```
delete pseudocode
set CLEANUP and isSimpleDelete flags to false
while(true)
  do primarySeekForDelete(deleteKey)
  if(!CLEANUP)
    try CAS(node->lChild,<nlChildAddr,0,0>,<nlChildAddr,1,0>)
    if CAS FAILED
     help
      continue from top of primary seek's while loop
    if CAS SUCCEEDED
      set CLEANUP to true and set storedNode = node
  if(storedNode != node) //Someone removed the node for me. So DONE
  set "deleteFlag" on node's rChild using BTS
  if complex delete
    while(true) //secondary seek
       nRChild = node->rChild
>>
        if(nRChild != NULL)
>>
          isSplCase = secondarySeekForDelete(nRChild)
>>
>>
>>
          set isSimpleDelete flag to true
>>
          break from while loop
      if node key is unmarked
        try CAS (rnode->1Child, <NULL, 0, 0>, <nodeAddr, 0, 1>)
        if CAS failed
          if promoteFlag is set
            if address does not match with node's address
              restart primary seek. assert (node->secFlag == DONE)
              break from while loop
          else
            if address != NULL //restart secondary seek
              continue from top of secondary seek's while loop
              assert(rnode->1Child's deleteFlag is set)
              help operation at secondaryLastUnmarkedEdge
              if secondaryLastUnmarkedEdge does not exist, then help node->rChild (simplehelp)
              continue from top of secondary seek's while loop
        }
        set promote flag on rnode->rChild using BTS
        promote key using a simple write. Node's key changes from <0,kN> to <1,kRN>
      if(!isSplCase)
        try CAS(rpnodeLChild,<rnode,0,0>,<rnodeRChild,0,0>) //remove secondary node
        if CAS FAILED, help operation at secondaryLastUnmarkedEdge
          if secondaryLastUnmarkedEdge doesn't exist, override CASinvariant and help
          node->rChild (simplehelp)
          continue from top of secondary seek's while loop
        if CAS SUCCEEDED, set node->secDoneFlag to true
```

```
else
          try CAS(nodeRChild,<rnode,1,0>,<rnodeRChild,1,0> //no problem if CAS fails
>>
>>
          set node->secDoneFlag to true
      while(true)
        if(node->secDoneFlag is set)
          create a fresh copy of node
          newNodeKey as <0,kRN>
          newNodeLChild as <node's lChildAddr,0,0>
          newNodeRChild = <node's rChildAddr,0,0>
          try CAS (pnode->lChild, <node, 0, 0>, <newNode, 0, 0>)
          if CAS SUCCEEDED then DONE
          if CAS FAILED
            if address has changed
              then someone helped me install a fresh copy.so DONE
            else
              CAS has failed coz the edge is marked.
              if lastUnmarkedEdge is not (pnode, node) then help
              do primarySeekForDelete(node->key) //restart primary seek with new key
              if newNodeAddr != oldNodeAddr, then done.
        }
        else
          someone else replaced the node with the fresh copy
      }
    }
  else //simple delete
    set isSimpleDelete to true
  if(isSimpleDelete)
    try CAS(pnode->lChild, <node, 0, 0>, <node's l/r child, 0, 0>)
    if CAS SUCCEEDED, then DONE
    if CAS FAILED
      if lastUnmarkedEdge is NOT (pnode, node) help
  }
```