

Example for Transformation

$$x = abc$, $y = bac$$$

$$h_\rho(x) = \perp a \perp \perp \perp \perp$$

$\tau(x, \rho)$ and x_i :

1. hash-insert a
2. hadh-match a
3. hash-replace b
4. hash-insert c
5. hash-replace c
6. hash-replace \$

$$h_\rho(y) = \perp a \perp \perp \perp \perp$$

$\tau(y, \rho)$ and y_i :

1. hash-replace b
2. hadh-match a
3. hash-insert c
4. hash-insert c
5. hash-replace c
6. hash-replace \$

GridWalk

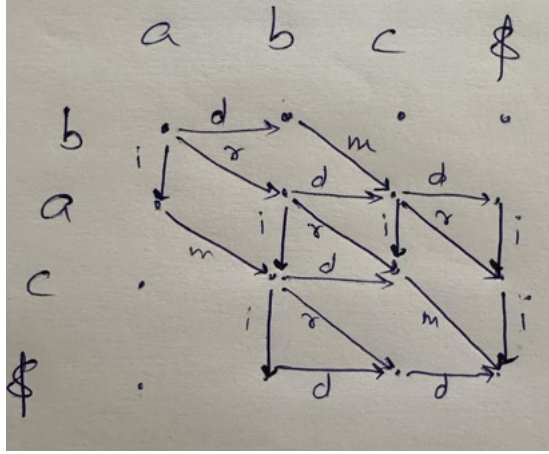
1. $x_{i_x} \neq y_{i_y}$ and hash-insert and hash-replace \implies INSERT
2. $x_{i_x} = y_{i_y}$ and hash-match and hash-match \implies MATCH
3. $x_{i_x} \neq y_{i_y}$ and hash-replace and hash-insert \implies DELETE
4. $x_{i_x} = y_{i_y}$ and hash-insert and hash-insert \implies LOOP
5. $x_{i_x} = y_{i_y}$ and hash-replace and hash-replace \implies MATCH
6. $x_{i_x} = y_{i_y}$ and hash-replace and hash-replace \implies MATCH

Transformation

The transformation of the above example is INSERT-DELETE. (Obtained by removing MATCH and LOOP)

1. $T_0(x, y) = abc\$$ and $y = bac\$$
2. Applying INSERT at the 0^{th} element
 $T_1(x, y) = babc\$$ and $y = bac\$$
3. Applying DELETE at the 2^{nd} element
 $T_1(x, y) = bac\$$ and $y = bac\$$

Analysing Lemma 13



Transformations which solve x and y ($\mathcal{T}(x, y, \rho)$) are:
 $ddii, dri, di, rddii, rdri, rdi, rr, rid, rird, riidd, id, ird, iidd$

Valid transformations such that

$|delete| + |replace| \leq |x|$ and $|insert| + |replace| \leq |y|$ are:

””, $idiiid, didiuid, ddirdi, iidd, idddiid, iddirr, drr, rdrdi, didir, irird, ddirri, rrdri, iriidd, dididid, iiiidddd, riirdd, diddd, iddidiid, drdiri, irdidr, iuidid, diiidd, idrdr, iddidir, iddrri, idiri, ddiriri, idddidii, ddiiri, iiddidiid, irdir, diirid, iriddid, rirr, rdiidr, irdiddi, ididdiid, riidddd, dirrdi, ddiird, drdri, dridir, iridi, iudddir, iuddrri, idirdr, didddiii, dirrd, rriird, iuddddii, ddridi, rridid, diidrd, diriddi, ir-dri, iridd, rrrd, dirid, ddird, iidi, irrr, ddiir, ddi, diirrd, drdii, idddd, idddi, rii, rdir, irir, riid, ddiidd, irrdd, diiiddi, drdid, dddii, iirddi, rdiir, rddidi, idridi, iddiidr, dddiidi, diididi, diidi, irddiid, ddiididi, didird, idirdid, irr, diirdr, rdirr, iuid, driiddi, irdrr, ididri, iirddi, iirrr, ididdid, ddd, ridrr, riii, ddiiddid, dididr, drirr, rrrid, dirir, iriir, didirid, ididdidi, iidddd, rddidii, diirrdi, ddiirid, iir, ridid, idrdir, idirrd, irdrri, ddiddii, idiidd, iddidid, dddiuid, ddiuid, diiiddid, idrddi, rridd, iuidr, rdiir, dridd, driddii, driidd, dididiid, didddi, iddiri, idrrid, iddrd,$

dddi, iddiddi, iddiddii, irrd, dririd, idi, iddidd, dddiiii, irdidd, rd, rddir, iiii,
 ididr, iddirdi, idirr, iiddidid, ddrid, rdiird, dddiir, riddi, irddir, iiddddid, rdiid,
 rrdii, drrri, idiidi, riir, riidd, drid, idddir, iiddidid, didiid, diirddi, dddidid, rdii,
 riididd, riidrr, iirdd, idrrr, iridr, ddriii, iddidi, diddii, idiiidd, dddiri, idrrdi,
 driird, drd, dirdri, dirdid, irddri, iri, rrir, iddiii, dridii, dddidii, ddrii, idrrr,
 didiri, rddiir, drdi, irdrd, irii, irddid, iii, idddiir, irididd, dididi, ididi, rididid,
 rdidi, rdrir, diiir, rddiir, idddr, ddiiddii, idiiddi, irridd, iidiid, id, rir, rddd,
 diriid, idddiidi, irdr, diidir, rrrdi, ddii, drdiii, iirdd, dridr, dridid, diiddii, ri-
 iddd, iiddrrd, iirrd, iiddidr, idrdi, drididi, didiidd, idididr, ddiirr, diidd, diiidi,
 diiuid, idridr, diirdd, ididdr, dirird, rdidid, idirddi, rdirdi, diidii, iirdd, riridd,
 ridiidd, driidid, iiddddi, iriidd, rdiidid, riidr, ddddiii, ididdi, ridr, iir, di-
 diddi, ridii, diiddid, dirdiid, didrd, idiidr, ddiirdi, irddi, iuddi, riddiid, ddriri,
 ddiidiid, rdrd, iriddr, iuddiddi, di, iddr, ididir, dri, diiuid, ddiiii, drrr, rrdi, irid-
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 drdiiid, iirddid, iddididi, dddid, riddii, rddi, ddiirr, diiird, idrir, iidddd, dddiri,
 irddd, rddii, idriddi, dddr, iddriid, ddrriid, drdrii, rdddiii, iid, idddd, iiddid,
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 idid, irdid, iridd, riid, drdiidi, ridd, iuddid, rridr, ddrri, rddr, iridrd, iridid,
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 rididr, iiddri, riiddi, dddd, dddidi, iddiir, ddiidii, idddrii, didiiddi, dddr, irid,
 diiiddi, didrdi, ridrd, ddidri, iirdd, dddir, iiddii, dddiii, rdird, diir, dii, rdr,
 rdidri, iidi, iddrid, didrdii, ddiidr, iidir, ddrir, ididdi, idriid, idriidd, diii, drddi,
 drrdi, rdiiddi, diidird, riddii, idd, rirdi, ir, ddiidri, drdir, rdiid, iiii, drrr, diidr,
 diiddiid, irdird, diiidd, riddidi, dddiid, iriddi, driir, drrid, ridd, didri, idirid,
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 iirrd, driddi, iiddr, rddiii, ridiid, dddiuid, iddiidi, dirrid, riddi, idididd, iiddr,
 idiird, dirddii, rrrr, ddiid, ididdii, idididid, did, irrid, dddir, riid, iirdi,
 dddiiri, idiidd, dddidiii, dddiidi, drirdi, idididdi, dr, didriid, rdiidd, iddrdi,
 didid, ddiid, iiddiidd, riddir, dddidi, diir, diid, diiddidi, idiridd, dddir, didi,
 rdiidii, iirddr, dddiii, didirr, riidd, didridi, rrdir, iirdd, rdiid, ididdii, ididi-
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iiddid