THEN**   |  |  | | --- | --- | | act1   : | j ≔ j + 1 |   **END**   |  | | --- | | **evt3   ≙** |   **STATUS**   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  | | --- | | **ordinary** |   **WHEN**   |  |  | | --- | --- | | grd2   : | i < 5 |  |  |  | | --- | --- | | grd3   : | j < 6 |  |  |  | | --- | --- | | grd4   : | state = interm1 |   **THEN**   |  |  | | --- | --- | | act1   : | a(j)≔aux |  |  |  | | --- | --- | | act3   : | j ≔ j + 1 |  |  |  | | --- | --- | | act4   : | state ≔ interm |   **END**   |  | | --- | | **evt4   ≙** |   **STATUS**   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  | | --- | | **ordinary** |   **WHEN**   |  |  | | --- | --- | | grd1   : | i < 5 |  |  |  | | --- | --- | | grd2   : | j = 6 |   **THEN**   |  |  | | --- | --- | | act1   : | i ≔ i + 1 |  |  |  | | --- | --- | | act2   : | j ≔ i + 2 |   **END**   |  | | --- | | **evt5   ≙** |   **STATUS**   |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  | | --- | | **ordinary** |   **WHEN**   |  |  | | --- | --- | | grd1   : | i = 5 |  |  |  | | --- | --- | | grd2   : | j = 6 |  |  |  | | --- | --- | | grd3   : | state ≠ final |   **THEN**   |  |  | | --- | --- | | act1   : | state ≔ final |   **END**  **END** | | | | | |