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| --- | --- | --- |
| Nodes & Edges (i) | Def (i) | Use (i) |
| 0 | {} | {} |
| 1 | {} | {} |
| (1,2), (1,3) | {} | {} |
| 2 | {data, empty} | {elem} |
| 3 | {} | {elem} |
| (3,4), (3,5) | {} | {elem} |
| 4 | {} | {} |
| 5 | {} | {data, elem} |
| (5,6), (5,7) | {} | {data, elem} |
| 6 | {tmp, data, elem} | {data, elem, tmp} |
| (6,7) | {} | {} |
| 7 | {} | {} |
| (7,8), (7,9) | {} | {} |
| 8 | {} | {elem} |
| 9 | {position} | {elem, position} |
| (9,10), (9,11) | {} | {position} |
| 10 | {previousValue, children[0].data} | {children[0].data, elem, previousValue} |
| 11 | {} | {nChildren, capacity, children[position]} |
| (11,12), (11,15) | {} | {nChildren, capacity, children[position]} |
| 12 | {} | {elem, children[position-1]} |
| (12,13), (12,14) | {} | {elem, children[position-1]}} |
| 13 | {} | {elem, position} |
| 14 | {} | {children[position-1], elem} |
| 15 | {} | {nChildren, capacity, elem, children[position]} |
| (15,16), (15,17) | {} | {nChildren, capacity, elem, children[position]} |
| 17 | {} | {position, capacity, elem, children[position]} |
| (17,16), (17,18) | {} | {nChildren, capacity, elem, children[position]} |
| 18 | {} | {position, capacity} |
| (18,19), (18,20) | {} | {position, capacity} |
| 19 | {} | {children[position-1], elem} |
| 20 | {} | {children[position], elem} |

2. Edge-Pair Coverage

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| Edge-Pair |
| [0,1,2],[0,1,3],[1,3,4],[1,3,5],[3,5,6],[3,5,7],[5,6,7],[5,7,8,],[5,7,9],[6,7,8],[6,7,9],[7,9,10],[7,9,11],[9,11,12],[9,11,15],[11,12,13],[11,12,14],[11,15,16],[11,15,17],[15,17,16],[15,17,18],[17,18,19],[17,18,20] |

|  |  |  |  |  |
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|  | Test Case Values  (ArrayNTree A, Capacity c, T Elem) | Expected Value | Test Path | Requirements covered |
| T1 | ([], 2, null) | [] | [0,1,2] | [0,1,2] |
| T2 | ([1], 2, 1) | [1] | [0,1,3,4] | [0,1,2],[0,1,3],[1,3,4] |
| T3 | ([2], 2, 1) | [1:[2]] | [0,1,3,5,6,7,8] | [0,1,3],[1,3,5],[5,6,7],[6,7,8] |
| T4 | ([1,2], 2, 3) | [1:[2][3]] | [0,1,3,5,7,9,11,12,13] | [0,1,3],[1,3,5],[3,5,7],[5,7,9],[7,9,11],[9,11,12],[11,12,13] |
| T4 | ([2,3], 2, 1) | [1:[2][3]] | [0,1,3,5,6,7,9,10] | [0,1,3],[1,3,5],[3,5,6],[5,6,7],[6,7,9],[7,9,10] |
| T5 | ([2:[7][11][15:[16][19]]], 5, 18) | [[2:[7][11][15:[16][18][19]]] | [0,1,3,5,7,9,11,12,14] | [0,1,3],[1,3,5],[3,5,7][5,7,9],[7,9,11],[9,11,12],[11,12,14] |
| T6 | ([2:[7][11][15:[18][19]][25]],5,20) | [2:[7][11][15:[18][19]][29][25]] | [0,1,3,5,7,9,11,15,16] | [0,1,3],[1,3,5],[3,5,7][5,7,9],[7,9,11],[9,11,15],[11,15,16] |
| T7 | ([2:[7][11][15:[16][19]]], 3, 18) | [2:[7][11][15:[16][18][19]]] | [0,1,3,5,7,9,11,15,17,18,19] | [0,1,3],[1,3,5],[3,5,7][5,7,9],[7,9,11],[11,15,17],[15,17,18],[17,18,19] |
| T8 | ([2:[7][11:[16][19]][20]], 3, 18) | [2:[7][11:[16][18][19]][20]] | [0,1,3,5,7,9,11,15,17,18,20] | [0,1,3],[1,3,5],[3,5,7][5,7,9],[7,9,11],[11,15,17],[15,17,18],[17,18,20] |

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| --- |
| Prime Paths |
| [1,2] , [1,3,4], [1,3,5,7,8], [1,3,5,6,7,8], [1,3,5,7,9,10], [1,35,6,7,9,10], [1,3,5,7,9,11,12,13], [1,3,5,7,9,11,12,14], [1,3,5,7,9,11,15,16], [1,3,5,6,7,9,11,12,13], [1,3,5,6,7,9,11,12,14], [1,3,5,6,7,9,11,15,16], [1,3,5,7,9,11,15,17,16], [1,3,5,6,7,9,11,15,17,16], [1,3,5,7,9,11,15,17,18,19], [1,3,5,7,9,11,15,17,18,20]  [3,4], [3,5,7,8], [3,5,6,7,8], [3,5,7,9,10], [3,5,6,7,9,10], [3,5,7,9,11,12,13], [3,5,7,9,11,12,14], [3,5,7,9,11,15,16], [3,5,6,7,9,11,12,13], [3,5,6,7,9,11,12,14], [3,5,6,7,9,11,15,16], [3,5,7,9,11,15,17,16], [3,5,6,7,9,11,15,17,16], [3,5,7,9,11,15,17,18,19], [3,5,7,9,11,15,17,18,20] , [3,5,6,7,9,11,15,17,18,19], [3,5,6,7,9,11,15,17,18,20]  [5,7,8], [5,6,7,8], [5,7,9,10], [5,6,7,9,10], [5,7,9,11,12,13], [5,7,9,11,12,14], [5,7,9,11,15,16], [5,6,7,9,11,12,13], [5,6,7,9,11,12,14], [5,6,7,9,11,15,16], [5,6,7,9,11,15,17,16], [5,7,9,11,15,17,18,19], [5,7,9,11,15,17,18,20], [5,6,7,9,11,15,17,18,19], [5,6,7,9,11,15,17,18,20]  [6,7,8], [6,7,9,10], [6,7,9,11,12,13], [6,7,9,11,12,14], [6,7,9,11,15,16], [6,7,9,11,15,17,16], [6,7,9,11,15,17,18,19] , [6,7,9,11,15,17,18,20]  [7,8], [7,9,10], [7,9,11,12,13], [7,9,11,12,14], [7,9,11,15,16], [7,9,11,15,17,16], [7,9,11,15,17,18,19], [7,9,11,15,17,18,20]  [9,10], [9,11,12,13], [9,11,12,14], [9,11,15,16], [9,11,15,17,16], [9,11,15,17,18,19], [9,11,15,17,18,20]  [11,12,13], [11,12,14], [11,15,16], [11,15,17,16], [11,15,17,18,19], [11,15,17,18,20]  [12,13], [12,14]  [15,16], [15,17,16]  [17,16], [17,18,19], [17,18,20]  [18,19], [18,20] |