

# RFX and invar[x]

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<< goedel52.L03; << tests.m

:Package Title: GOEDEL52.L03      2001 October 28 at 4:50 p.m.

It is now:  2001 Oct 28 at 17:11

Loading Simplification Rules

TESTS.M                      Revised 2001 October 18

weightlimit = 30

Context switch to `Goedel`Private is needed for ReplaceTest

Just ignore the error message about Unterminated use of BeginPackage

Get::bebal : Unterminated uses of BeginPackage or Begin in << tests.m.

invar[composite[E, id[complement[x]]]]

P[x]

composite[E, id[complement[cart[V, V]]]]

composite[inverse[IMAGE[id[complement[cart[V, V]]]]], E]

composite[inverse[IMAGE[id[complement[cart[V, V]]]]], E] // invar

P[cart[V, V]]

invar[union[x, y]]

intersection[invar[x], invar[y]]

intersection[invar[composite[DUP, FIRST]], invar[composite[DUP, SECOND]], P[cart[V, V]]]

RFX

union[composite[DUP, union[FIRST, SECOND]], composite[E, id[complement[cart[V, V]]]]]

union[composite[DUP, FIRST], composite[DUP, SECOND],
  composite[inverse[IMAGE[id[complement[cart[V, V]]]]], E]]

union[composite[DUP, FIRST], composite[DUP, SECOND],
  composite[inverse[IMAGE[id[complement[cart[V, V]]]]], E] // DoubleComplement

union[composite[DUP, FIRST], composite[DUP, SECOND],
  composite[inverse[IMAGE[id[complement[cart[V, V]]]]], E] ==
  union[composite[inverse[IMAGE[id[complement[cart[V, V]]]]], E],
  composite[inverse[E], IMAGE[DUP], PAIRSET]]

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invar[composite[inverse[E], IMAGE[DUP], PAIRSET]] // Normality

invar[composite[inverse[E], IMAGE[DUP], PAIRSET]] ==
  image[inverse[IMAGE[id[cart[V, V]]]], RFX]

invar[composite[inverse[E], IMAGE[DUP], PAIRSET]] :=
  image[inverse[IMAGE[id[cart[V, V]]]], RFX]

union[composite[inverse[IMAGE[id[complement[cart[V, V]]]]], E],
  composite[inverse[E], IMAGE[DUP], PAIRSET]] // invar

RFX

SubstTest[Uclosure, invar[x],
  x -> union[composite[inverse[IMAGE[id[complement[cart[V, V]]]]], E],
  composite[inverse[E], IMAGE[DUP], PAIRSET]]

Uclosure[RFX] == RFX

Uclosure[RFX] := RFX

SubstTest[Aclosure, invar[x],
  x -> union[composite[inverse[IMAGE[id[complement[cart[V, V]]]]], E],
  composite[inverse[E], IMAGE[DUP], PAIRSET]]

Aclosure[RFX] == RFX

Aclosure[RFX] := RFX

SubstTest[fix, CORE[invar[x]],
  x -> union[composite[inverse[IMAGE[id[complement[cart[V, V]]]]], E],
  composite[inverse[E], IMAGE[DUP], PAIRSET]]

fix[CORE[RFX]] == RFX

fix[CORE[RFX]] := RFX

SubstTest[range, CORE[invar[x]],
  x -> union[composite[inverse[IMAGE[id[complement[cart[V, V]]]]], E],
  composite[inverse[E], IMAGE[DUP], PAIRSET]]

range[CORE[RFX]] == RFX

range[CORE[RFX]] := RFX

SubstTest[composite, CORE[invar[x]], CORE[invar[x]],
  x -> union[composite[inverse[IMAGE[id[complement[cart[V, V]]]]], E],
  composite[inverse[E], IMAGE[DUP], PAIRSET]]

composite[CORE[RFX], CORE[RFX]] == CORE[RFX]

composite[CORE[RFX], CORE[RFX]] := CORE[RFX]

SubstTest[composite, CORE[invar[x]], id[fix[CORE[invar[x]]]],
  x -> union[composite[inverse[IMAGE[id[complement[cart[V, V]]]]], E],
  composite[inverse[E], IMAGE[DUP], PAIRSET]]

composite[CORE[RFX], id[RFX]] == id[RFX]

composite[CORE[RFX], id[RFX]] := id[RFX]

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## ■ intersection[RFX,SYM] formulas

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intersection[invar[SWAP], P[cart[V, V]]]
SYM
AssInt[RFX, P[cart[V, V]], invar[SWAP]] // Reverse
intersection[RFX, invar[SWAP]] == intersection[RFX, SYM]
intersection[RFX, invar[SWAP]] := intersection[RFX, SYM]
union[composite[inverse[IMAGE[id[complement[cart[V, V]]]]], E],
      composite[inverse[E], IMAGE[DUP], PAIRSET], SWAP] // invar
intersection[RFX, SYM]
temporary = union[composite[inverse[IMAGE[id[complement[cart[V, V]]]]], E],
                  composite[inverse[E], IMAGE[DUP], PAIRSET], SWAP];
SubstTest[Aclosure, invar[x], x -> temporary]
Aclosure[intersection[RFX, SYM]] == intersection[RFX, SYM]
Aclosure[intersection[RFX, SYM]] := intersection[RFX, SYM]
SubstTest[Uclosure, invar[x], x -> temporary]
Uclosure[intersection[RFX, SYM]] == intersection[RFX, SYM]
Uclosure[intersection[RFX, SYM]] := intersection[RFX, SYM]
SubstTest[fix, CORE[invar[x]], x -> temporary]
fix[CORE[intersection[RFX, SYM]]] == intersection[RFX, SYM]
fix[CORE[intersection[RFX, SYM]]] := intersection[RFX, SYM]
SubstTest[range, CORE[invar[x]], x -> temporary]
range[CORE[intersection[RFX, SYM]]] == intersection[RFX, SYM]
range[CORE[intersection[RFX, SYM]]] := intersection[RFX, SYM]
SubstTest[composite, CORE[invar[x]], CORE[invar[x]], x -> temporary]
composite[CORE[intersection[RFX, SYM]], CORE[intersection[RFX, SYM]]] ==
  CORE[intersection[RFX, SYM]]
composite[CORE[intersection[RFX, SYM]], CORE[intersection[RFX, SYM]]] :=
  CORE[intersection[RFX, SYM]]
SubstTest[composite, CORE[invar[x]], id[fix[CORE[invar[x]]]], x -> temporary]
composite[CORE[intersection[RFX, SYM]], id[intersection[RFX, SYM]]] ==
  id[intersection[RFX, SYM]]

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composite[CORE[intersection[RFX, SYM]], id[intersection[RFX, SYM]] :=  
  id[intersection[RFX, SYM]]
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