**Alex Tibelius (418656) & Marc Gehring (358302) – Tutorium 10**

**A3 a)**

**n = 0:**

**n = k:**

**n = k + 1:**

**A3 b)**

RHS: right-hand side (der Gleichung)

**L = CREATE():**

RHS: LENGTH(OVERWRITE(a,CREATE())) = 0

LHS: LENGTH(CREATE()) = 0

**L = L:**

LENGTH(OVERWRITE(a,L)) = LENGTH(L)

**L = INSERT(x,L):**

LHS: LENGTH(OVERWRITE(a,INSERT(x,L))) = LENGTH(INSERT(a,L)) = 1 + LENGTH(L)

RHS: LENGTH(INSERT(x,L)) = 1 + LENGTH(L)

**L = INSERT\*(x,L):**

LHS: LENGTH(OVERWRITE(a, INSERT\*(x,L))) = LENGTH(INSERT\*(x, OVERWRITE(a,L)))

= 1 + LENGTH(OVERWRITE(a,L)) =IH= 1 + LENGTH(L)

RHS: LENGTH(INSERT\*(x,L)) = 1 + LENGTH(L)

**A4 a)**

Mit den Axiomen aus der Vorlesung:

Insert\*(A,Insert(I1,Insert(I2,Insert(I3,Insert(S,Create())))))

A → I1 → I2 → I3 → S

Delete(Insert\*(A,Insert(I1,Insert(I2,Insert(I3,Insert(S,Create())))))) =

Insert\*(A,Delete(Insert(I1,Insert(I2,Insert(I3,Insert(S,Create())))))) =

Insert\*(A,Insert(I2,Insert(I3,Insert(S,Create()))))

A → I2 → I3 → S

Next(Insert\*(A,Insert(I2,Insert(I3,Insert(S,Create()))))) =

Insert\*(A,Next(Insert(I2,Insert(I3,Insert(S,Create()))))) =

Insert\*(A,Insert\*(I2,Insert(I3,Insert(S,Create()))))

A → I2 → I3 → S

Insert(I4,Insert\*(A,Insert\*(I2,Insert(I3,Insert(S,Create())))))

Insert\*(A,Insert(I4,Insert\*(I2,Insert(I3,Insert(S,Create())))))

Insert\*(A,Insert\*(I2,Insert(I4,Insert(I3,Insert(S,Create())))))

A → I2 → I4 → I3 → S

**A4 b)**

*Previous(Create()) = Create()*

*Previous(Insert\*(x,Insert(y,z))) = Insert(x,Insert(y,z))*

*Previous(Insert\*(x,Insert\*(y,z))) = Insert\*(x,Previous(Insert\*(y,z)))*

Insert\*(A,Insert\*(I1,Insert(I2,Insert(I3,Insert(S,Crate())))))

A ⇌ I1 ⇌ I2 ⇌ I3 ⇌ S

Previous(Insert\*(A,Insert\*(I1,Insert(I2,Insert(I3,Insert(S,Create()))))))

Insert\*(A,Previous(Insert\*(I1,Insert(I2,Insert(I3,Insert(S,Create()))))))

Insert\*(A,Insert(I1,Insert(I2,Insert(I3,Insert(S,Create())))))

A ⇌ I1 ⇌ I2 ⇌ I3 ⇌ S

Insert(I4,Insert\*(A,Insert(I1,Insert(I2,Insert(I3,Insert(S,Create()))))))

Insert\*(A,Insert(I4,Insert(I1,Insert(I2,Insert(I3,Insert(S,Create()))))))

A ⇌ I4 ⇌ I1 ⇌ I2 ⇌ I3 ⇌ S

Next(Insert\*(A,Insert(I4,Insert(I1,Insert(I2,Insert(I3,Insert(S,Create())))))))

Insert\*(A,Next(Insert(I4,Insert(I1,Insert(I2,Insert(I3,Insert(S,Create())))))))

Insert\*(A,Insert\*(I4,Insert(I1,Insert(I2,Insert(I3,Insert(S,Create()))))))

A ⇌ I4 ⇌ I1 ⇌ I2 ⇌ I3 ⇌ S

Delete(Insert\*(A,Insert\*(I4,Insert(I1,Insert(I2,Insert(I3,Insert(S,Create())))))))

Insert\*(A,Delete(Insert\*(I4,Insert(I1,Insert(I2,Insert(I3,Insert(S,Create())))))))

Insert\*(A,Insert\*(I4,Delete(Insert(I1,Insert(I2,Insert(I3,Insert(S,Create())))))))

Insert\*(A,Insert\*(I4,Insert(I2,Insert(I3,Insert(S,Create())))))

A ⇌ I4 ⇌ I2 ⇌ I3 ⇌ S

Hier noch übersichtlicher mit der Erklärung aus dem Tutorium:

A piece of paper with writing on it

Description automatically generated with medium confidence Diagram, schematic

Description automatically generated