

Regular WFF

In addition to all the basic WFF Rules, regular WFF uses five new rules, No, Ni, Ao, Ci, and R(reiterate). All regular rules require the use of sub proofs, or proofs within a proof. You can start a sub proof with any given that you want to, but you cannot take something that is in a sub proof back out to the regular proof, unless you are using one of the five regular rules.

R(Reiterate)

Reiterate is similar to Repeat in Basic Wff, except that Reiterate allows you to repeat a Wff from the regular proof into a sub proof within that proof.

No(N Out)

N Out states that if you start a sub proof with an N WFF, and within that sub proof you prove a contradiction(p, Np for example), then you can take the N out of the WFF. $(Nr \rightarrow s, Ns) \rightarrow r$

$r, Nr \rightarrow KCrqApr$			
1	r	s	r, Nr/R, No
2	Nr	s	
3	a	$NKCrqApr$	s
	b	r	R, 1
	c	Nr	R, 2
4	$KCrqApr$		No 3

$Crs, r, Ns \rightarrow Kpq$			
1	Crs	s	Crs, r, Ns/Co, R, No
2	r	s	
3	Ns	s	
4	s		Co 1,2
5	a	$NKpq$	s
	b	s	R,4
	c	Ns	R,3
6	Kpq		No 5

Practice Problems:

1. $Eps, Ns, p \rightarrow Aqr$
2. $CApsNr, Kpr \rightarrow NKqq$
3. $KKEqrCrNqr \rightarrow Ess$
4. $NNp \rightarrow p$
5. $KsNs \rightarrow \uparrow$ (show how that given can lead to any goal)

Using Reiterate and No instead of using Rp

In regular WFF it is not necessary to use the Rp rule if you are also using No in your proof. The following proof accomplishes the same thing as Rp, without using that rule:

1	$p \rightarrow p$		
1	p		s
2	a	Np	s
		I NNp	s
		II p	R,R, 1
		III Np	R, a
	b	Np	No, a
	c	p	R, 1
3	p		No 2

This proof is especially useful when an opponent uses Rp in their proof and the R or the p cube is in essentials. You can then prove them wrong by using the proof above to show that the p cube is non-essential.

For example, suppose an opponent presents the following solution:

	$NNq \rightarrow q$		
1	NNq		s
2	a	Nq	s
	b	Nq	Rp, a
	c	NNq	R, 1
3	q		No 2

$NNq/R, Rp, No$
 $\uparrow \quad \quad \uparrow\uparrow$

You could prove the solution wrong by stating the R and p cubes were not essential and providing the following proof:

	$NNq \rightarrow q$		
1	NNq		s
2	a	Nq	s
	b	I NNq	s
		II NNq	R,R, 1
		III Nq	R, a
	c	Nq	No, b
	d	NNq	R, 1
3	q		No 2

$NNq/R, No$

Ni(N in)

N In states that if you start a sub proof with any WFF, and within that sub proof you prove a contradiction(r, Nr for example), than you can put an N in the front of the WFF. $(r \rightarrow s, Ns) \rightarrow Nr$

$r, Nr \rightarrow NKCrqApr$			
1	r	s	
2	Nr	s	r, Nr/R, Ni
3	a $KCrqApr$	s	
	b r	R, 1	
	c Nr	R, 2	
4	NKCrqApr		Ni 3

$Krq \rightarrow NCrNq$			
1	Krq	s	
2	r	Ko 1	Krq/Ko, Co, Ni, R
3	q	Ko 1	
4	a $CrNq$	s	
	b r	R 2	
	c Nq	Co a,b	
	d q	R 3	
5	NCrNq		Ni 4

$Epr, r, Np \rightarrow NKpq$			
1	Epr	s	
2	r	s	Epr, r, Np/Eo, Co, R, Ni
3	Np	s	
4	Crp	Eo 1	
5	p	Co 2,4	
6	a Kpq	s	
	b p	R 4	
	c Np	R 3	
7	NKpq		Ni 6

Practice Problems:

1. $p \rightarrow NNp$
2. $Cpq, Nq \rightarrow Np$
3. $Crs \rightarrow NKrNs$
4. $CqKsNs \rightarrow Nq$
5. $KqNq \rightarrow N\uparrow$

(show how that given can lead to any N WFF)

Ci(C in)

C In states that if you start a sub proof with WFF 1, and within that sub proof you prove WFF 2, then you can get C WFF1 WFF2. $(r \rightarrow s) \rightarrow Crs$

	$Krq \rightarrow Crq$														
1	Krq	s	Krq/R, Ci, Ko												
2	<table style="border-collapse: collapse; margin-left: 10px;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">a</td> <td style="padding: 5px;">r</td> <td style="padding: 5px; text-align: right;">s</td> <td style="padding: 5px;"></td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">b</td> <td style="padding: 5px;">Krq</td> <td style="padding: 5px; text-align: right;">R 1</td> <td style="padding: 5px;"></td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">c</td> <td style="padding: 5px;">q</td> <td style="padding: 5px; text-align: right;">Ko b</td> <td style="padding: 5px;"></td> </tr> </table>	a	r	s		b	Krq	R 1		c	q	Ko b			
a	r	s													
b	Krq	R 1													
c	q	Ko b													
3	Crq		Ci 2												

	$\rightarrow CKsrs$										
1	<table style="border-collapse: collapse; margin-left: 10px;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">a</td> <td style="padding: 5px;">Ksr</td> <td style="padding: 5px; text-align: right;">s</td> <td style="padding: 5px;"></td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">b</td> <td style="padding: 5px;">s</td> <td style="padding: 5px; text-align: right;">Ko a</td> <td style="padding: 5px;"></td> </tr> </table>	a	Ksr	s		b	s	Ko a			/Ci, Ko
a	Ksr	s									
b	s	Ko a									
2	$CKsrs$		Ci 1								

	$Crs, r \rightarrow CNNErq$																		
1	Crs	s	Crs, r/R, Ci, Co																
2	r	s																	
3	<table style="border-collapse: collapse; margin-left: 10px;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">a</td> <td style="padding: 5px;">$NNErq$</td> <td style="padding: 5px; text-align: right;">s</td> <td style="padding: 5px;"></td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">b</td> <td style="padding: 5px;">Crs</td> <td style="padding: 5px; text-align: right;">R 1</td> <td style="padding: 5px;"></td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">c</td> <td style="padding: 5px;">r</td> <td style="padding: 5px; text-align: right;">R 2</td> <td style="padding: 5px;"></td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">d</td> <td style="padding: 5px;">s</td> <td style="padding: 5px; text-align: right;">Co b,c</td> <td style="padding: 5px;"></td> </tr> </table>	a	$NNErq$	s		b	Crs	R 1		c	r	R 2		d	s	Co b,c			
a	$NNErq$	s																	
b	Crs	R 1																	
c	r	R 2																	
d	s	Co b,c																	
4	$CNNErq$		Ci 3																

Practice Problems:

1. $Ksq \rightarrow Eqs$
2. $\rightarrow CqCKrpp$
3. $Crs \rightarrow CNsNr$
4. $NKsr \rightarrow CsNr$
5. $r \rightarrow Cr$

(show how you can put any WFF as the first WFF in the C WFF)

Ao(A out)

A out states that if you have an A WFF, and you can start one sub proof with the first WFF of the A WFF and prove another WFF, and you can start a second sub proof with the second WFF of the A WFF and prove the same WFF as the first sub proof, then you have proven that WFF.

$Arq, (r \rightarrow s), (q \rightarrow s) \rightarrow s$

$Asp \rightarrow Aps$									
1	Asp	s	$Asp/Ai, Ao$						
2	<table style="border-collapse: collapse; margin-left: 20px;"> <tr> <td style="border-right: 1px solid black; padding: 5px 5px;">a</td> <td style="padding: 5px 5px;">s</td> <td style="padding: 5px 5px;">s</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px 5px;">b</td> <td style="padding: 5px 5px;">Aps</td> <td style="padding: 5px 5px;">$Ai a$</td> </tr> </table>	a	s	s	b	Aps	$Ai a$		
a	s	s							
b	Aps	$Ai a$							
3	<table style="border-collapse: collapse; margin-left: 20px;"> <tr> <td style="border-right: 1px solid black; padding: 5px 5px;">a</td> <td style="padding: 5px 5px;">p</td> <td style="padding: 5px 5px;">s</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px 5px;">b</td> <td style="padding: 5px 5px;">Aps</td> <td style="padding: 5px 5px;">$Ai a$</td> </tr> </table>	a	p	s	b	Aps	$Ai a$		
a	p	s							
b	Aps	$Ai a$							
4	Aps		$Ao 1,2,3$						

$AKqrKpr \rightarrow r$									
1	$AKqrKpr$	s	$AKqrKpr/Ko, Ao$						
2	<table style="border-collapse: collapse; margin-left: 20px;"> <tr> <td style="border-right: 1px solid black; padding: 5px 5px;">a</td> <td style="padding: 5px 5px;">Kqr</td> <td style="padding: 5px 5px;">s</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px 5px;">b</td> <td style="padding: 5px 5px;">r</td> <td style="padding: 5px 5px;">$Ko a$</td> </tr> </table>	a	Kqr	s	b	r	$Ko a$		
a	Kqr	s							
b	r	$Ko a$							
3	<table style="border-collapse: collapse; margin-left: 20px;"> <tr> <td style="border-right: 1px solid black; padding: 5px 5px;">a</td> <td style="padding: 5px 5px;">Kpr</td> <td style="padding: 5px 5px;">s</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px 5px;">b</td> <td style="padding: 5px 5px;">r</td> <td style="padding: 5px 5px;">$Ko a$</td> </tr> </table>	a	Kpr	s	b	r	$Ko a$		
a	Kpr	s							
b	r	$Ko a$							
4	r		$Ao 1,2,3$						

$AKpCpqKrq \rightarrow q$															
1	$AKpCpqKrq$	s	$AKpCpqKrq/Ko, Co, Ao$												
2	<table style="border-collapse: collapse; margin-left: 20px;"> <tr> <td style="border-right: 1px solid black; padding: 5px 5px;">a</td> <td style="padding: 5px 5px;">$KpCpq$</td> <td style="padding: 5px 5px;">s</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px 5px;">b</td> <td style="padding: 5px 5px;">p</td> <td style="padding: 5px 5px;">$Ko a$</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px 5px;">c</td> <td style="padding: 5px 5px;">Cpq</td> <td style="padding: 5px 5px;">$Ko a$</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px 5px;">d</td> <td style="padding: 5px 5px;">q</td> <td style="padding: 5px 5px;">$Co b,c$</td> </tr> </table>	a	$KpCpq$	s	b	p	$Ko a$	c	Cpq	$Ko a$	d	q	$Co b,c$		
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b	p	$Ko a$													
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a	Krq	s													
b	q	$Ko a$													
4	q		$Ao 1,2,3$												

Practice Problems:

1. $Ars, Ns \rightarrow r$
2. $AErpEpr \rightarrow KCprCrp$
3. $AKsqKqs \rightarrow Esq$
4. $Apr \rightarrow CNpr$
5. $Asp \rightarrow NKNsNp$