Appendices

Appendix I

Y = {p,q,r}

1. ζ = {Y,ϕ,{p}} ζ^c = {Y, ϕ,{q,r}}

η^*-open sets Y,ϕ,{p}	**η^*-closed sets** Y,ϕ,{q,r}
J-open sets P(Y) – {q,r}	**J-closed sets** P(Y) – {p}
J*- open sets P(Y) – {q,r}	**J*-closed sets** P(Y) – {p}
J- open sets** P(Y) – {q,r}	**J**-closed sets** P(Y) – {p}
r*-open sets Y,ϕ,{p}	**r*-closed sets** Y,ϕ,{q,r}
δ -open sets Y,ϕ	**δ -closed sets** Y,ϕ
g -open sets Y,ϕ,{p},{q},{r},{p,q},{p,r}	**g -closed sets** Y,ϕ,{q},{r},{p,q},{p,r},{q,r}
α - open sets Y,ϕ,{p},{p,q},{p,r}	**α -closed sets** Y,ϕ,{q},{r},{q,r}
semi - open sets Y,ϕ,{p},{p,q},{p,r}	**semi -closed sets** Y,ϕ,{q},{r},{q,r}
pre - open sets Y,ϕ,{p},{p,q},{p,r}	**pre -closed sets** Y,ϕ,{q},{r},{q,r}
semi pre - open sets Y,ϕ,{p},{p,q},{p,r}	**semi pre -closed sets** Y,ϕ,{q},{r},{q,r}
regular open sets Y,ϕ	**regular closed sets** Y,ϕ
π - open sets Y,ϕ	**π -closed sets** Y,ϕ
αg - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r}	**αg -closed sets** Y,ϕ,{q},{r},{p,q},{p,r},{q,r}
g* - open sets Y,ϕ,{p}	**g* -closed sets** Y,ϕ,{q,r}
ĝ - open sets Y,ϕ,{p}	**ĝ -closed sets** Y,ϕ,{q,r}
*g - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r}	***g -closed sets** Y,ϕ,{q},{r},{p,q},{p,r},{q,r}
gs - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r}	**gs -closed sets** Y,ϕ,{q},{r},{p,q},{p,r},{q,r}
sg - open sets Y,ϕ,{p},{p,q},{p,r}	**sg - closed sets** Y,ϕ,{q},{r},{q,r}
$^{\#}$gs - open sets Y,ϕ,{p},{p,q},{p,r}	**$^{\#}$gs -closed sets** Y,ϕ,{q},{r},{q,r}
g*s - open sets Y,ϕ,{p},{p,q},{p,r}	**g*s -closed sets** Y,ϕ,{q},{r},{q,r}
δg - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r}	**δg -closed sets** Y,ϕ,{q},{r},{p,q},{p,r},{q,r}
gδ - open sets P(Y)	**gδ -closed sets** P(Y)

δg^{*} - open sets Y,ϕ,{p}	**δg^{*} -closed sets** Y,ϕ,{q,r}
$\delta g^{\ddagger}$ - open sets P(Y)	**$\delta g^{\ddagger}$ -closed sets** P(Y)
πg - open sets P(Y)	**πg -closed sets** P(Y)
πgs - open sets P(Y)	**πgs -closed sets** P(Y)
πgα - open sets P(Y)	**πgα -closed sets** P(Y)
πgp - open sets P(Y)	**πgp -closed sets** P(Y)
πgsp - open sets P(Y)	**πgsp -closed sets** P(Y)
gsp - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r}	**gsp - closed sets** Y,ϕ,{q},{r},{p,q},{p,r},{q,r}
gspr - open sets P(Y)	**gspr -closed sets** P(Y)
rg-open sets P(Y)	**rg-closed sets** P(Y)
rwg- open sets P(Y)	**rwg-closed sets** P(Y)
gpr- open sets P(Y)	**gpr – closed sets** P(Y)

Y = {p,q,r}

2. ζ = {Y, ϕ,{p},{p,q}} ζ^{c} = { Y, ϕ,{r},{q,r}}

η^{*}-open sets Y,ϕ,{p}	**η^{*}-closed sets** Y,ϕ,{q,r}
J-open sets **P(Y) –{q,r}**	**J-closed sets** **P(Y) –{p}**
J*-open sets **Y,** ϕ,{p},{q},{p,q}	**J*-closed sets** **Y,** ϕ,{r},{q,r},{p,r}
J-open sets** **P(Y) –{q,r}**	**J**-closed sets** **P(Y) –{p}**
r*-open sets Y,ϕ,{p}	**r*-closed sets** Y,ϕ,{q,r}
δ - open sets Y,ϕ	**δ -closed sets** Y,ϕ
g - open sets Y,ϕ,{p},{q},{p,q}	**g -closed sets** Y,ϕ,{r},{p,r},{q,r}
α - open sets Y,ϕ,{p},{p,q},{p,r}	**α -closed sets** Y,ϕ,{q},{r},{q,r}
semi - open sets Y,ϕ,{p},{p,q},{p,r}	**semi -closed sets** Y,ϕ,{q},{r},{q,r}
pre - open sets Y,ϕ,{p},{p,q},{p,r}	**pre -closed sets** Y,ϕ,{q},{r},{q,r}
semi pre - open sets Y,ϕ,{p},{p,q},{p,r}	**semi pre -closed sets** Y,ϕ,{q},{r},{q,r}
regular open sets Y,ϕ	**regular closed sets** Y,ϕ

π - open sets Y,ϕ	**π -closed sets** Y,ϕ
αg - open sets Y,ϕ,{p},{q},{p,q},{p,r}	**αg -closed sets** Y,ϕ,{q},{r},{p,r},{q,r}
g* - open sets Y,ϕ,{p},{q},{p,q}	**g* -closed sets** Y,ϕ,{r},{p,r},{q,r}
ĝ - open sets Y,ϕ,{p},{p,q}	**ĝ -closed sets** Y,ϕ,{r},{q,r}
*g - open sets Y,ϕ,{p},{q},{p,q}	***g -closed sets** Y,ϕ,{r},{p,r},{q,r}
gs - open sets Y,ϕ,{p},{q},{p,q},{p,r}	**gs -closed sets** Y,ϕ,{q},{r},{p,r},{q,r}
sg - open sets Y,ϕ,{p},{p,q},{p,r}	**sg - closed sets** Y,ϕ,{q},{r},{q,r}
$^\#$gs - open sets Y,ϕ,{p},{q},{p,q},{p,r}	**$^\#$gs -closed sets** Y,ϕ,{q},{r},{p,r},{q,r}
g*s - open sets Y,ϕ,{p},{p,q},{p,r}	**g*s -closed sets** Y,ϕ,{q},{r},{q,r}
δg - open sets Y,ϕ,{p},{q},{p,q}	**δg -closed sets** Y,ϕ,{r},{p,r},{q,r}
gδ - open sets P(Y)	**gδ -closed sets** P(Y)
δg* - open sets Y,ϕ,{p},{q},{p,q}	**δg* -closed sets** Y,ϕ,{r},{p,r},{q,r}
δg‡ - open sets P(Y)	**δg‡ -closed sets** P(Y)
πg - open sets P(Y)	**πg -closed sets** P(Y)
πgs - open sets P(Y)	**πgs -closed sets** P(Y)
πgα - open sets P(Y)	**πgα -closed sets** P(Y)
πgp - open sets P(Y)	**πgp -closed sets** P(Y)
πgsp - open sets P(Y)	**πgsp -closed sets** P(Y)
gsp - open sets Y,ϕ,{p},{q},{p,q},{p,r}	**gsp - closed sets** Y,ϕ,{q},{r},{p,r},{q,r}
gspr - open sets P(Y)	**gspr -closed sets** P(Y)
rw- open sets P(Y)	**rw-closed sets** P(Y)
rwg- open sets P(Y)	**rwg-closed sets** P(Y)
gpr-open sets P(Y)	**gpr-closed sets** P(Y)

Y = {p,q,r}

3. ζ = {Y, ϕ,{p,q}} ζ^c = { Y, ϕ,{r}}

η^*-open sets Y,ϕ	**η^*-closed sets** Y,ϕ
J-open sets **P(Y)**	**J-closed sets** **P(Y)**
J*-open sets **Y,** ϕ,{p},{q},{p,q}	**J*-closed sets** **Y,** ϕ,{r},{q,r},{p,r}

J-open sets** **P(Y)**	**J**-closed sets** **P(Y)**
r*-open sets Y,ϕ	**r*-closed sets** Y,ϕ
δ - open sets Y,ϕ	**δ -closed sets** Y,ϕ
g - open sets Y,ϕ,{p},{q},{p,q}	**g -closed sets** Y,ϕ,{r},{p,r},{q,r}
α - open sets Y,ϕ,{p,q}	**α -closed sets** Y,ϕ,{r}
semi - open sets Y,ϕ,{p,q}	**semi -closed sets** Y,ϕ,{r}
pre - open sets Y,ϕ,{p},{q},{p,q},{p,r},{q,r}	**pre -closed sets** Y,ϕ,{p},{q},{r},{p,r},{q,r}
semi pre - open sets Y,ϕ,{p},{q},{p,q},{p,r},{q,r}	**semi pre -closed sets** Y,ϕ,{p},{q},{r},{p,r},{q,r}
regular open sets Y,ϕ	**regular closed sets** Y,ϕ
π - open sets Y,ϕ	**π -closed sets** Y,ϕ
αg - open sets Y,ϕ,{p},{q},{p,q}	**αg -closed sets** Y,ϕ,{r},{p,r},{q,r}
g^* - open sets Y,ϕ,{p},{q},{p,q}	**g^* -closed sets** Y,ϕ,{r},{p,r},{q,r}
$\hat{g}$ - open sets Y,ϕ,{p},{q},{p,q}	**$\hat{g}$ -closed sets** Y,ϕ,{r},{p,r},{q,r}
$^*g$ - open sets Y,ϕ,{p},{q},{p,q}	**$^*g$ -closed sets** Y,ϕ,{r},{p,r},{q,r}
gs - open sets Y,ϕ,{p},{q},{p,q}	**gs -closed sets** Y,ϕ,{r},{p,r},{q,r}
sg - open sets Y,ϕ,{p},{q},{p,q}	**sg - closed sets** Y,ϕ,{r},{p,r},{q,r}
$^{\#}$gs - open sets Y,ϕ,{p},{q},{p,q}	**$^{\#}$gs -closed sets** Y,ϕ,{r},{p,r},{q,r}
g^*s - open sets Y,ϕ,{p},{q},{p,q}	**g^*s -closed sets** Y,ϕ,{r},{p,r},{q,r}
$g^{\#}s$ - open sets Y,ϕ,{p},{q},{p,q}	**$g^{\#}s$ -closed sets** Y,ϕ,{r},{p,r},{q,r}
δg - open sets Y,ϕ,{p},{q},{p,q}	**δg -closed sets** Y,ϕ,{r},{p,r},{q,r}
gδ - open sets P(Y)	**gδ -closed sets** P(Y)
δg^* - open sets Y,ϕ,{p},{q},{p,q}	**δg^* -closed sets** Y,ϕ,{r},{p,r},{q,r}
$\delta g^{\ddagger}$ - open sets P(Y)	**$\delta g^{\ddagger}$ -closed sets** P(Y)
πg - open sets P(Y)	**πg -closed sets** P(Y)
πgs - open sets P(Y)	**πgs -closed sets** P(Y)
πgα - open sets P(Y)	**πgα -closed sets** P(Y)
πgp - open sets P(Y)	**πgp -closed sets** P(Y)

πgsp - open sets P(Y)	**πgsp -closed sets** P(Y)
gsp - open sets Y,ϕ,{p},{q},{p,q},{p,r},{q,r}	**gsp - closed sets** Y,ϕ,{p},{q},{r},{p,r},{q,r}
gspr - open sets P(Y)	**gspr -closed sets** P(Y)
rg- open sets P(Y)	**rg-closed sets** P(Y)
rwg- open sets P(Y)	**rwg-closed sets** P(Y)
gpr-open sets P(Y)	**gpr-closed sets** P(Y)

Y = {p,q,r}

4. ζ = { Y, ϕ,{p},{q},{p,q}} ζ^c = {Y, ϕ,{r},{p,r},{q,r}}

η^* - open sets Y,ϕ,{p},{q},{p,q}	**η^* -closed sets** Y,ϕ,{r},{p,r},{q,r}
J-open sets Y,ϕ,{p},{q},{p,q}	**J-closed sets** Y,ϕ,{r},{p,r},{q,r}
J*-open sets Y,ϕ,{p},{q},{p,q}	**J*-closed sets** Y,ϕ,{r},{p,r},{q,r}
J-open sets** Y,ϕ,{p},{q},{p,q}	**J**-closed sets** Y,ϕ,{r},{p,r},{q,r}
r*-open sets Y,ϕ,{p},{q}	**r*-closed sets** Y,ϕ,{p,r},{q,r}
δ - open sets Y,ϕ,{p},{q},{p,q}	**δ -closed sets** Y,ϕ,{r},{p,r},{q,r}
g - open sets Y,ϕ,{p},{q},{p,q}	**g -closed sets** Y,ϕ,{r},{p,r},{q,r}
α - open sets Y,ϕ,{p},{q},{p,q}	**α -closed sets** Y,ϕ,{r},{p,r},{q,r}
semi - open sets Y,ϕ,{p},{q},{p,q},{p,r},{q,r}	**semi -closed sets** Y,ϕ,{p},{q},{r},{p,r},{q,r}
pre - open sets Y,ϕ,{p},{q},{p,q}	**pre -closed sets** Y,ϕ,{r},{p,r},{q,r}
semi pre - open sets Y,ϕ,{p},{q},{p,q},{p,r},{q,r}	**semi pre -closed sets** Y,ϕ,{p},{q},{r},{p,r},{q,r}
regular open sets Y,ϕ,{p},{q}	**regular closed sets** Y,ϕ,{p,r},{q,r}
π - open sets Y,ϕ,{p},{q},{p,q}	**π -closed sets** Y,ϕ,{r},{p,r},{q,r}
αg - open sets Y,ϕ,{p},{q},{p,q}	**αg -closed sets** Y,ϕ,{r},{p,r},{q,r}
g* - open sets Y,ϕ,{p},{q},{p,q}	**g* -closed sets** Y,ϕ,{r},{p,r},{q,r}
ĝ - open sets Y,ϕ,{p},{q},{p,q}	**ĝ -closed sets** Y,ϕ,{r},{p,r},{q,r}
***g - open sets** Y,ϕ,{p},{q},{p,q}	***g -closed sets** Y,ϕ,{r},{p,r},{q,r}
gs - open sets Y,ϕ,{p},{q},{p,q},{p,r},{q,r}	**gs -closed sets** Y,ϕ,{p},{q},{r},{p,r},{q,r}
sg - open sets Y,ϕ,{p},{q},{p,q},{p,r},{q,r}	**sg - closed sets** Y,ϕ,{p},{q},{r},{p,r},{q,r}
#gs - open sets Y,ϕ,{p},{q},{p,q},{p,r},{q,r}	**#gs -closed sets** Y,ϕ,{p},{q},{r},{p,r},{q,r}

g*s - open sets Y,ϕ,{p},{q},{p,q},{p,r},{q,r}	**g*s -closed sets** Y,ϕ,{p},{q},{r},{p,r},{q,r}
δg - open sets Y,ϕ,{p},{q},{p,q}	**δg -closed sets** Y,ϕ,{r},{p,r},{q,r}
gδ - open sets Y,ϕ,{p},{q},{p,q}	**gδ -closed sets** Y,ϕ,{r},{p,r},{q,r}
δg* - open sets Y,ϕ,{p},{q},{p,q}	**δg* -closed sets** Y,ϕ,{r},{p,r},{q,r}
δg‡ - open sets Y,ϕ,{p},{q},{p,q}	**δg‡ -closed sets** Y,ϕ,{r},{p,r},{q,r}
πg - open sets Y,ϕ,{p},{q},{p,q}	**πg -closed sets** Y,ϕ,{r},{p,r},{q,r}
πgs - open sets Y,ϕ,{p},{q},{p,q},{p,r},{q,r}	**πgs -closed sets** Y,ϕ,{p},{q},{r},{p,r},{q,r}
πgα - open sets Y,ϕ,{p},{q},{p,q}	**πgα -closed sets** Y,ϕ,{r},{p,r},{q,r}
πgp - open sets Y,ϕ,{p},{q},{p,q}	**πgp -closed sets** Y,ϕ,{r},{p,r},{q,r}
πgsp - open sets Y,ϕ,{p},{q},{p,q},{p,r},{q,r}	**πgsp -closed sets** Y,ϕ,{p},{q},{r},{p,r},{q,r}
gsp - open sets Y,ϕ,{p},{q},{p,q},{p,r},{q,r}	**gsp - closed sets** Y,ϕ,{p},{q},{r},{p,r},{q,r}
gspr - open sets P(Y)	**gspr -closed sets** P(Y)
rg- open sets Y,ϕ, {p}, {q}, {r}, {p,q}	**rg-closed sets** Y,ϕ,{r}, {p,q}, {q,r}, {p,r}
rwg- open sets Y,ϕ, {p}, {q}, {r}, {p,q}	**rwg-closed sets** Y,ϕ, {r}, {p,q}, {q,r}, {p,r}
gpr- open sets Y,ϕ, {p}, {q}, {p,q}	**gpr-closed sets** Y,ϕ, {r}, {p,q}, {q,r}, {p,r}

Y = {p,q,r}

5. ζ = { Y, ϕ,{p},{q},{p,q},{p,r}} ζ^c = { Y, ϕ,{q},{r},{p,r},{q,r}}

η^* - open sets Y,ϕ,{q},{p,r}	**η^* -closed sets** Y,ϕ,{q},{p,r}
J-open sets **P(Y)**	**J-closed sets** **P(Y)**
J*-open sets Y,ϕ,{p},{q},{p,r},{q,r}	**J*-closed sets** Y,ϕ,{q},{r},{p,r},{q,r}
J-open sets** **P(Y)**	**J**-closed sets** **P(Y)**
r*-open sets Y,ϕ,{q},{p,r}	**r*-closed sets** Y,ϕ,{q},{p,r}
δ - open sets Y,ϕ,{q},{p,r}	**δ -closed sets** Y,ϕ,{q},{p,r}
g - open sets Y,ϕ,{p},{q},{p,q},{p,r}	**g -closed sets** Y,ϕ,{q},{r},{p,r},{q,r}
α - open sets Y,ϕ,{p},{q},{p,q},{p,r}	**α -closed sets** Y,ϕ,{q},{r},{p,r},{q,r}
semi - open sets Y,ϕ,{p},{q},{p,q},{p,r}	**semi -closed sets** Y,ϕ,{q},{r},{p,r},{q,r}
pre - open sets Y,ϕ,{p},{q},{p,q},{p,r}	**pre -closed sets** Y,ϕ,{q},{r},{p,r},{q,r}
semi pre - open sets Y,ϕ,{p},{q},{p,q},{p,r}	**semi pre -closed sets** Y,ϕ,{q},{r},{p,r},{q,r}
regular open sets Y,ϕ,{q},{p,r}	**regular closed sets** Y,ϕ,{q},{p,r}

π - open sets Y,ϕ,{q},{p,r}	**π -closed sets** Y,ϕ,{q},{p,r}
αg - open sets Y,ϕ,{p},{q},{p,q},{p,r}	**αg -closed sets** Y,ϕ,{q},{r},{p,r},{q,r}
g^* - open sets Y,ϕ,{p},{q},{p,q},{p,r}	**g^* -closed sets** Y,ϕ,{q},{r},{p,r},{q,r}
$\hat{g}$ - open sets Y,ϕ,{p},{q},{p,q},{p,r}	**$\hat{g}$ -closed sets** Y,ϕ,{q},{r},{p,r},{q,r}
*g - open sets Y,ϕ,{p},{q},{p,q},{p,r}	***g -closed sets** Y,ϕ,{q},{r},{p,r},{q,r}
gs - open sets Y,ϕ,{p},{q},{p,q},{p,r}	**gs -closed sets** Y,ϕ,{q},{r},{p,r},{q,r}
sg - open sets Y,ϕ,{p},{q},{p,q},{p,r}	**sg - closed sets** Y,ϕ,{q},{r},{p,r},{q,r}
$^{\#}$gs - open sets Y,ϕ,{p},{q},{p,q},{p,r}	**$^{\#}$gs -closed sets** Y,ϕ,{q},{r},{p,r},{q,r}
g^*s - open sets Y,ϕ,{p},{q},{p,q},{p,r}	**g^*s -closed sets** Y,ϕ,{q},{r},{p,r},{q,r}
$g^{\#}$s - open sets Y,ϕ,{p},{q},{p,q},{p,r}	**$g^{\#}$s -closed sets** Y,ϕ,{q},{r},{p,r},{q,r}
δg - open sets Y,ϕ,{p},{q},{p,q},{p,r}	**δg -closed sets** Y,ϕ,{q},{r},{p,r},{q,r}
gδ - open sets P(Y)	**gδ -closed sets** P(Y)
δg^* - open sets Y,ϕ,{p},{q},{p,q},{p,r}	**δg^* -closed sets** Y,ϕ,{q},{r},{p,r},{q,r}
δ$g^{\ddagger}$ - open sets P(Y)	**δ$g^{\ddagger}$ -closed sets** P(Y)
πg - open sets P(Y)	**πg -closed sets** P(Y)
πgs - open sets P(Y)	**πgs -closed sets** P(Y)
πgα - open sets P(Y)	**πgα -closed sets** P(Y)
πgp - open sets P(Y)	**πgp -closed sets** P(Y)
πgsp - open sets P(Y)	**πgsp -closed sets** P(Y)
gsp - open sets Y,ϕ,{p},{q},{p,q},{p,r}	**gsp - closed sets** Y,ϕ,{q},{r},{p,r},{q,r}
gspr - open sets P(Y)	**gspr -closed sets** P(Y)
rg- open sets P(Y)	**rg-closed sets** P(Y)
rwg- open sets P(Y)	**rwg-closed sets** P(Y)
gpr-open sets P(Y)	**gpr-closed sets** P(Y)

Y = {p,q,r}

6. ζ = { Y, ϕ,{p},{p,q},{p,r}} ζ^c= {Y, ϕ,{q},{r},{q,r}}

η^* - open sets Y,ϕ	**η^* -closed sets** Y,ϕ
J-open sets **P(Y)**	**J-closed sets** **P(Y)**

J*-open sets Y,ϕ,{p}	**J*-closed sets** Y,ϕ,{q,r}
J-open sets** **P(Y)**	**J**-closed sets** **P(Y)**
r*-open sets Y,ϕ	**r*-closed sets** Y,ϕ
δ - open sets Y,ϕ	**δ -closed sets** Y,ϕ
g - open sets Y,ϕ,{p},{p,q},{p,r}	**g -closed sets** Y,ϕ,{q},{r},{q,r}
α - open sets Y,ϕ,{p},{p,q},{p,r}	**α -closed sets** Y,ϕ,{q},{r},{q,r}
semi - open sets Y,ϕ,{p},{p,q},{p,r}	**semi -closed sets** Y,ϕ,{q},{r},{q,r}
pre - open sets Y,ϕ,{p},{p,q},{p,r}	**pre -closed sets** Y,ϕ,{q},{r},{q,r}
semi pre - open sets Y,ϕ,{p},{p,q},{p,r}	**semi pre -closed sets** Y,ϕ,{q},{r},{q,r}
regular open sets Y,ϕ	**regular closed sets** Y,ϕ
π - open sets Y,ϕ	**π -closed sets** Y,ϕ
αg - open sets Y,ϕ,{p},{p,q},{p,r}	**αg -closed sets** Y,ϕ,{q},{r},{q,r}
g* - open sets Y,ϕ,{p},{p,q},{p,r}	**g* -closed sets** Y,ϕ,{q},{r},{q,r}
$\hat{g}$ - open sets Y,ϕ,{p},{p,q},{p,r}	**$\hat{g}$ -closed sets** Y,ϕ,{q},{r},{q,r}
*g - open sets Y,ϕ,{p},{p,q},{p,r}	***g -closed sets** Y,ϕ,{q},{r},{q,r}
gs - open sets Y,ϕ,{p},{p,q},{p,r}	**gs -closed sets** Y,ϕ,{q},{r},{q,r}
sg - open sets Y,ϕ,{p},{p,q},{p,r}	**sg - closed sets** Y,ϕ,{q},{r},{q,r}
$^{\#}$gs - open sets Y,ϕ,{p},{p,q},{p,r}	**$^{\#}$gs -closed sets** Y,ϕ,{q},{r},{q,r}
g*s - open sets Y,ϕ,{p},{p,q},{p,r}	**g*s -closed sets** Y,ϕ,{q},{r},{q,r}
δg - open sets Y,ϕ,{p}	**δg -closed sets** Y,ϕ,{q,r}
gδ - open sets P(Y)	**gδ -closed sets** P(Y)
δg* - open sets Y,ϕ,{p}	**δg* -closed sets** Y,ϕ,{q,r}
δg‡ - open sets P(Y)	**δg‡ -closed sets** P(Y)
πg - open sets P(Y)	**πg -closed sets** P(Y)
πgs - open sets P(Y)	**πgs -closed sets** P(Y)
πgα - open sets P(Y)	**πgα -closed sets** P(Y)
πgp - open sets P(Y)	**πgp -closed sets** P(Y)
πgsp - open sets P(Y)	**πgsp -closed sets** P(Y)

gsp - open sets Y,ϕ,{p},{p,q},{p,r}	**gsp - closed sets** Y,ϕ,{q},{r},{q,r}
gspr - open sets P(Y)	**gspr -closed sets** P(Y)
rg- open sets P(Y)	**rg-closed sets** P(Y)
rwg- open sets P(Y)	**rwg-closed sets** P(Y)
gpr-open sets P(Y)	**gpr-closed sets** P(Y)

Y = {p,q,r}

7. ζ = { Y, ϕ,{p},{q,r}} ζ^c ={ Y, ϕ,{p},{q,r}}

η^* - open sets Y,ϕ,{p},{q,r}	**η^* -closed sets** Y,ϕ,{p},{q,r}
J-open sets **P(Y)**	**J-closed sets** **P(Y)**
J*-open sets **P(Y)**	**J*-closed sets** **P(Y)**
J-open sets** **P(Y)**	**J**-closed sets** **P(Y)**
r*-open sets Y,ϕ,{p},{q,r}	**r*-closed sets** Y,ϕ,{p},{q,r}
δ - open sets Y,ϕ,{p},{q,r}	**δ -closed sets** Y,ϕ,{p},{q,r}
g - open sets P(Y)	**g -closed sets** P(Y)
α - open sets Y,ϕ,{p},{q,r}	**α -closed sets** Y,ϕ,{p},{q,r}
semi - open sets Y,ϕ,{p},{q,r}	**semi -closed sets** Y,ϕ,{p},{q,r}
pre - open sets P(Y)	**pre -closed sets** P(Y)
semi pre - open sets P(Y)	**semi pre -closed sets** P(Y)
regular open sets Y,ϕ,{p},{q,r}	**regular closed sets** Y,ϕ,{p},{q,r}
π - open sets Y,ϕ,{p},{q,r}	**π -closed sets** Y,ϕ,{p},{q,r}
αg - open sets P(Y)	**αg -closed sets** P(Y)
g*- open sets Y,ϕ,{p},{q,r}	**g*-closed sets** Y,ϕ,{p},{q,r}
ĝ - open sets P(Y)	**ĝ -closed sets** P(Y)
***g - open sets** Y,ϕ,{p},{q,r}	***g -closed sets** Y,ϕ,{p},{q,r}
gs - open sets P(Y)	**gs -closed sets** P(Y)
sg - open sets P(Y)	**sg - closed sets** P(Y)
#gs - open sets P(Y)	**#gs -closed sets** P(Y)
g*s - open sets Y,ϕ,{p},{q,r}	**g*s -closed sets** Y,ϕ,{p},{q,r}
δg - open sets P(Y)	**δg -closed sets** P(Y)

gδ - open sets P(Y)	**gδ -closed sets** P(Y)
δg* - open sets Y,ϕ,{p},{q,r}	**δg* -closed sets** Y,ϕ,{p},{q,r}
δg‡ - open sets P(Y)	**δg‡ -closed sets** P(Y)
πg - open sets P(Y)	**πg -closed sets** P(Y)
πgs - open sets P(Y)	**πgs -closed sets** P(Y)
πgα - open sets P(Y)	**πgα -closed sets** P(Y)
πgp - open sets P(Y)	**πgp -closed sets** P(Y)
πgsp - open sets P(Y)	**πgsp -closed sets** P(Y)
gsp - open sets P(Y)	**gsp - closed sets** P(Y)
gspr - open sets P(Y)	**gspr -closed sets** P(Y)
rg- open sets P(Y)	**rg-closed sets** P(Y)
rwg- open sets P(Y)	**rwg-closed sets** P(Y)
gpr-open sets P(Y)	**gpr-closed sets** P(Y)

Appendix II

Y = {p,q,r,s}

1.ζ = {Y,ϕ,{p}} ζ^{c} ={Y, ϕ,{q,r,s}}

η^{*}-open sets Y,ϕ,{p}	**η^{*}-closed sets** Y,ϕ,{q,r}
J-open sets P(Y) – {q,r,s}	**J-closed sets** P(Y) – {p}
J*- open sets P(Y) – {q,r,s}	**J*-closed sets** P(Y) – {p}
J- open sets** P(Y) – {q,r,s}	**J**-closed sets** P(Y) – {p}
r*-open sets Y,ϕ,{p}	**r*-closed sets** Y,ϕ,{q,r}
δ - open sets Y,ϕ	**δ -closed sets** Y,ϕ
g - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r}, {q,s},{r,s},{p,q,r},{p,q,s},{p,r,s}	**g -closed sets** Y,ϕ,{q},{r},{s},{p,q},{p,r},{p,s},{q,r}, {q,s},{r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}
α - open sets Y,ϕ,{p},{p,q},{p,r},{p,s},{p,q,r},{p,q,s},{p,r,s}	**α -closed sets** Y,ϕ,{q},{r},{s},{q,r},{q,s},{r,s},{q,r,s}
semi - open sets Y,ϕ,{p},{p,q},{p,r},{p,s},{p,q,r},{p,q,s},{p,r,s}	**semi -closed sets** Y,ϕ,{q},{r},{s},{q,r},{q,s},{r,s},{q,r,s}
pre - open sets Y,ϕ,{p},{p,q},{p,r},{p,s},{p,q,r},{p,q,s},{p,r,s}	**pre -closed sets** Y,ϕ,{q},{r},{s},{q,r},{q,s},{r,s},{q,r,s}
semi pre - open sets Y,ϕ,{p},{p,q},{p,r},{p,s},{p,q,r}, {p,q,s},{p,r,s}	**semi pre -closed sets** Y,ϕ,{q},{r},{s},{q,r},{q,s},{r,s},{q,r,s}
regular open sets Y,ϕ	**regular closed sets** Y,ϕ
π - open sets	**π -closed sets**

Y,ϕ	Y,ϕ
αg - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r}, {q,s},{r,s},{p,q,r},{p,q,s},{p,r,s}	**αg -closed sets** Y,ϕ,{q},{r},{s},{p,q},{p,r},{p,s},{q,r}, {q,s},{r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}
g^* - open sets Y,ϕ,{p}	**g^* -closed sets** Y,ϕ,{q,r,s}
$\hat{g}$ - open sets Y,ϕ,{p}	**$\hat{g}$ -closed sets** Y,ϕ,{q,r,s}
$^*g$ - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r}, {q,s},{r,s},{p,q,r},{p,q,s},{p,r,s}	**$^*g$ -closed sets** Y,ϕ,{q},{r},{s},{p,q},{p,r},{p,s},{q,r}, {q,s},{r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}
gs - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r}, {q,s},{r,s},{p,q,r},{p,q,s},{p,r,s}	**gs -closed sets** Y,ϕ,{q},{r},{s},{p,q},{p,r},{p,s},{q,r}, {q,s},{r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}
sg - open sets Y,ϕ,{p},{p,q},{p,r},{p,s},{p,q,r},{p,q,s},{p,r,s}	**sg - closed sets** Y,ϕ,{q},{r},{s},{q,r},{q,s},{r,s},{q,r,s}
$^{\#}$gs - open sets Y,ϕ,{p},{p,q},{p,r},{p,s},{p,q,r},{p,q,s},{p,r,s}	**$^{\#}$gs -closed sets** Y,ϕ,{q},{r},{s},{q,r},{q,s},{r,s},{q,r,s}
g^*s - open sets Y,ϕ,{p},{p,q},{p,r},{p,s},{p,q,r},{p,q,s},{p,r,s}	**g^*s -closed sets** Y,ϕ,{q},{r},{s},{q,r},{q,s},{r,s},{q,r,s}
δg - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r}, {q,s},{r,s},{p,q,r},{p,q,s},{p,r,s}	**δg -closed sets** Y,ϕ,{q},{r},{s},{p,q},{p,r},{p,s},{q,r}, {q,s},{r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}
gδ - open sets P(Y)	**gδ -closed sets** P(Y)
δg^* - open sets Y,ϕ,{p}	**δg^* -closed sets** Y,ϕ,{q,r,s}
δ$g^{\ddagger}$ - open sets P(Y)	**δ$g^{\ddagger}$ -closed sets** P(Y)
πg - open sets P(Y)	**πg -closed sets** P(Y)
πgs - open sets P(Y)	**πgs -closed sets** P(Y)
πgα - open sets P(Y)	**πgα -closed sets** P(Y)
πgp - open sets P(Y)	**πgp -closed sets** P(Y)
πgsp - open sets P(Y)	**πgsp -closed sets** P(Y)
gsp - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r} {q,s},{r,s},{p,q,r},{p,q,s},{p,r,s}	**gsp - closed sets** Y,ϕ,{q},{r},{s},{p,q},{p,r},{p,s},{q,r} {q,s},{r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}
gspr - open sets P(Y)	**gspr -closed sets** P(Y)

Y = {p,q,r,s}

2. ζ = { Y, ϕ,{p,q}} ζ^c = {Y, ϕ,{r,s}}

η^*-open sets Y,ϕ,{p,q}	**η^*-closed sets** Y,ϕ,{r,s}
J-open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,s},{q,s},{p,r},{q,r}, {p,q,s},{p,q,r}	**J-closed sets** Y,ϕ,{r},{s},{r,s},{q,r},{p,r},{p,s},{q,s}, {p,q,r},{q,r,s},{p,r,s},{p,q,s}
J*- open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,s},{q,s},{p,r},{q,r}, {p,q,s},{p,q,r}	**J*-closed sets** Y,ϕ,{r},{s},{r,s},{q,r},{p,r},{p,s},{q,s},{p,q,r},{q, r,s}, { p,r,s},{p,q,s}
J- open sets**	**J**-closed sets**

Y,ϕ,{p},{q},{r},{s},{p,q},{p,s},{q,s},{p,r},{q,r},{p,q,s},{p,q,r}	Y,ϕ,{r},{s},{r,s},{q,r},{p,r},{p,s},{q,s},{p,q,r},{q,r,s}, {p,r,s},{p,q,s}
r*-open sets Y,ϕ,{p,q}	**r*-closed sets** Y,ϕ,{r,s}
δ - open sets Y,ϕ	**δ -closed sets** Y,ϕ
g - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r},{q,s},{p,q,r},{p,q,s}	**g -closed sets** Y,ϕ,{r},{s},{p,r},{p,s},{q,r},{q,s},{r,s},{p,q,r},{p,q,s}, {p,r,s},{q,r,s}
α - open sets Y,ϕ,{p,q},{p,q,r},{p,q,s}	**α -closed sets** Y,ϕ,{r},{s},{r,s}
semi - open sets Y,ϕ,{p,q},{p,q,r},{p,q,s}	**semi -closed sets** Y,ϕ,{r},{s},{r,s}
pre - open sets Y,ϕ,{p},{q},{p,q},{p,r},{p,s},{q,r},{q,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}	**pre -closed sets** Y,ϕ,{p},{q},{r},{s},{p,r},{p,s},{q,r},{q,s},{r,s},{p,r,s},{q,r,s}
semi pre - open sets Y,ϕ,{p},{q},{p,q},{p,r},{p,s},{q,r},{q,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}	**semi pre -closed sets** Y,ϕ,{p},{q},{r},{s},{p,r},{p,s},{q,r},{q,s},{r,s},{p,r,s},{q,r,s}
regular open sets Y,ϕ	**regular closed sets** Y,ϕ
π - open sets Y,ϕ	**π -closed sets** Y,ϕ
αg - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r},{q,s},{p,q,r},{p,q,s}	**αg -closed sets** Y,ϕ,{r},{s},{p,r},{p,s},{q,r},{q,s},{r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}
g^* - open sets Y,ϕ,{p},{q},{p,q}	**g^* -closed sets** Y,ϕ,{r,s},{p,r,s},{q,r,s}
$\hat{g}$ - open sets Y,ϕ,{p},{q},{p,q}	**$\hat{g}$ -closed sets** Y,ϕ,{r,s},{p,r,s},{q,r,s}
$^*g$ - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r},{q,s},{p,q,r},{p,q,s}	**$^*g$ -closed sets** Y,ϕ,{r},{s},{p,r},{p,s},{q,r},{q,s},{r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}
gs - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r},{q,s},{p,q,r},{p,q,s}	**gs -closed sets** Y,ϕ,{r},{s},{p,r},{p,s},{q,r},{q,s},{r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}
sg - open sets Y,ϕ,{p},{q},{p,q},{p,q,r},{p,q,s}	**sg - closed sets** Y,ϕ,{r},{s},{r,s},{p,r,s},{q,r,s}
$^{\#}$gs - open sets Y,ϕ,{p},{q},{p,q},{p,q,r},{p,q,s}	**$^{\#}$gs -closed sets** Y,ϕ,{r},{s},{r,s},{p,r,s},{q,r,s}
g^*s - open sets Y,ϕ,{p},{q},{p,q},{p,q,r},{p,q,s}	**g^*s -closed sets** Y,ϕ,{r},{s},{r,s},{p,r,s},{q,r,s}
δg - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r},{q,s},{p,q,r},{p,q,s}	**δg -closed sets** Y,ϕ,{r},{s},{p,r},{p,s},{q,r},{q,s},{r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}
gδ - open sets P(Y)	**gδ -closed sets** P(Y)
δg^* - open sets Y,ϕ,{p},{q},{p,q}	**δg^* -closed sets** Y,ϕ,{r,s},{p,r,s},{q,r,s}
$\delta g^{\ddagger}$ - open sets P(Y)	**$\delta g^{\ddagger}$ -closed sets** P(Y)

πg - open sets P(Y)	**πg -closed sets** P(Y)
πgs - open sets P(Y)	**πgs -closed sets** P(Y)
πgα - open sets P(Y)	**πgα -closed sets** P(Y)
πgp - open sets P(Y)	**πgp -closed sets** P(Y)
πgsp - open sets P(Y)	**πgsp -closed sets** P(Y)
gsp - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r} {q,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}	**gsp - closed sets** Y,ϕ,{p},{q},{r},{s},{p,r},{p,s},{q,r}{q,s},{r,s}, {p,q,r},{p,q,s},{p,r,s},{q,r,s}
gspr - open sets P(Y)	**gspr -closed sets** P(Y)

Y = {p,q,r,s}

3. ζ = { Y, ϕ,{p,q,r}} ζ^c = { Y, ϕ,{s}}

η^*-open sets Y,ϕ	**η^*-closed sets** Y,ϕ
J-open sets P(Y)	**J-closed sets** P(Y)
J*- open sets Y,ϕ,{p},{q},{r},{p,q},{q,r},{p,r},{p,q,r}	**J*-closed sets** Y,ϕ,{s},{r,s},{p,s},{q,s},{q,r,s},{p,r,s},{p,q,s}
J- open sets** P(Y)	**J**-closed sets** P(Y)
r*-open sets Y,ϕ	**r*-closed sets** Y,ϕ
δ - open sets Y,ϕ	**δ -closed sets** Y,ϕ
g - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	**g -closed sets** Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q,s},{p,r,s},{q,r,s}
α - open sets Y,ϕ,{p,q,r}	**α -closed sets** Y,ϕ,{s}
semi - open sets Y,ϕ,{p,q,r}	**semi -closed sets** Y,ϕ,{s}
pre - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{p,s},{q,r}, {q,s},{r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}	**pre -closed sets** Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r}, {q,s},{r,s},{p,q,s},{p,r,s},{q,r,s}
semi pre - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{p,s},{q,r}, {q,s},{r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}	**semi pre -closed sets** Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r}, {q,s},{r,s},{p,q,s},{p,r,s},{q,r,s}
regular open sets Y,ϕ	**regular closed sets** Y,ϕ
π - open sets Y,ϕ	**π -closed sets** Y,ϕ
αg - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	**αg -closed sets** Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q,s},{p,r,s},{q,r,s}
g* - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	**g* -closed sets** Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q,s}, {p,r,s},{q,r,s}
ĝ - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	**ĝ -closed sets** Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q,s}, {p,r,s},{q,r,s}
*g - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	***g -closed sets** Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q,s},{p,r,s},{q,r,s}
gs - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	**gs -closed sets** Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q,s},{p,r,s},{q,r,s}

sg - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	**sg - closed sets** Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q,s}, {p,r,s},{q,r,s}
$^{\#}$gs - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	**$^{\#}$gs -closed sets** Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q},{p,r,s},{q,r,s}
g*s - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	**g*s -closed sets** Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q,s},{p,r,s},{q,r,s}
δg - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	**δg -closed sets** Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q,s},{p,r,s},{q,r,s}
gδ - open sets P(Y)	**gδ -closed sets** P(Y)
δg* - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	**δg* -closed sets** Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q,s}, {p,r,s},{q,r,s}
δg‡ - open sets P(Y)	**δg‡ -closed sets** P(Y)
πg - open sets P(Y)	**πg -closed sets** P(Y)
πgs - open sets P(Y)	**πgs -closed sets** P(Y)
πgα - open sets P(Y)	**πgα -closed sets** P(Y)
πgp - open sets P(Y)	**πgp -closed sets** P(Y)
πgsp - open sets P(Y)	**πgsp -closed sets** P(Y)
gsp - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{p,s},{q,r} {q,s},{r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}	**gsp - closed sets** Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r} {q,s},{r,s},{p,q,s},{p,r,s},{q,r,s}
gspr - open sets P(Y)	**gspr -closed sets** P(Y)

Y = {p,q,r,s}

4. ζ = { Y, ϕ,{p},{p,q}} ζ^{c} = { Y, ϕ,{r,s},{q,r,s}}

η^{*}-open sets Y,ϕ,{p},{p,q}	**η^{*}-closed sets** Y,ϕ,{r,s},{q,r,s}
J-open sets P(Y) −{{r,s},{q,r,s},{p,r,s}}	**J-closed sets** P(Y) −{{p},{q},{p,q}}
J*- open sets P(Y) −{{r,s},{q,r,s},{p,r,s}}	**J*-closed sets** P(Y) −{{p},{q},{p,q}}
J- open sets** P(Y) −{{r,s},{q,r,s},{p,r,s}}	**J**-closed sets** P(Y) −{{p},{q},{p,q}}
r*-open sets Y,ϕ,{p},{p,q}	**r*-closed sets** Y,ϕ,{r,s},{q,r,s}
δ - open sets Y,ϕ	**δ -closed sets** Y,ϕ
g - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r}, {q,s},{p,q,r},{p,q,s}	**g -closed sets** Y,ϕ,{r},{s},{p,r},{p,s},{q,r},{q,s},{r,s}, {p,q,r},{p,q,s},{p,r,s},{q,r,s}
α - open sets Y,ϕ,{p},{p,q},{p,r},{p,s},{p,q,r},{p,q,s},{p,r,s}	**α -closed sets** Y,ϕ,{q},{r},{s},{q,r},{q,s},{r,s},{q,r,s}
semi - open sets Y,ϕ,{p},{p,q},{p,r},{p,s},{p,q,r},{p,q,s},{p,r,s}	**semi -closed sets** Y,ϕ,{q},{r},{s},{q,r},{q,s},{r,s},{q,r,s}
pre - open sets Y,ϕ,{p},{p,q},{p,r},{p,s},{p,q,r},{p,q,s},{p,r,s}	**pre -closed sets** Y,ϕ,{q},{r},{s},{q,r},{q,s},{r,s},{q,r,s}
semi pre - open sets	**semi pre -closed sets**

Y,ϕ,{p},{p,q},{p,r},{p,s},{p,q,r},{p,q,s}, {p,r,s}	Y,ϕ,{q},{r},{s},{q,r},{q,s},{r,s},{q,r,s}
regular open sets Y,ϕ	**regular closed sets** Y,ϕ
π - open sets Y,ϕ	**π -closed sets** Y,ϕ
αg - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r}, {q,s},{p,q,r},{p,q,s},{p,r,s}	**αg -closed sets** Y,ϕ,{q},{r},{s},{p,r},{p,s},{q,r},{q,s}, {r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}
g^* - open sets Y,ϕ,{p},{q},{p,q}	**g^* -closed sets** Y,ϕ,{r,s},{p,r,s},{q,r,s}
$\hat{g}$ - open sets Y,ϕ,{p},{p,q}	**$\hat{g}$ -closed sets** Y,ϕ,{r,s},{q,r,s}
$^*g$ - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r}, {q,s},{p,q,r},{p,q,s}	**$^*g$ -closed sets** Y,ϕ,{r},{s},{p,r},{p,s},{q,r},{q,s},{r,s}, {p,q,r},{p,q,s},{p,r,s},{q,r,s}
gs - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r}, {q,s},{p,q,r},{p,q,s},{p,r,s}	**gs -closed sets** Y,ϕ,{q},{r},{s},{p,r},{p,s},{q,r},{q,s}, {r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}
sg - open sets Y,ϕ,{p},{p,q},{p,r},{p,s},{p,q,r},{p,q,s},{p,r,s}	**sg - closed sets** Y,ϕ,{q},{r},{s},{q,r},{q,s},{r,s},{q,r,s}
$^{\#}$gs - open sets Y,ϕ,{p},{q},{p,q},{p,r},{p,s},{p,q,r},{p,q,s},{p,r,s}	**$^{\#}$gs -closed sets** Y,ϕ,{q},{r},{s},{q,r},{q,s},{r,s},{p,r,s},{q,r,s}
g^*s - open sets Y,ϕ,{p},{p,q},{p,r},{p,s},{p,q,r},{p,q,s},{p,r,s}	**g^*s -closed sets** Y,ϕ,{q},{r},{s},{q,r},{q,s},{r,s},{q,r,s}
δg - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r}, {q,s},{p,q,r},{p,q,s}	**δg -closed sets** Y,ϕ,{r},{s},{p,r},{p,s},{q,r},{q,s},{r,s}, {p,q,r},{p,q,s},{p,r,s},{q,r,s}
gδ - open sets P(Y)	**gδ -closed sets** P(Y)
δg^* - open sets Y,ϕ,{p},{q},{p,q}	**δg^* -closed sets** Y,ϕ,{r,s},{p,r,s},{q,r,s}
δ$g^{\ddagger}$ - open sets P(Y)	**δ$g^{\ddagger}$-closed sets** P(Y)
πg - open sets P(Y)	**πg -closed sets** P(Y)
πgs - open sets P(Y)	**πgs -closed sets** P(Y)
πgα - open sets P(Y)	**πgα -closed sets** P(Y)
πgp - open sets P(Y)	**πgp -closed sets** P(Y)
πgsp - open sets P(Y)	**πgsp -closed sets** P(Y)
gsp - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r} {q,s},{p,q,r},{p,q,s},{p,r,s}	**gsp - closed sets** Y,ϕ,{q},{r},{s},{p,r},{p,s},{q,r}{q,s}, {r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}
gspr - open sets P(Y)	**gspr -closed sets** P(Y)

Y = {p,q,r,s}

5. ζ = { Y, ϕ,{p},{r},{p,q},{p,r},{p,q,r},{p,r,s}} ζ^c= { Y, ϕ,{q},{s},{q,s},{r,s},{p,q,s},{q,r,s}}

η^*-open sets Y,ϕ,{p,q},{r},{p,q,r}	**η^*-closed sets** Y,ϕ,{r,s},{p,q,s},{s}

J-open sets P(Y) – {{r,s},{q,r,s}}	**J-closed sets** P(Y) – {{p},{r},{p,q},{q,r},{p,r},{p,q,r}}
J*- open sets Y,ϕ,{p},{r},{p,r},{p,q},{p,q,r}	**J*-closed sets** Y,ϕ,{s},{q,s},{r,s},{q,r,s},{p,q,s}
J- open sets** Y,ϕ,{p},{q},{r},{s},{p,s},{p,q},{q,r}, {q,s}, {p,r}, {p,q,s},{p,q,r}	**J**-closed sets** P(Y)–{{p},{q},{r},{p,q},{q,r},{p,r},{p,q,r}}
r*-open sets Y,ϕ,{p,q},{r}	**r*-closed sets** Y,ϕ,{r,s},{p,q,s}
δ - open sets Y,ϕ,{r},{p,q},{p,q,r}	**δ -closed sets** Y,ϕ,{s},{r,s},{p,q,s}
g - open sets Y,ϕ,{p},{r},{p,q},{p,r},{p,q,r},{p,r,s}	**g -closed sets** Y, ϕ,{q},{s},{q,s},{r,s},{p,q,s},{q,r,s}
α - open sets Y,ϕ,{p},{r},{p,q},{p,r},{p,q,r},{p,r,s}	**α -closed sets** Y, ϕ,{q},{s},{q,s},{r,s},{p,q,s},{q,r,s}
semi - open sets Y,ϕ,{p},{r},{p,q},{p,r},{p,s},{r,s},{p,q,r},{p,q,s},{p, r,s}	**semi -closed sets** Y, ϕ,{q},{r},{s},{p,q},{q,r},{q,s},{r,s}, {p,q,s},{q,r,s}
pre - open sets Y,ϕ,{p},{r},{p,q},{p,r},{p,q,r},{p,r,s}	**pre -closed sets** Y, ϕ,{q},{s},{q,s},{r,s},{p,q,s},{q,r,s}
semi pre - open sets Y,ϕ,{p},{r},{p,q},{p,r},{p,s},{r,s},{p,q,r},{p,q,s},{p, r,s}	**semi pre -closed sets** Y, ϕ,{q},{r},{s},{p,q},{q,r},{q,s},{r,s}, {p,q,s},{q,r,s}
regular open sets Y,ϕ,{r},{p,q}	**regular closed sets** Y,ϕ,{r,s},{p,q,s}
π - open sets Y,ϕ,{r},{p,q},{p,q,r}	**π -closed sets** Y,ϕ,{s},{r,s},{p,q,s}
αg - open sets Y,ϕ,{p},{r},{p,q},{p,r},{p,q,r},{p,r,s}	**αg -closed sets** Y, ϕ,{q},{s},{q,s},{r,s},{p,q,s},{q,r,s}
g* - open sets Y,ϕ,{p},{r},{p,q},{p,r},{p,q,r},{p,r,s}	**g* -closed sets** Y, ϕ,{q},{s},{q,s},{r,s},{p,q,s},{q,r,s}
ĝ - open sets Y,ϕ,{p},{r},{p,q},{p,r},{p,q,r},{p,r,s}	**ĝ -closed sets** Y, ϕ,{q},{s},{q,s},{r,s},{p,q,s},{q,r,s}
***g - open sets** Y,ϕ,{p},{r},{p,q},{p,r},{p,q,r},{p,r,s}	***g -closed sets** Y, ϕ,{q},{s},{q,s},{r,s},{p,q,s},{q,r,s}
gs - open sets Y,ϕ,{p},{r},{p,q},{p,r},{p,s},{r,s}, {p,q,r},{p,q,s},{p,r,s}	**gs -closed sets** Y,ϕ,{q},{r},{s},{p,q},{q,r},{q,s},{r,s}, {p,q,s},{q,r,s}
sg - open sets Y,ϕ,{p},{r},{p,q},{p,r},{p,s},{r,s}, {p,q,r},{p,q,s},{p,r,s}	**sg - closed sets** Y,ϕ,{q},{r},{s},{p,q},{q,r},{q,s},{r,s}, {p,q,s},{q,r,s}
#gs - open sets Y,ϕ,{p},{r},{p,q},{p,r},{p,s},{r,s}, {p,q,r},{p,q,s},{p,r,s}	**#gs -closed sets** Y,ϕ,{q},{r},{s},{p,q},{q,r},{q,s},{r,s}, {p,q,s},{q,r,s}
g*s - open sets Y,ϕ,{p},{r},{p,q},{p,r},{p,s},{r,s}, {p,q,r},{p,q,s},{p,r,s}	**g*s -closed sets** Y,ϕ,{q},{r},{s},{p,q},{q,r},{q,s},{r,s}, {p,q,s},{q,r,s}
δg - open sets Y,ϕ,{p},{r},{p,q},{p,r},{p,q,r}	**δg -closed sets** Y, ϕ,{s},{q,s},{r,s},{p,q,s},{q,r,s}
gδ - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r}, {p,q,r},{p,r,s}	**gδ -closed sets** Y,ϕ,{q},{s},{p,s},{q,s},{r,s},{p,q,s}, {p,r,s},{q,r,s}
δg* - open sets Y,ϕ,{p},{r},{p,q},{p,r},{p,q,r}	**δg* -closed sets** Y, ϕ,{s},{q,s},{r,s},{p,q,s},{q,r,s}
δg‡ - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	**δg‡ -closed sets**

	Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q,s},{p,r,s},{q,r,s}
πg - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r}, {p,q,r},{p,r,s}	**πg -closed sets** Y,ϕ,{q},{s},{p,s},{q,s},{r,s},{p,q,s}, {p,r,s},{q,r,s}
πgs - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{p,s},{q,r}, {r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}	**πgs -closed sets** Y, ϕ,{p},{q},{r},{s},{p,q},{p,s},{q,r}, {q,s},{r,s},{p,q,s},{p,r,s},{q,r,s}
πgα - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r},{p,r,s}	**πgα -closed sets** Y,ϕ,{q},{s},{p,s},{q,s},{r,s},{p,q,s}, {p,r,s},{q,r,s}
πgp - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r},{p,r,s}	**πgp -closed sets** Y,ϕ,{q},{s},{p,s},{q,s},{r,s},{p,q,s}, {p,r,s},{q,r,s}
πgsp - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{p,s},{q,r}, {r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}	**πgsp -closed sets** Y, ϕ,{p},{q},{r},{s},{p,q},{p,s},{q,r}, {q,s},{r,s},{p,q,s},{p,r,s},{q,r,s}
gsp - open sets Y,ϕ,{p},{r},{p,q},{p,r},{p,s},{r,s}, {p,q,r},{p,q,s},{p,r,s}	**gsp - closed sets** Y,ϕ,{q},{r},{s},{p,q},{q,r}{q,s},{r,s}, {p,q,s},{q,r,s}
gspr - open sets P(Y)	**gspr -closed sets** P(Y)

Y = {p,q,r,s}

6. ζ = { Y, ϕ,{p},{q},{p,q},{p,q,r},{p,q,s}} ζ^c={Y, ϕ,{r},{s},{r,s},{p,r,s},{q,r,s}}

η^*-open sets Y,ϕ,{p},{q},{p,q}	**η^*-closed sets** Y,ϕ,{r,s},{q,r,s},{p,r,s}
J-open sets P(Y) −{{r,s},{q,r,s},{p,r,s}}	**J-closed sets** P(Y) −{{p},{q},{p,q}}
J*- open sets Y,ϕ,{p},{q},{p,q}	**J*-closed sets** Y,ϕ,{r,s},{q,r,s},{p,r,s}
J- open sets** P(Y) −{{r,s},{q,r,s},{p,r,s}}	**J**-closed sets** P(Y) −{{p},{q},{p,q}}
r*-open sets Y,ϕ,{p},{q}	**r*-closed sets** Y,ϕ,{q,r,s},{p,r,s}
δ - open sets Y,ϕ,{p},{q},{p,q}	**δ -closed sets** Y,ϕ,{r,s},{p,r,s},{q,r,s}
g - open sets Y,ϕ,{p},{q},{p,q},{p,q,r},{p,q,s}	**g -closed sets** Y,ϕ,{r},{s},{r,s},{p,r,s},{q,r,s}
α - open sets Y,ϕ,{p},{q},{p,q},{p,q,r},{p,q,s}	**α -closed sets** Y,ϕ,{r},{s},{r,s},{p,r,s},{q,r,s}
semi - open sets Y,ϕ,{p},{q},{p,q},{p,r},{p,s},{q,r}, {q,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}	**semi -closed sets** Y,ϕ,{p},{q},{r},{s},{p,r},{p,s},{q,r}, {q,s},{r,s},{p,r,s},{q,r,s}
pre - open sets Y,ϕ,{p},{q},{p,q},{p,q,r},{p,q,s}	**pre -closed sets** Y,ϕ,{r},{s},{r,s},{p,r,s},{q,r,s}
semi pre - open sets Y,ϕ,{p},{q},{p,q},{p,r},{p,s},{q,r}, {q,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}	**semi pre -closed sets** Y,ϕ,{p},{q},{r},{s},{p,r},{p,s},{q,r}, {q,s},{r,s},{p,r,s},{q,r,s}
regular open sets Y,ϕ,{p},{q}	**regular closed sets** Y,ϕ,{p,r,s},{q,r,s}
π - open sets Y,ϕ,{p},{q},{p,q}	**π -closed sets** Y,ϕ,{r,s},{p,r,s},{q,r,s}
αg - open sets Y,ϕ,{p},{q},{p,q},{p,q,r},{p,q,s}	**αg -closed sets** Y,ϕ,{r},{s},{r,s},{p,r,s},{q,r,s}

g^* - open sets Y,ϕ,{p},{q},{p,q},{p,q,r},{p,q,s}	**g^* -closed sets** Y,ϕ,{r},{s},{r,s},{p,r,s},{q,r,s}
$\hat{g}$ - open sets Y,ϕ,{p},{q},{p,q},{p,q,r},{p,q,s}	**$\hat{g}$ -closed sets** Y,ϕ,{r},{s},{r,s},{p,r,s},{q,r,s}
$^*g$ - open sets Y,ϕ,{p},{q},{p,q},{p,q,r},{p,q,s}	**$^*g$ -closed sets** Y,ϕ,{r},{s},{r,s},{p,r,s},{q,r,s}
gs - open sets Y,ϕ,{p},{q},{p,q},{p,r},{p,s},{q,r}, {q,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}	**gs -closed sets** Y,ϕ,{p},{q},{r},{s},{p,r},{p,s},{q,r}, {q,s},{r,s},{p,r,s},{q,r,s}
sg - open sets Y,ϕ,{p},{q},{p,q},{p,r},{p,s},{q,r}, {q,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}	**sg - closed sets** Y,ϕ,{p},{q},{r},{s},{p,r},{p,s},{q,r},{q,s},{r,s}, {p,r,s},{q,r,s}
$^{\#}$gs - open sets Y,ϕ,{p},{q},{p,q},{p,r},{p,s},{q,r}, {q,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}	**$^{\#}$gs -closed sets** Y,ϕ,{p},{q},{r},{s},{p,r},{p,s},{q,r}, {q,s},{r,s},{p,r,s},{q,r,s}
g^*s - open sets Y,ϕ,{p},{q},{p,q},{p,r},{p,s},{q,r}, {q,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}	**g^*s -closed sets** Y,ϕ,{p},{q},{r},{s},{p,r},{p,s},{q,r}, {q,s},{r,s},{p,r,s},{q,r,s}
δg - open sets Y,ϕ,{p},{q},{p,q}	**δg -closed sets** Y,ϕ,{r,s},{p,r,s},{q,r,s}
gδ - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s}, {q,r},{q,s},{p,q,r},{p,q,s}	**gδ -closed sets** Y,ϕ,{r},{s},{p,r},{p,s},{q,r},{q,s}, {r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}
δg^* - open sets Y,ϕ,{p},{q},{p,q}	**δg^* -closed sets** Y,ϕ,{r,s},{p,r,s},{q,r,s}
δ$g^{\ddagger}$ - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s}, {q,r},{q,s},{p,q,r},{p,q,s}	**δ$g^{\ddagger}$ -closed sets** Y,ϕ,{r},{s},{p,r},{p,s},{q,r},{q,s}, {r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}
πg - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s}, {q,r},{q,s},{p,q,r},{p,q,s}	**πg -closed sets** Y,ϕ,{r},{s},{p,r},{p,s},{q,r},{q,s}, {r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}
πgs - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r},{q,s},{p ,q,r},{p,q,s},{p,r,s},{q,r,s}	**πgs -closed sets** Y,ϕ,{p},{q},{r},{s},{p,r},{p,s},{q,r},{q,s}, {r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}
πgα - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s}, {q,r},{q,s},{p,q,r},{p,q,s}	**πgα -closed sets** Y,ϕ,{r},{s},{p,r},{p,s},{q,r},{q,s}, {r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}
πgp - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s}, {q,r},{q,s},{p,q,r},{p,q,s}	**πgp -closed sets** Y,ϕ,{r},{s},{p,r},{p,s},{q,r},{q,s}, {r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}
πgsp - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r},{q,s},{p ,q,r},{p,q,s},{p,r,s},{q,r,s}	**πgsp -closed sets** Y,ϕ,{p},{q},{r},{s},{p,r},{p,s},{q,r},{q,s},{r,s}, {p,q,r},{p,q,s},{p,r,s},{q,r,s}
gsp - open sets Y,ϕ,{p},{q},{p,q},{p,r},{p,s},{q,r}{q,s}, {p,q,r},{p,q,s},{p,r,s},{q,r,s}	**gsp - closed sets** Y,ϕ,{p},{q},{r},{s},{p,r},{p,s},{q,r} {q,s},{r,s},{p,r,s},{q,r,s}
gspr - open sets Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s},{q,r},{q,s},{p ,q,r},{p,q,s},{p,r,s},{q,r,s}	**gspr -closed sets** Y,ϕ,{p},{q},{r},{s},{p,r},{p,s},{q,r},{q,s},{r,s}, {p,q,r},{p,q,s},{p,r,s},{q,r,s}

Y = {p,q,r,s}

7. ζ = { Y, ϕ,{r},{p,q},{p,q,r}} ζ^c ={Y, ϕ,{s},{r,s},{p,q,s}}

η^*-open sets Y,ϕ,{p,q},{r},{p,q,r}	**η^*-closed sets** Y,ϕ,{s},{r,s},{p,q,s}
J-open sets	**J-closed sets**

Y,ϕ,{p},{q},{r},{p,q},{q,r},{p,r},{p,q,r}	Y,ϕ,{s},{r,s},{p,s},{q,s},{q,r,s},{p,r,s},{p,q,s}
J*- open sets Y,ϕ,{p},{q},{r},{ p,q},{q,r}, {p,r}, {p,q,r}	**J*-closed sets** Y,ϕ,{s},{r,s},{p,s},{q,s},{q,r,s},{p,r,s},{p,q,s}
J- open sets** Y,ϕ,{p},{q},{r},{p,q},{q,r},{p,r},{p,q,r}	**J**-closed sets** Y,ϕ,{s},{r,s},{p,s},{q,s},{q,r,s},{p,r,s},{p,q,s}
r*-open sets Y,ϕ,{p,q},{r}	**r*-closed sets** Y,ϕ,{r,s},{p,q,s}
δ - open sets Y,ϕ,{r},{p,q},{p,q,r}	**δ -closed sets** Y,ϕ,{s},{r,s},{p,q,s}
g - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	**g -closed sets** Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q,s},{p,r,s}, {q,r,s}
α - open sets Y,ϕ,{r},{p,q},{p,q,r}	**α -closed sets** Y,ϕ,{s},{r,s},{p,q,s}
semi - open sets Y,ϕ,{r},{p,q},{r,s},{p,q,r},{p,q,s}	**semi -closed sets** Y,ϕ,{r},{s},{p,q},{r,s},{p,q,s}
pre - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r}, {p,q,r},{p,r,s},{q,r,s}	**pre -closed sets** Y,ϕ,{p},{q},{s},{p,s},{q,s},{r,s},{p,q,s},{p,r,s}, {q,r,s}
semi pre - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{p,s},{q,r}, {q,s},{r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}	**semi pre -closed sets** Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s}, {q,r},{q,s},{r,s},{p,q,s},{p,r,s},{q,r,s}
regular open sets Y,ϕ,{r},{p,q}	**regular closed sets** Y,ϕ,{r,s},{p,q,s}
π - open sets Y,ϕ,{r},{p,q},{p,q,r}	**π -closed sets** Y,ϕ,{s},{r,s},{p,q,s}
αg - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	**αg -closed sets** Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q,s},{p,r,s},{q,r,s}
g^* - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	**g^* -closed sets** Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q,s},{p,r,s},{q,r,s}
ĝ - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	**ĝ -closed sets** Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q,s},{p,r,s}, {q,r,s}
*g - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	***g -closed sets** Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q,s},{p,r,s},{q,r,s}
gs - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{r,s}, {p,q,r},{p,q,s},{p,r,s},{q,r,s}	**gs -closed sets** Y,ϕ,{p},{q},{r},{s},{p,q},{p,s},{q,s}, {r,s},{p,q,s},{p,r,s},{q,r,s}
sg - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{r,s}, {p,q,r},{ p,q,s},{p,r,s},{q,r,s}	**sg - closed sets** Y,ϕ,{p},{q},{r},{s},{p,q},{p,s},{q,s}, {r,s},{p,q,s},{p,r,s},{q,r,s}
$^{\#}$gs - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{r,s}, {p,q,r},{p,q,s}	**$^{\#}$gs -closed sets** Y,ϕ,{r},{s},{p,q},{p,s},{q,s},{r,s}, {p,q,s},{p,r,s},{q,r,s}
g^*s - open sets Y,ϕ,{r},{p,q},{r,s},{p,q,r},{p,q,s}	**g^*s -closed sets** Y,ϕ,{r},{s},{p,q},{r,s},{p,q,s}
δg - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	**δg -closed sets** Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q,s},{p,r,s}, {q,r,s}
gδ - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	**gδ -closed sets** Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q,s},{p,r,s}, {q,r,s}
δg^* - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	**δg^* -closed sets** Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q,s},{p,r,s}, {q,r,s}
$\delta g^{\ddagger}$ - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	**$\delta g^{\ddagger}$ -closed sets** Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q,s},{p,r,s},{q,r,s}

πg - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	**πg -closed sets** Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q,s},{p,r,s},{q,r,s}
πgs - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{r,s}, {p,q,r},{p,q,s},{p,r,s},{q,r,s}	**πgs -closed sets** Y,ϕ,{p},{q},{r},{s},{p,q},{p,s},{q,s}, {r,s},{p,q,s},{p,r,s},{q,r,s}
πgα - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r}	**πgα -closed sets** Y,ϕ,{s},{p,s},{q,s},{r,s},{p,q,s},{p,r,s}, {q,r,s}
πgp - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{q,r},{p,q,r},{p,r,s},{ q,r,s}	**πgp -closed sets** Y,ϕ,{p},{q},{s},{p,s},{q,s},{r,s},{p,q,s},{p,r,s}, {q,r,s}
πgsp - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{p,s},{q,r}, {q,s},{r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}	**πgsp -closed sets** Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s}, {q,r},{q,s},{r,s},{p,q,s},{p,r,s},{q,r,s}
gsp - open sets Y,ϕ,{p},{q},{r},{p,q},{p,r},{p,s},{q,r} {q,s},{r,s},{p,q,r},{p,q,s},{p,r,s},{q,r,s}	**gsp - closed sets** Y,ϕ,{p},{q},{r},{s},{p,q},{p,r},{p,s}, {q,r}{q,s},{r,s},{p,q,s},{p,r,s},{q,r,s}
gspr - open sets P(Y)	**gspr -closed sets** P(Y)