Demonstration of Tests of Conversion of PM Dot Notation to Parentheses

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SECTION 0. VERIFICATION TESTS (of dot to paren dot icn)
For each proposition is given:
1: the PM notation with dots.
2: the notation with parentheses
3: the Polish (with Lukasiewicz symbols) notation

$*2{\cdot}06 \vdash :. p \supset q . \supset : q \supset r . \supset . p \supset r$
Version with parentheses
$*2{\cdot}06 \vdash (p \supset q) \supset ((q \supset r) \supset (p \supset r))$
Polish Lukasiewicz notation
$*2{\cdot}06 \vdash CCpqCCqrCpr$
$*3{\cdot}47 \vdash :. p \supset r . q \supset s . \supset : p . q . \supset . r . s$
Version with parentheses
$*3{\cdot}47 \vdash (p \supset r) \wedge (q \supset s) \supset ((p) \wedge (q) \supset (r) \wedge (s))$
Polish Lukasiewicz notation
$*3{\cdot}47 \vdash CKCprCqsKCKpqrs$
$*4{\cdot}22 \vdash : p \equiv q . q \equiv r . \supset . p \equiv r$
Version with parentheses
$*4{\cdot}22 \vdash (p \equiv q) \wedge (q \equiv r) \supset (p \equiv r)$
Polish Lukasiewicz notation
$*4{\cdot}22 \vdash CKEpqEqrEpr$
$*4{\cdot}41 \vdash :. p . \vee . q . r : \equiv . p \vee q . p \vee r$
Version with parentheses
$*4{\cdot}41 \vdash ((p) \vee (q) \wedge (r)) \equiv (p \vee q) \wedge (p \vee r)$
Polish Lukasiewicz notation
$*4{\cdot}41 \vdash KEKApqrApqApr$
$*4{\cdot}43 \vdash :. p . \equiv : p \vee q . p \vee \sim q$
Version with parentheses
$*4{\cdot}43 \vdash (p) \equiv ((p \vee q) \wedge (p \vee \sim q))$

Polish Lukasiewicz notation
$*4{\cdot}43 \vdash EpKApqApNq$
$*4{\cdot}44 \vdash :. p . \equiv : p . \vee . p . q$
Version with parentheses
$*4{\cdot}44 \vdash (p) \equiv ((p) \vee (p) \wedge (q))$
Polish Lukasiewicz notation
$*4{\cdot}44 \vdash EpKAppq$
$*4{\cdot}87 \vdash :. p . q . \supset . r : \equiv : p . \supset . q \supset r : \equiv : q . \supset . p \supset r : \equiv : q . p . \supset . r$
Version with parentheses
$*4{\cdot}87 \vdash ((p) \wedge (q) \supset (r)) \equiv ((p) \supset (q \supset r)) \equiv ((q) \supset (p \supset r)) \equiv ((q) \wedge (p) \supset (r))$
Polish Lukasiewicz notation
$*4{\cdot}87 \vdash EEECKpqrCpCqrCqCprCKqpr$
$*4{\cdot}88 \vdash :. p . q . \supset . r . \equiv : p . \supset . q \supset r : \equiv : q . \supset . p \supset r : \equiv : q . p . \supset . r$
Version with parentheses
$*4{\cdot}88 \vdash (p) \wedge (q) \supset (r) \equiv ((p) \supset (q \supset r)) \equiv ((q) \supset (p \supset r)) \equiv ((q) \wedge (p) \supset (r))$
Polish Lukasiewicz notation
$*4{\cdot}88 \vdash EEECKpqrCpCqrCqCprCKqpr$
$*5{\cdot}33 \vdash :. p . q \supset r . \equiv : p : p . q . \supset . r$
Version with parentheses
$*5{\cdot}33 \vdash (p) \wedge (q \supset r) \equiv (p) \wedge ((p) \wedge (q) \supset (r))$
Polish Lukasiewicz notation
$*5{\cdot}33 \vdash KEKpCqrpCKpqr$
From Landon D. C. Elkind's Paper in Russell: Vol. 43, no. 1, page 44
$*431{\cdot}441 \vdash . p \vee q . \equiv . r \supset s$
Version with parentheses
$*431{\cdot}441 \vdash (p \vee q) \equiv (r \supset s)$
Polish Lukasiewicz notation
$*431{\cdot}441 \vdash EApqCrs$
$*431{\cdot}442 \vdash : p . \vee . q \equiv r : \supset : s$
Version with parentheses
$*431{\cdot}442 \vdash ((p) \vee (q \equiv r)) \supset ((s))$
Polish Lukasiewicz notation
$*431{\cdot}442 \vdash CApEqrs$
$*431{\cdot}443 \vdash : p \vee q . \equiv . r : \supset : s$
Version with parentheses
$*431{\cdot}443 \vdash ((p \vee q) \equiv (r)) \supset ((s))$
Polish Lukasiewicz notation
$*431{\cdot}443 \vdash CEApqrs$
$*431{\cdot}444 \vdash : p : \vee : q \equiv r . \supset . s$
Version with parentheses
$*431{\cdot}444 \vdash (p) \vee ((q \equiv r) \supset (s))$
Polish Lukasiewicz notation

$*431{\cdot}444 \vdash ApCEqrs$
$*431{\cdot}445 \vdash :p:\vee:q.\equiv.r \supset s$
Version with parentheses
$*431{\cdot}445 \vdash (p) \vee ((q) \equiv (r \supset s))$
Polish Lukasiewicz notation
$*431{\cdot}445 \vdash ApEqCrs$
From same, page 54
$*431{\cdot}54 \vdash :p.q:r.s:\supset:p.s:r.q$
Version with parentheses
$*431{\cdot}54 \vdash ((p) \wedge (q)) \wedge ((r) \wedge (s)) \supset ((p) \wedge (s)) \wedge ((r) \wedge (q))$
Polish Lukasiewicz notation
$*431{\cdot}54 \vdash KCKKpqKrsKpsKrq$
check longer prop name
Version with parentheses
Polish Lukasiewicz notation
Propositions involving quantifiers
$*9{\cdot}2 \vdash :(x).psix.\supset.psiy$
Version with parentheses
$*9{\cdot}2 \vdash (((x))psix) \supset (psiy)$
Polish Lukasiewicz notation
$*9{\cdot}2 \vdash C(x)psixpsiy$
$*9{\cdot}21 \vdash :.(x).psix \supset phix.\supset:(x).psix.\supset.(x).phix$
Version with parentheses
$*9{\cdot}21 \vdash (((x))psix \supset phix) \supset (((x))psix) \supset ((x))phix$
Polish Lukasiewicz notation
$*9{\cdot}21 \vdash CCC(x)psixphix(x)psix(x)phix$
$*9{\cdot}22 \vdash :.(x).psix \supset phix.\supset:(\exists x).psix.\supset.(\exists x).phix$
Version with parentheses
$*9{\cdot}22 \vdash (((x))psix \supset phix) \supset (((\exists x))psix) \supset ((\exists x))phix$
Polish Lukasiewicz notation
$*9{\cdot}22 \vdash CCC(x)psixphix(\exists x)psix(\exists x)phix$
$*9{\cdot}31 \vdash :.(\exists x).phix.\vee.(\exists x).phix:\supset.(\exists x).phix$
Version with parentheses
$*9{\cdot}31 \vdash (((((\exists x))phix) \vee ((\exists x))phix)) \supset ((\exists x))phix$
Polish Lukasiewicz notation
$*9{\cdot}31 \vdash CA(\exists x)phix(\exists x)phix(\exists x)phix$
$*9{\cdot}401 \vdash ::p:\vee:q.\vee.(\exists x).psix:.\supset:.q:\vee:p.\vee.(\exists x).psix$
Version with parentheses
$*9{\cdot}401 \vdash (((p) \vee ((q) \vee ((\exists x))psix))) \supset ((q) \vee ((p) \vee ((\exists x))psix))$
Polish Lukasiewicz notation
$*9{\cdot}401 \vdash CApAq(\exists x)psixAqAp(\exists x)psix$
$*10{\cdot}35 \vdash :.(\exists x).p.psix.\equiv:p:(\exists x).psix$

Version with parentheses
$*10{\cdot}35 \vdash (((\exists x))p) \wedge (psix) \equiv (p) \wedge (((\exists x))psix)$
Polish Lukasiewicz notation
$*10{\cdot}35 \vdash KEK(\exists x)ppsixp(\exists x)psix$
$*11{\cdot}2 \vdash :(x,y).phi[x,y].\equiv.(y,x).phi[x,y]$
Version with parentheses
$*11{\cdot}2 \vdash ((x,y).phi[x,y]) \equiv ((y,x).phi[x,y])$
Polish Lukasiewicz notation
$*11{\cdot}2 \vdash E(x,y).phi[x,y](y,x).phi[x,y]$
One Step in proof of 11.55 I wanted example of 2 adjacent quantifiers - hard to find.
$*11{\cdot}551 \vdash :.(x):.(\exists y).psix.phi[x,y].\equiv :psix:(\exists y).phi[x,y]$
Version with parentheses
$*11{\cdot}551 \vdash ((((x))(\exists y))psix) \wedge (phi[x,y]) \equiv (psix) \wedge (((\exists y))phi[x,y])$
Polish Lukasiewicz notation
$*11{\cdot}551 \vdash KEK(x)(\exists y)psixphi[x,y]psix(\exists y)phi[x,y]$
From same, page 46
$*431{\cdot}46 \vdash :(x).psix.phix.\supset.(x).psix$
Version with parentheses
$*431{\cdot}46 \vdash (((x))psix) \wedge (phix) \supset ((x))psix$
Polish Lukasiewicz notation
$*431{\cdot}46 \vdash CK(x)psixphix(x)psix$
Other Tests
$*99{\cdot}99 \vdash :.\sim(\exists x):\sim psix.\supset.(x).\sim psix$
Version with parentheses
$*99{\cdot}99 \vdash ((\sim(\exists x))\sim psix) \supset ((x))\sim psix$
Polish Lukasiewicz notation
$*99{\cdot}99 \vdash CN(\exists x)Npsix(x)Npsix$