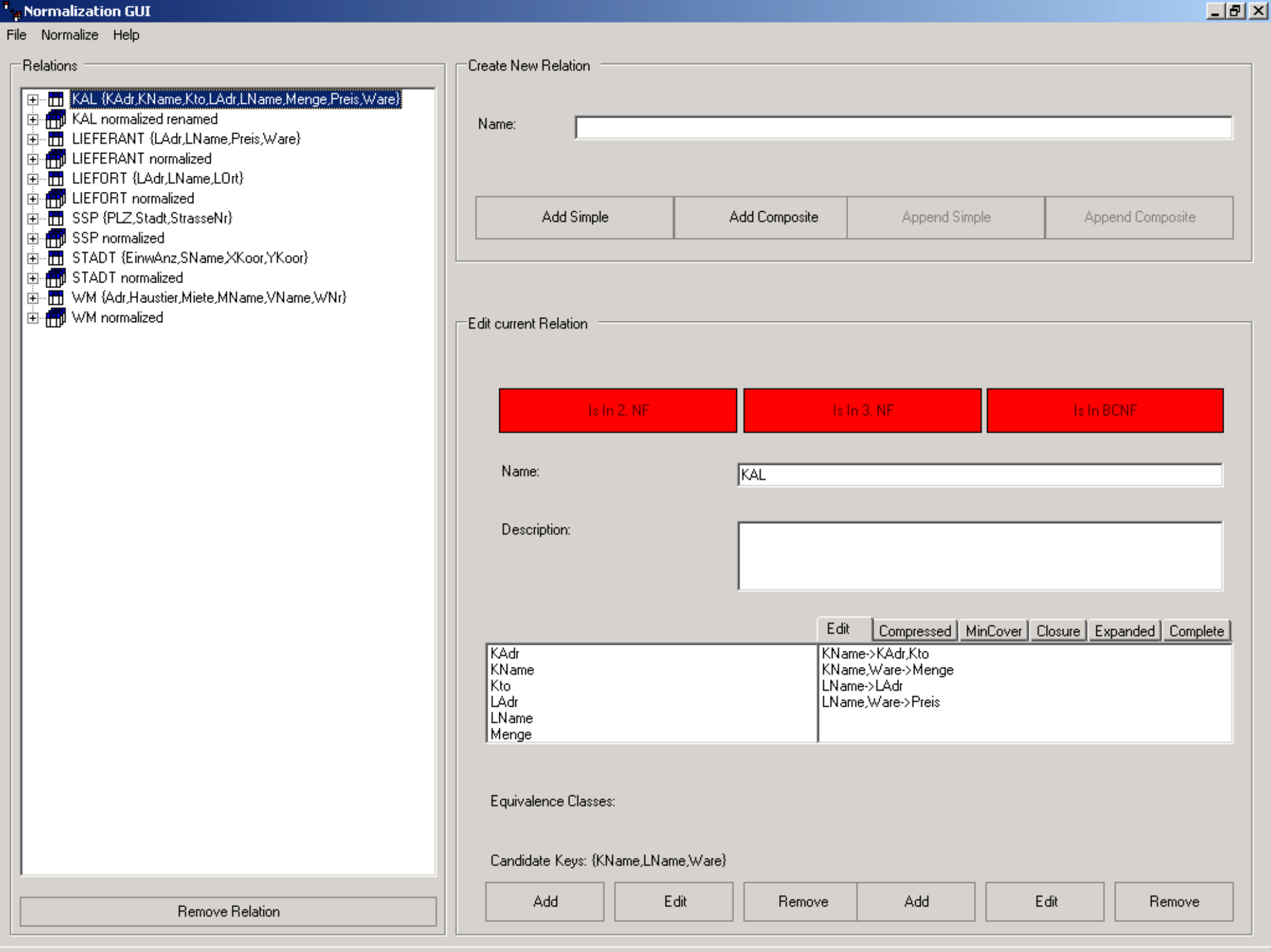
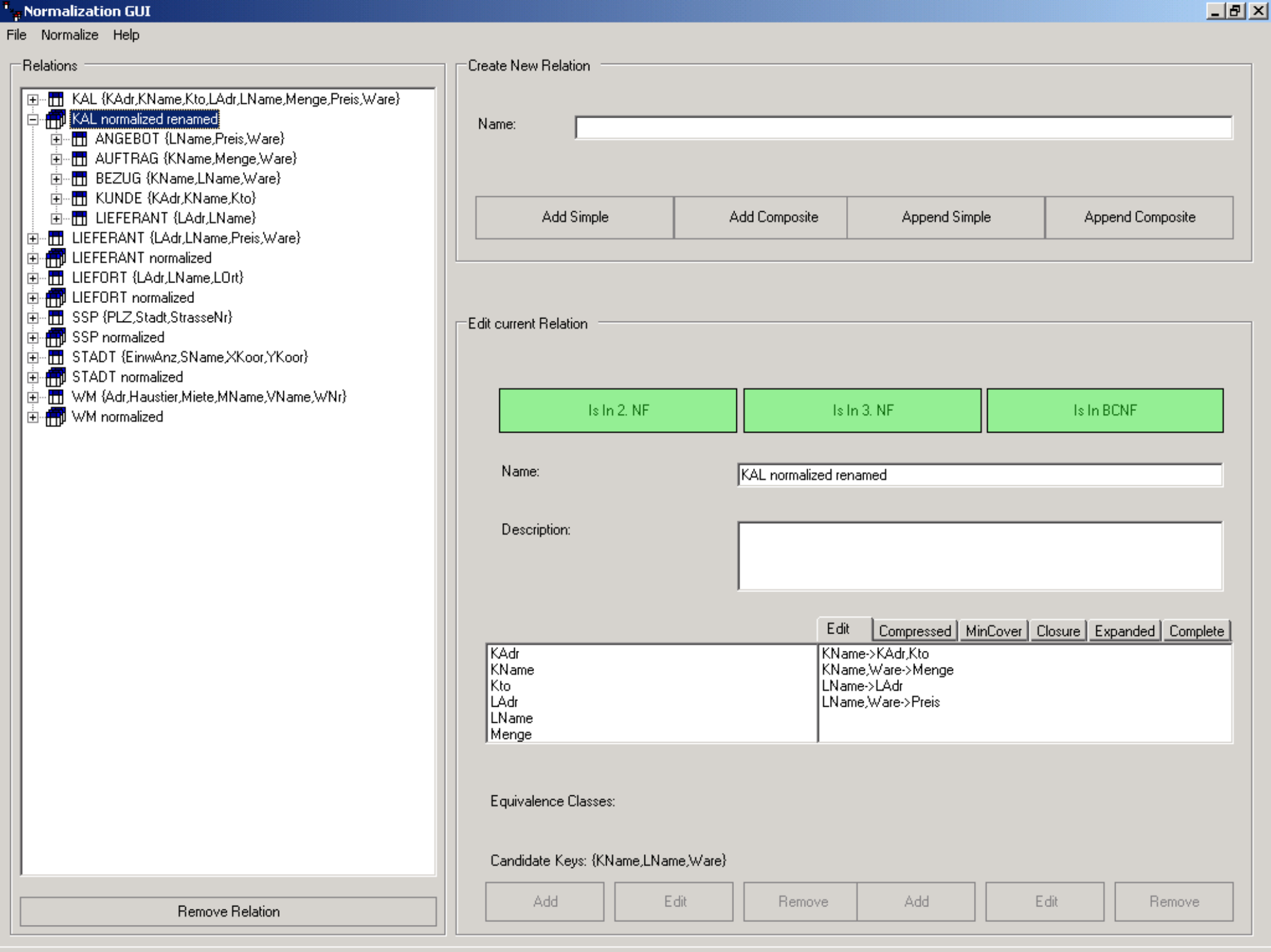
Normalisierung von Relationalen Datenbankschemta mit dem Werkzeug „Database Normalizer“

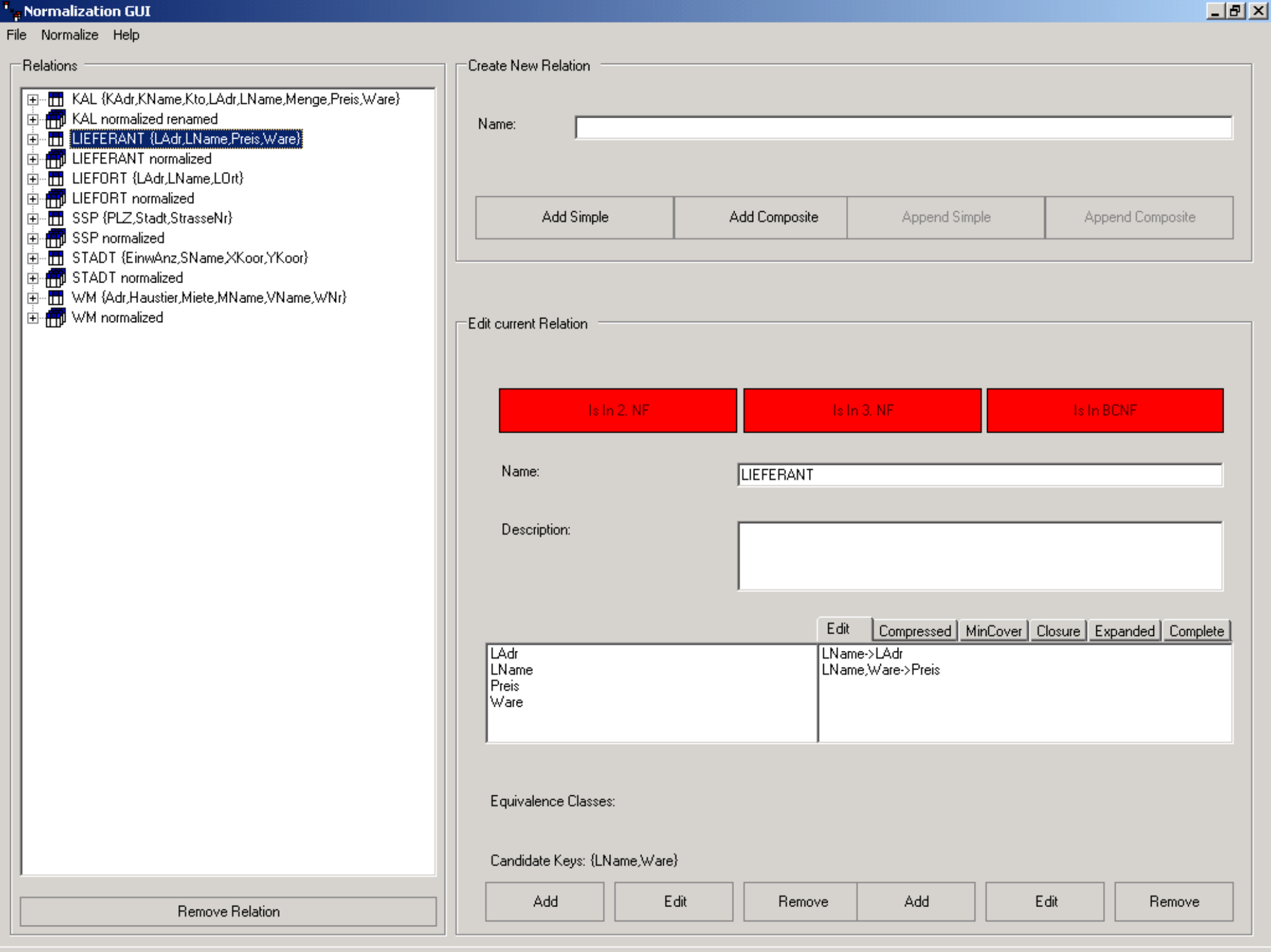
Martin Gogolla

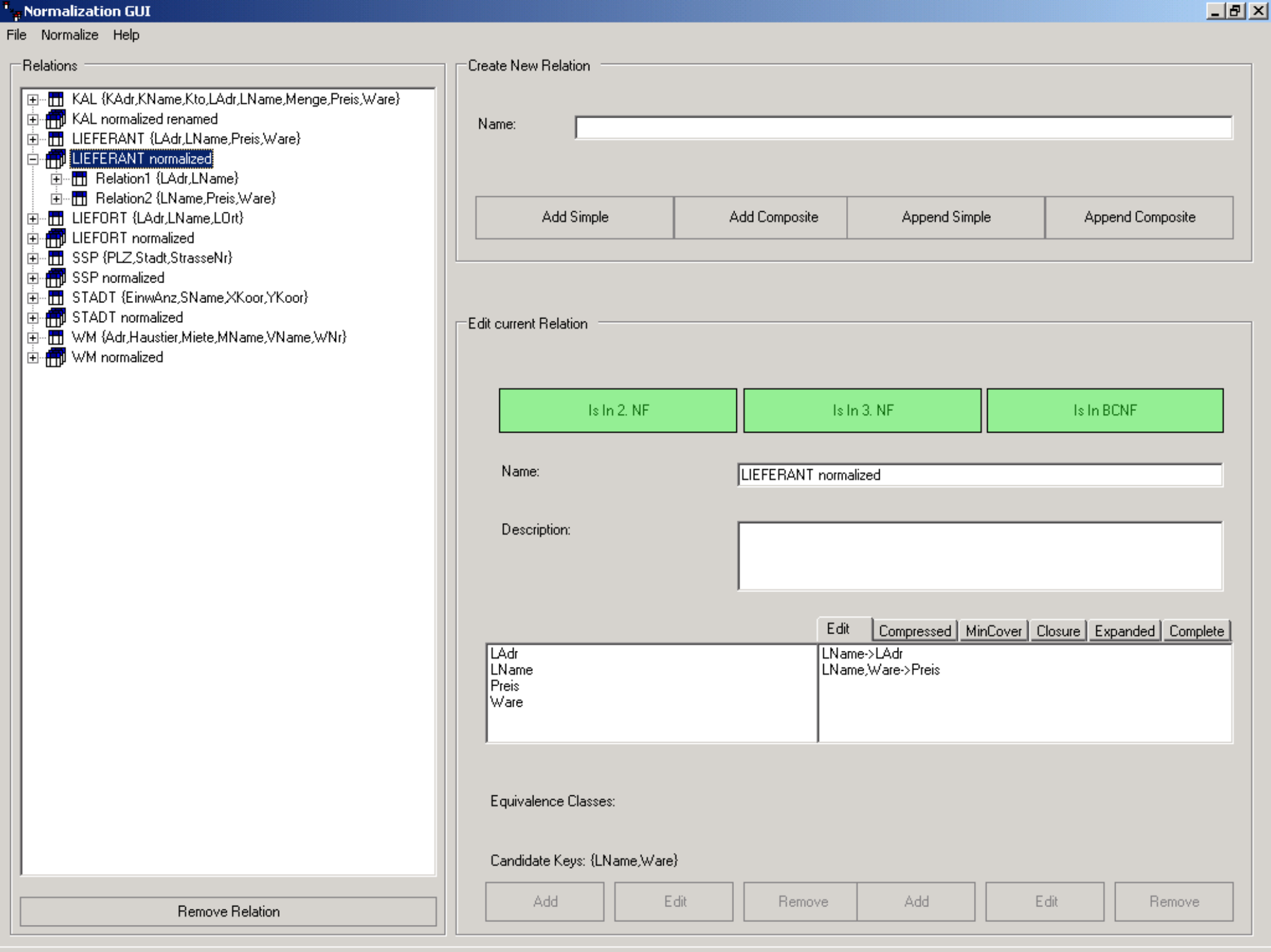
- Beispiele aus der Vorlesung Datenbanksysteme
  KAL, LIEFERANT, LIEFORT, SSP, STADT, WM

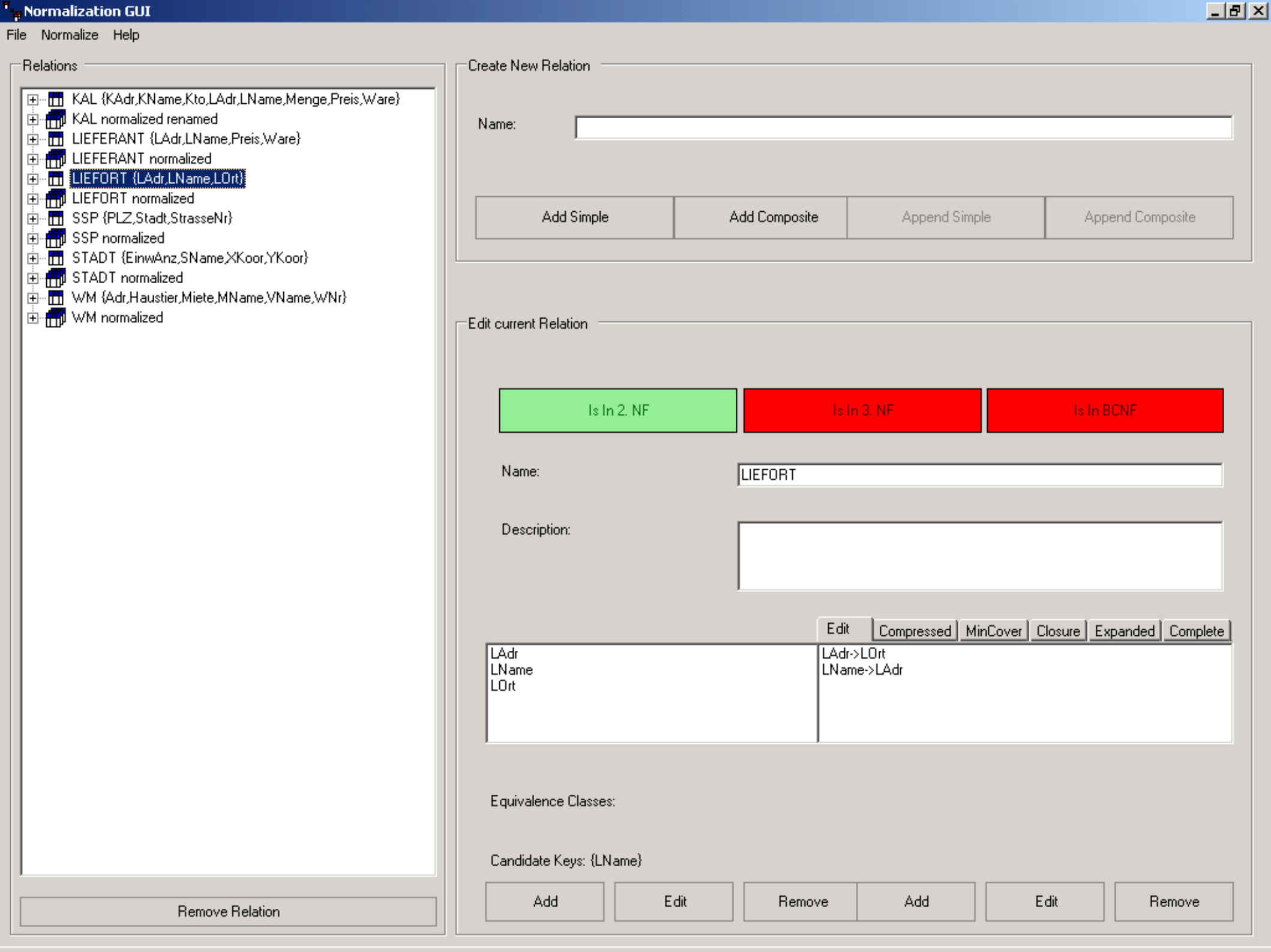
- Werkzeug Database Normalizer
  http://home.in.tum.de/~juergens/DatabaseNormalizer/index.htm

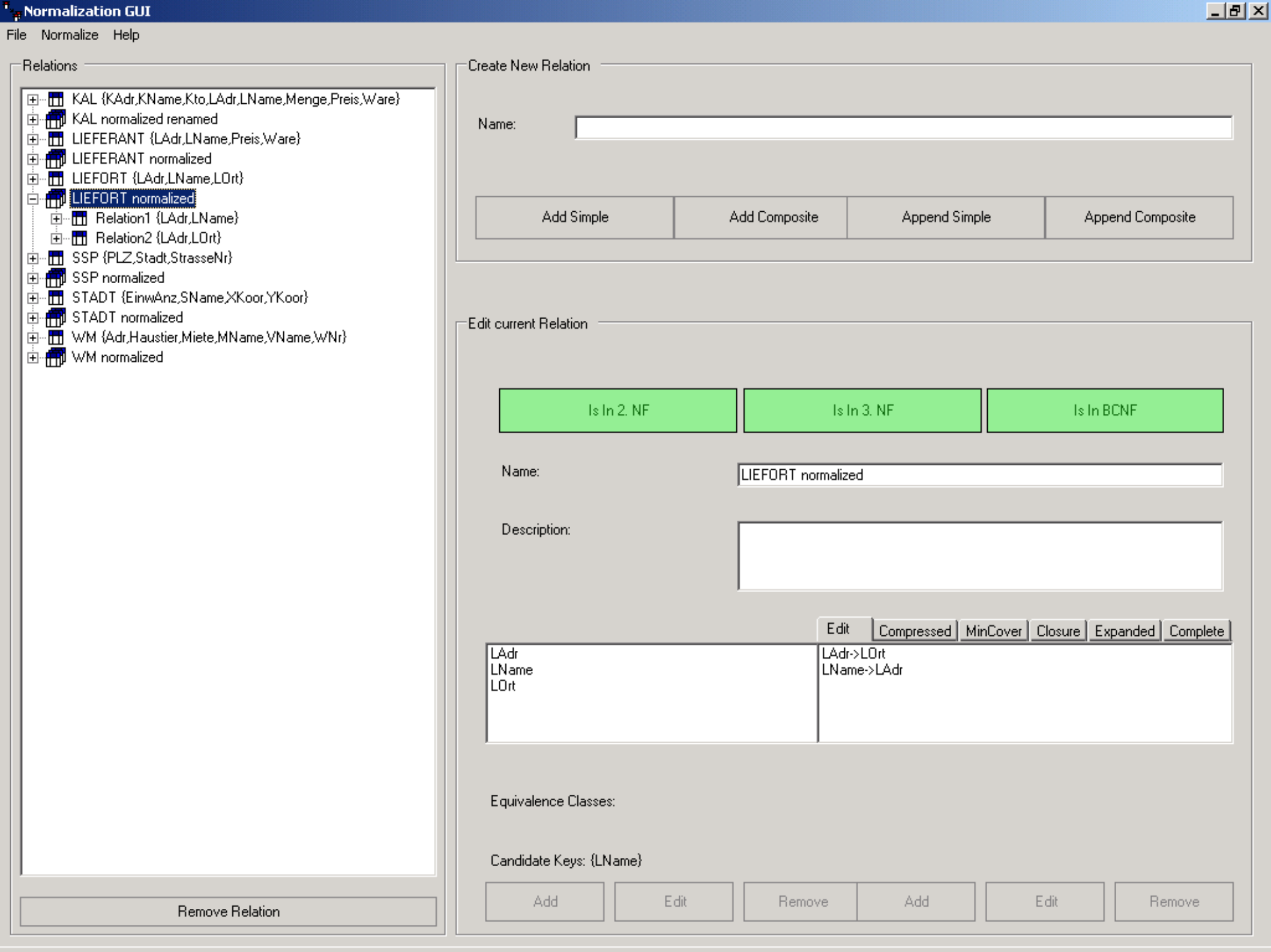

Normalization GUI
File
Normalize
Help
Relations
KAL {KAdr,KName,Kto,LAdr,LName,Menge,Preis,Ware}
KAL normalized renamed
LIEFERANT {LAdr,LName,Preis,Ware}
LIEFERANT normalized
LIEFORT {LAdr,LName,LOrt}
LIEFORT normalized
SSP {PLZ,Stadt,StrasseNr}
SSP normalized
STADT {EinwAnz,SName,XKoor,YKoor}
STADT normalized
WM {Adr,Haustier,Miete,MName,VName,WNr}
WM normalized
Remove Relation
Create New Relation
Name:
Add Simple
Add Composite
Append Simple
Append Composite
Edit current Relation
Is In 2. NF
Is In 3. NF
Is In BCNF
Name:
KAL
Description:
Edit
Compressed
MinCover
Closure
Expanded
Complete
KAdr
KName
Kto
LAdr
LName
Menge
KName->KAdr,Kto
KName,Ware->Menge
LName->LAdr
LName,Ware->Preis
Equivalence Classes:
Candidate Keys: {KName,LName,Ware}
Add
Edit
Remove
Add
Edit
Remove

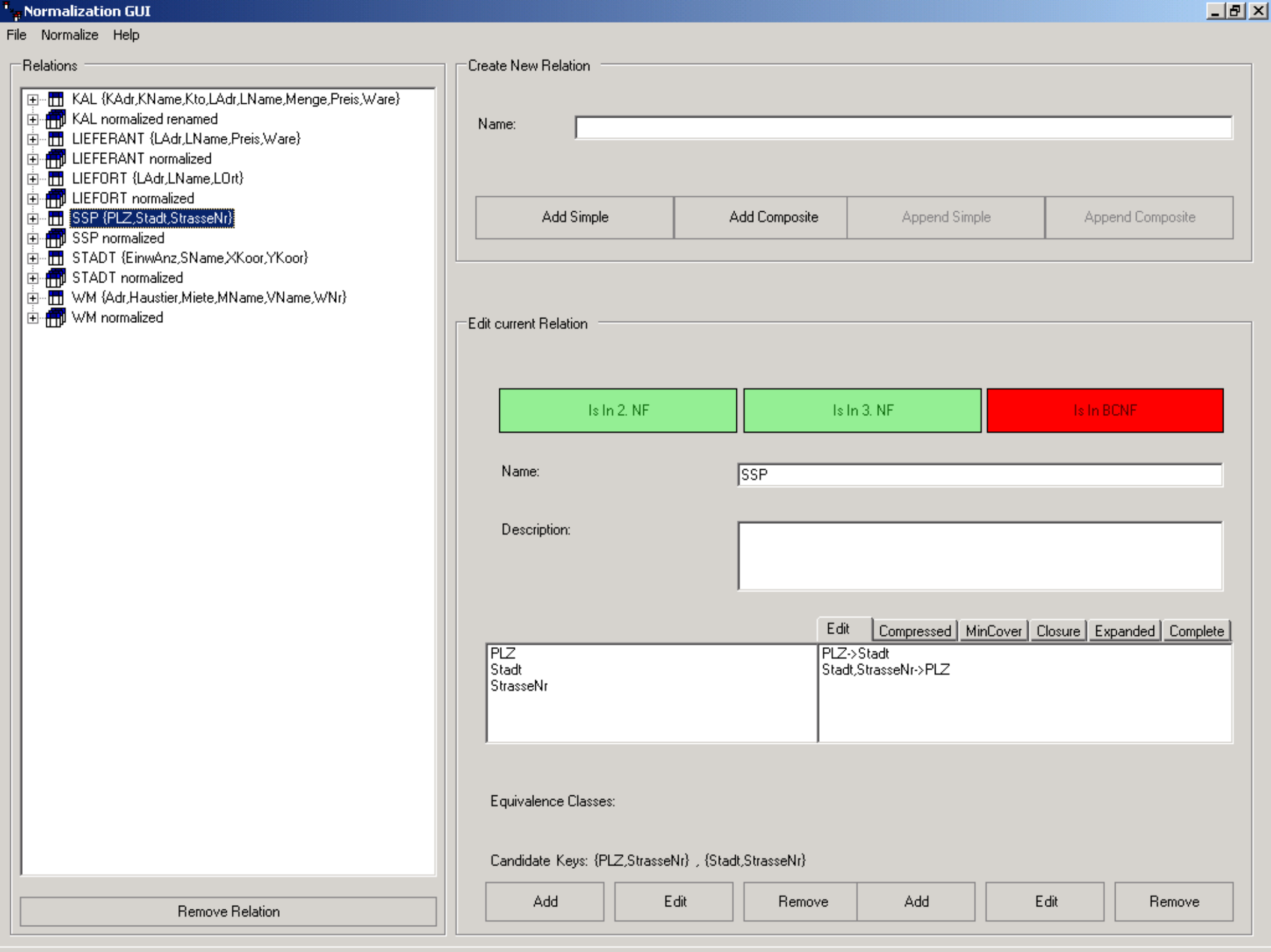

Normalization GUI
File
Normalize
Help
Relations
KAL {KAdr,KName,Kto,LAdr,LName,Menge,Preis,Ware}
KAL normalized renamed
ANGEBOT {LName,Preis,Ware}
AUFTRAG {KName,Menge,Ware}
BEZUG {KName,LName,Ware}
KUNDE {KAdr,KName,Kto}
LIEFERANT {LAdr,LName}
LIEFERANT {LAdr,LName,Preis,Ware}
LIEFERANT normalized
LIEFORT {LAdr,LName,LOrt}
LIEFORT normalized
SSP {PLZ,Stadt,StrasseNr}
SSP normalized
STADT {EinwAnz,SName,XKoor,YKoor}
STADT normalized
WM {Adr,Haustier,Miete,MName,VName,WNr}
WM normalized
Remove Relation
Create New Relation
Name:
Add Simple
Add Composite
Append Simple
Append Composite
Edit current Relation
Is In 2. NF
Is In 3. NF
Is In BCNF
Name:
KAL normalized renamed
Description:
Edit
Compressed
MinCover
Closure
Expanded
Complete
KAdr
KName
Kto
LAdr
LName
Menge
KName->KAdr,Kto
KName,Ware->Menge
LName->LAdr
LName,Ware->Preis
Equivalence Classes:
Candidate Keys: {KName,LName,Ware}
Add
Edit
Remove
Add
Edit
Remove

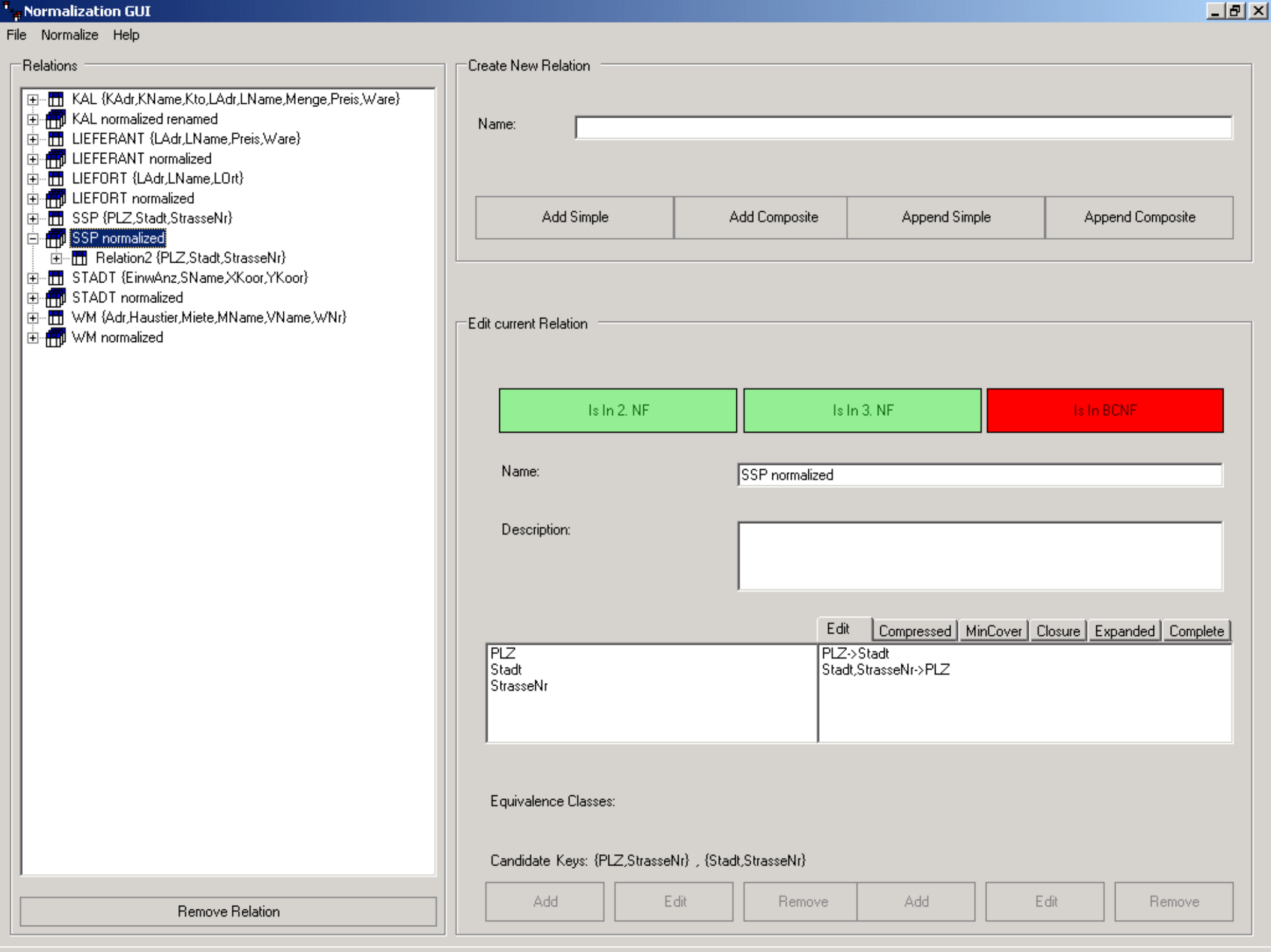

Normalization GUI
File
Normalize
Help
Relations
KAL {KAdr,KName,Kto,LAdr,LName,Menge,Preis,Ware}
KAL normalized renamed
LIEFERANT {LAdr,LName,Preis,Ware}
LIEFERANT normalized
LIEFORT {LAdr,LName,LOrt}
LIEFORT normalized
SSP {PLZ,Stadt,StrasseNr}
SSP normalized
STADT {EinwAnz,SName,XKoor,YKoor}
STADT normalized
WM {Adr,Haustier,Miete,MName,VName,WNr}
WM normalized
Remove Relation
Create New Relation
Name:
Add Simple
Add Composite
Append Simple
Append Composite
Edit current Relation
Is In 2. NF
Is In 3. NF
Is In BCNF
Name:
LIEFERANT
Description:
Edit
Compressed
MinCover
Closure
Expanded
Complete
LAdr
LName
Preis
Ware
LName->LAdr
LName,Ware->Preis
Equivalence Classes:
Candidate Keys: {LName,Ware}
Add
Edit
Remove
Add
Edit
Remove

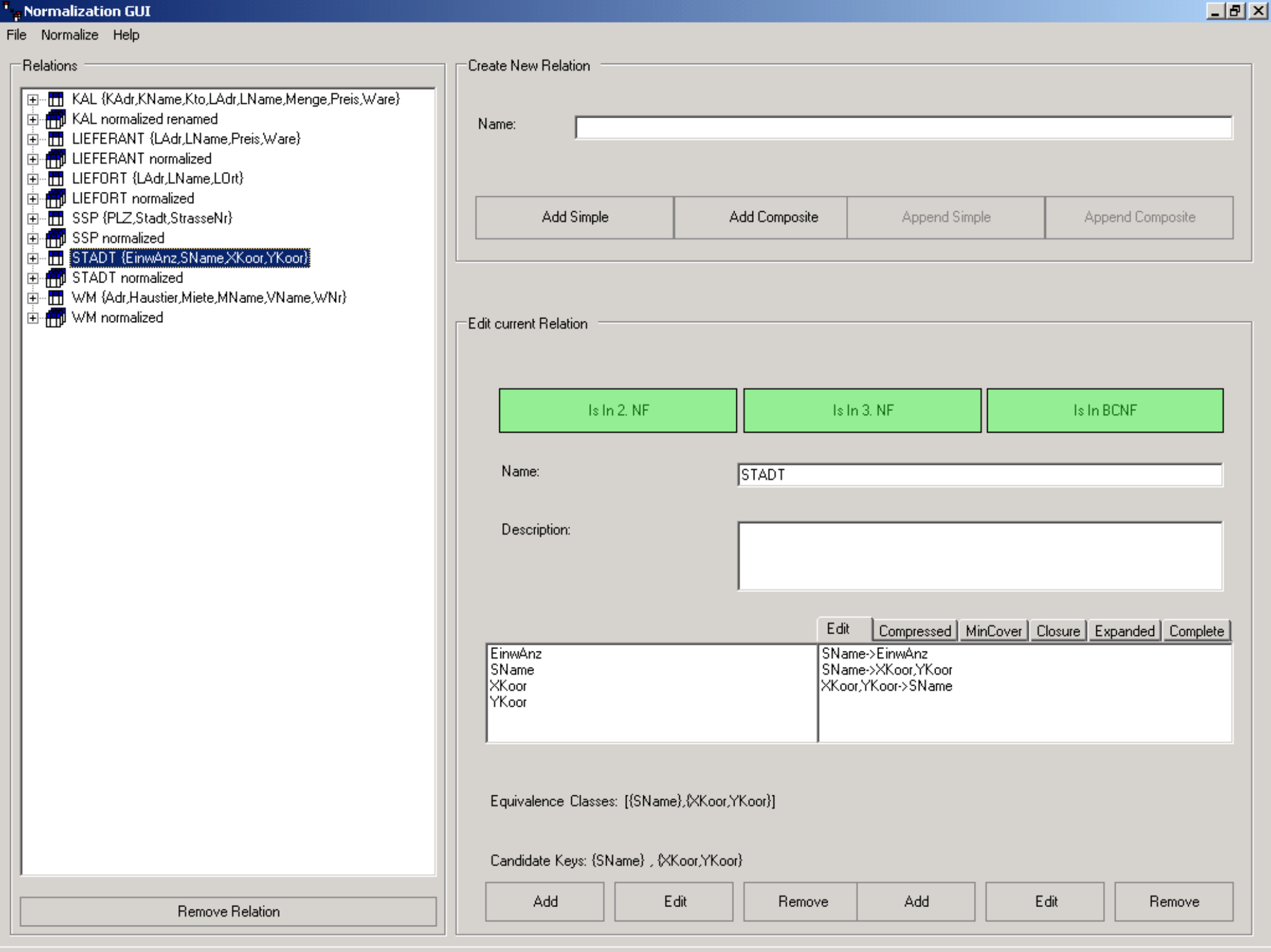

Normalization GUI
File
Normalize
Help
Relations
KAL {KAdr,KName,Kto,LAdr,LName,Menge,Preis,Ware}
KAL normalized renamed
LIEFERANT {LAdr,LName,Preis,Ware}
LIEFERANT normalized
Relation1 {LAdr,LName}
Relation2 {LName,Preis,Ware}
LIEFORT {LAdr,LName,LOrt}
LIEFORT normalized
SSP {PLZ,Stadt,StrasseNr}
SSP normalized
STADT {EinwAnz,SName,XKoor,YKoor}
STADT normalized
WM {Adr,Haustier,Miete,MName,VName,WNr}
WM normalized
Remove Relation
Create New Relation
Name:
Add Simple
Add Composite
Append Simple
Append Composite
Edit current Relation
Is In 2. NF
Is In 3. NF
Is In BCNF
Name:
LIEFERANT normalized
Description:
Edit
Compressed
MinCover
Closure
Expanded
Complete
LAdr
LName
Preis
Ware
LName->LAdr
LName,Ware->Preis
Equivalence Classes:
Candidate Keys: {LName,Ware}
Add
Edit
Remove
Add
Edit
Remove

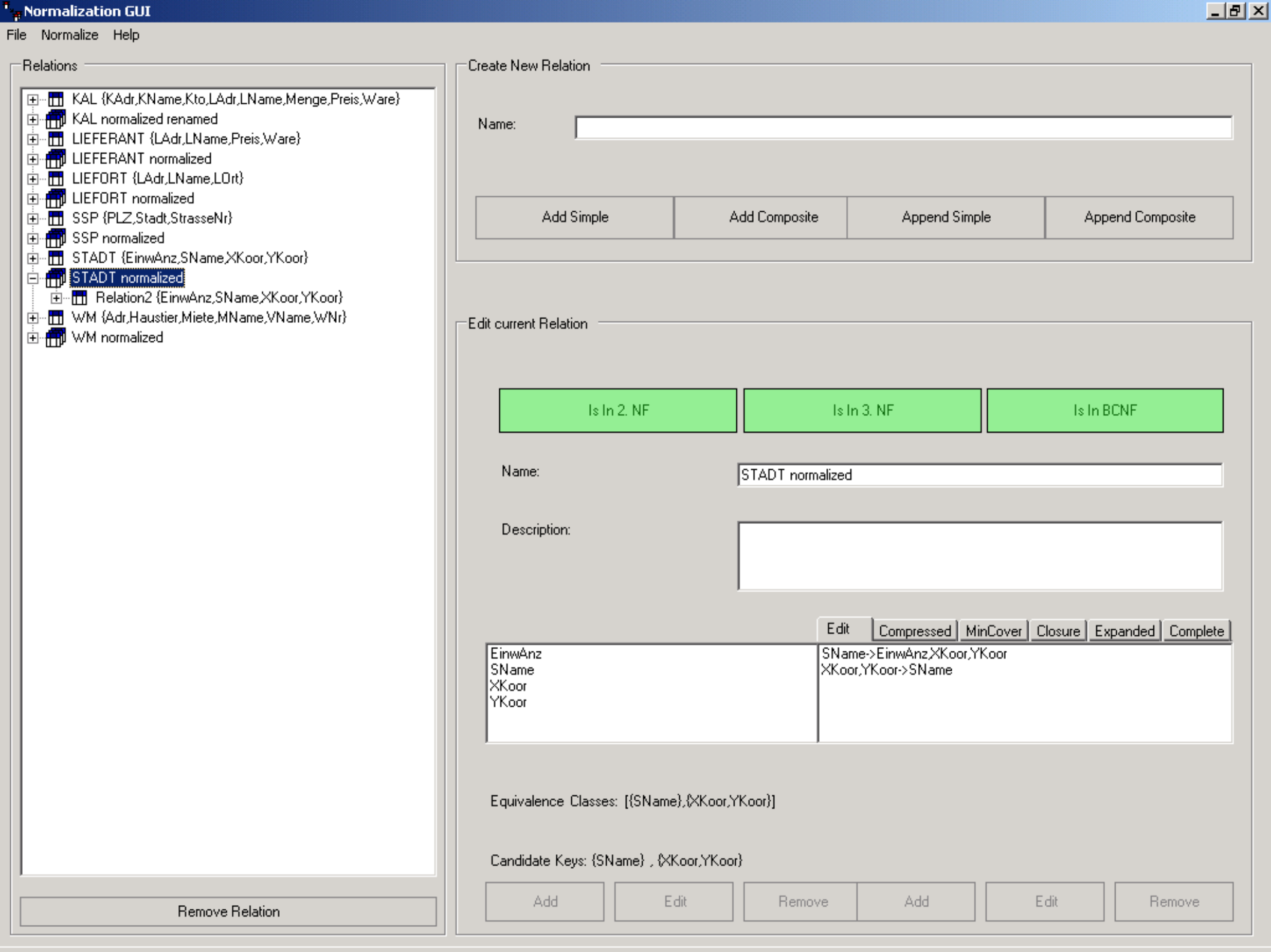

Normalization GUI
File
Normalize
Help
Relations
KAL {KAdr,KName,Kto,LAdr,LName,Menge,Preis,Ware}
KAL normalized renamed
LIEFERANT {LAdr,LName,Preis,Ware}
LIEFERANT normalized
LIEFORT {LAdr,LName,LOrt}
LIEFORT normalized
SSP {PLZ,Stadt,StrasseNr}
SSP normalized
STADT {EinwAnz,SName,XKoor,YKoor}
STADT normalized
WM {Adr,Haustier,Miete,MName,VName,WNr}
WM normalized
Remove Relation
Create New Relation
Name:
Add Simple
Add Composite
Append Simple
Append Composite
Edit current Relation
Is In 2. NF
Is In 3. NF
Is In BCNF
Name:
LIEFORT
Description:
Edit
Compressed
MinCover
Closure
Expanded
Complete
LAdr
LName
LOrt
LAdr->LOrt
LName->LAdr
Equivalence Classes:
Candidate Keys: {LName}
Add
Edit
Remove
Add
Edit
Remove


Normalization GUI
File
Normalize
Help
Relations
KAL {KAdr,KName,Kto,LAdr,LName,Menge,Preis,Ware}
KAL normalized renamed
LIEFERANT {LAdr,LName,Preis,Ware}
LIEFERANT normalized
LIEFORT {LAdr,LName,LOrt}
LIEFORT normalized
Relation1 {LAdr,LName}
Relation2 {LAdr,LOrt}
SSP {PLZ,Stadt,StrasseNr}
SSP normalized
STADT {EinwAnz,SName,XKoor,YKoor}
STADT normalized
WM {Adr,Haustier,Miete,MName,VName,WNr}
WM normalized
Remove Relation
Create New Relation
Name:
Add Simple
Add Composite
Append Simple
Append Composite
Edit current Relation
Is In 2. NF
Is In 3. NF
Is In BCNF
Name:
LIEFORT normalized
Description:
Edit
Compressed
MinCover
Closure
Expanded
Complete
LAdr
LName
LOrt
LAdr->LOrt
LName->LAdr
Equivalence Classes:
Candidate Keys: {LName}
Add
Edit
Remove
Add
Edit
Remove


Normalization GUI
File
Normalize
Help
Relations
KAL {KAdr,KName,Kto,LAdr,LName,Menge,Preis,Ware}
KAL normalized renamed
LIEFERANT {LAdr,LName,Preis,Ware}
LIEFERANT normalized
LIEFORT {LAdr,LName,LOrt}
LIEFORT normalized
SSP {PLZ,Stadt,StrasseNr}
SSP normalized
STADT {EinwAnz,SName,XKoor,YKoor}
STADT normalized
WM {Adr,Haustier,Miete,MName,VName,WNr}
WM normalized
Remove Relation
Create New Relation
Name:
Add Simple
Add Composite
Append Simple
Append Composite
Edit current Relation
Is In 2. NF
Is In 3. NF
Is In BCNF
Name:
SSP
Description:
Edit
Compressed
MinCover
Closure
Expanded
Complete
PLZ
Stadt
StrasseNr
PLZ->Stadt
Stadt,StrasseNr->PLZ
Equivalence Classes:
Candidate Keys: {PLZ,StrasseNr} , {Stadt,StrasseNr}
Add
Edit
Remove
Add
Edit
Remove


Normalization GUI
File
Normalize
Help
Relations
KAL {KAdr,KName,Kto,LAdr,LName,Menge,Preis,Ware}
KAL normalized renamed
LIEFERANT {LAdr,LName,Preis,Ware}
LIEFERANT normalized
LIEFORT {LAdr,LName,LOrt}
LIEFORT normalized
SSP {PLZ,Stadt,StrasseNr}
SSP normalized
Relation2 {PLZ,Stadt,StrasseNr}
STADT {EinwAnz,SName,XKoor,YKoor}
STADT normalized
WM {Adr,Haustier,Miete,MName,VName,WNr}
WM normalized
Remove Relation
Create New Relation
Name:
Add Simple
Add Composite
Append Simple
Append Composite
Edit current Relation
Is In 2. NF
Is In 3. NF
Is In BCNF
Name:
SSP normalized
Description:
Edit
Compressed
MinCover
Closure
Expanded
Complete
PLZ
Stadt
StrasseNr
PLZ->Stadt
Stadt,StrasseNr->PLZ
Equivalence Classes:
Candidate Keys: {PLZ,StrasseNr} , {Stadt,StrasseNr}
Add
Edit
Remove
Add
Edit
Remove


Normalization GUI
File
Normalize
Help
Relations
KAL {KAdr,KName,Kto,LAdr,LName,Menge,Preis,Ware}
KAL normalized renamed
LIEFERANT {LAdr,LName,Preis,Ware}
LIEFERANT normalized
LIEFORT {LAdr,LName,LOrt}
LIEFORT normalized
SSP {PLZ,Stadt,StrasseNr}
SSP normalized
STADT {EinwAnz,SName,XKoor,YKoor}
STADT normalized
WM {Adr,Haustier,Miete,MName,VName,WNr}
WM normalized
Remove Relation
Create New Relation
Name:
Add Simple
Add Composite
Append Simple
Append Composite
Edit current Relation
Is In 2. NF
Is In 3. NF
Is In BCNF
Name:
STADT
Description:
Edit
Compressed
MinCover
Closure
Expanded
Complete
EinwAnz
SName
XKoor
YKoor
SName->EinwAnz
SName->XKoor,YKoor
XKoor,YKoor->SName
Equivalence Classes: [{SName},{XKoor,YKoor}]
Candidate Keys: {SName} , {XKoor,YKoor}
Add
Edit
Remove
Add
Edit
Remove


Normalization GUI
File
Normalize
Help
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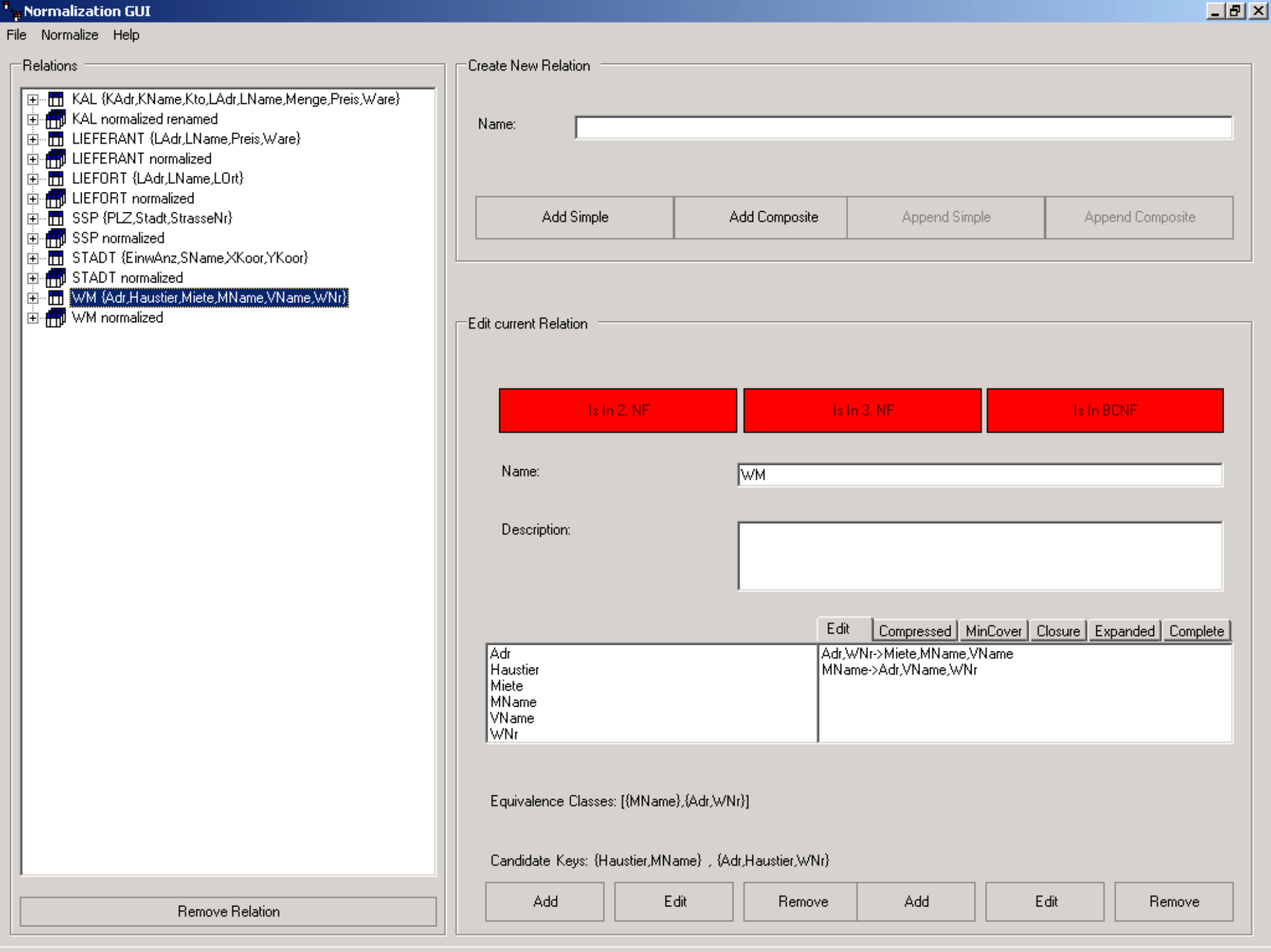
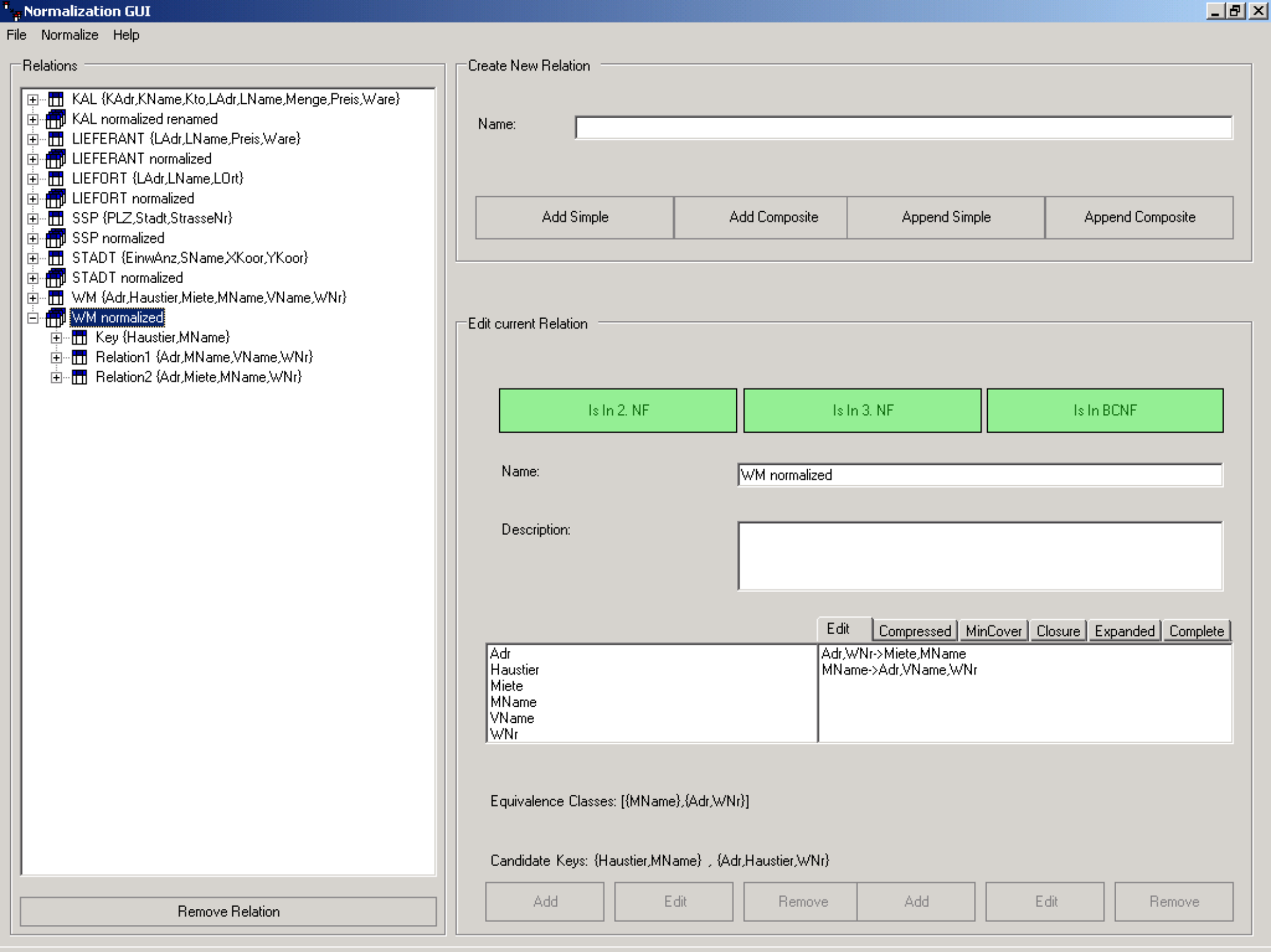
KAL {KAdr,KName,Kto,LAdr,LName,Menge,Preis,Ware}
KAL normalized renamed
LIEFERANT {LAdr,LName,Preis,Ware}
LIEFERANT normalized
LIEFORT {LAdr,LName,LOrt}
LIEFORT normalized
SSP {PLZ,Stadt,StrasseNr}
SSP normalized
STADT {EinwAnz,SName,XKoor,YKoor}
STADT normalized
Relation2 {EinwAnz,SName,XKoor,YKoor}
WM {Adr,Haustier,Miete,MName,VName,WNr}
WM normalized
Remove Relation
Create New Relation
Name:
Add Simple
Add Composite
Append Simple
Append Composite
Edit current Relation
Is In 2. NF
Is In 3. NF
Is In BCNF
Name:
STADT normalized
Description:
Edit
Compressed
MinCover
Closure
Expanded
Complete
EinwAnz
SName
XKoor
YKoor
SName->EinwAnz,XKoor,YKoor
XKoor,YKoor->SName
Equivalence Classes: [{SName},{XKoor,YKoor}]
Candidate Keys: {SName} , {XKoor,YKoor}
Add
Edit
Remove
Add
Edit
Remove


Normalization GUI
File
Normalize
Help
Relations
KAL {KAdr,KName,Kto,LAdr,LName,Menge,Preis,Ware}
KAL normalized renamed
LIEFERANT {LAdr,LName,Preis,Ware}
LIEFERANT normalized
LIEFORT {LAdr,LName,LOrt}
LIEFORT normalized
SSP {PLZ,Stadt,StrasseNr}
SSP normalized
STADT {EinwAnz,SName,XKoor,YKoor}
STADT normalized
WM {Adr,Haustier,Miete,MName,VName,WNr}
WM normalized
Remove Relation
Create New Relation
Name:
Add Simple
Add Composite
Append Simple
Append Composite
Edit current Relation
Is In 2. NF
Is In 3. NF
Is In BCNF
Name:
WM
Description:
Edit
Compressed
MinCover
Closure
Expanded
Complete
Adr
Haustier
Miete
MName
VName
WNr
Adr,WNr->Miete,MName,VName
MName->Adr,VName,WNr
Equivalence Classes: [{MName},{Adr,WNr}]
Candidate Keys: {Haustier,MName} , {Adr,Haustier,WNr}
Add
Edit
Remove
Add
Edit
Remove


Normalization GUI
File
Normalize
Help
Relations
KAL {KAdr,KName,Kto,LAdr,LName,Menge,Preis,Ware}
KAL normalized renamed
LIEFERANT {LAdr,LName,Preis,Ware}
LIEFERANT normalized
LIEFORT {LAdr,LName,LOrt}
LIEFORT normalized
SSP {PLZ,Stadt,StrasseNr}
SSP normalized
STADT {EinwAnz,SName,XKoor,YKoor}
STADT normalized
WM {Adr,Haustier,Miete,MName,VName,WNr}
WM normalized
Key {Haustier,MName}
Relation1 {Adr,MName,VName,WNr}
Relation2 {Adr,Miete,MName,WNr}
Remove Relation
Create New Relation
Name:
Add Simple
Add Composite
Append Simple
Append Composite
Edit current Relation
Is In 2. NF
Is In 3. NF
Is In BCNF
Name:
WM normalized
Description:
Edit
Compressed
MinCover
Closure
Expanded
Complete
Adr
Haustier
Miete
MName
VName
WNr
Adr,WNr->Miete,MName
MName->Adr,VName,WNr
Equivalence Classes: [{MName},{Adr,WNr}]
Candidate Keys: {Haustier,MName} , {Adr,Haustier,WNr}
Add
Edit
Remove
Add
Edit
Remove