## FIGURES TO FACILITATE CHECKING OF PROOFS

Note to Readers:

The attached figures facilitate the checking of the proofs. The pages are numbered N-1 to N-6 for the node connectivity case, and E-1 to E-13 for the edge connectivity case. Further, each of the figures is labeled with a number corresponding to the case number it corresponds (in the description of the cases). Finally, figures are attached for the 9 cases of the edge-decomposition on general graphs using 2-separators.

# Node Connectivity Case

## Cases for $S'_{ik}$

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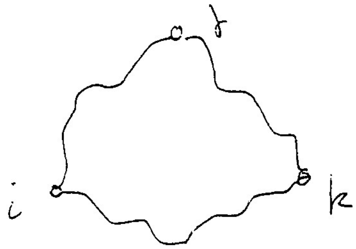
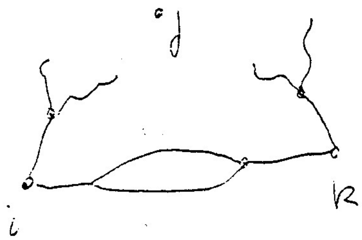


$P_{ij} \cup P_{jk} \cup P_{ik}$

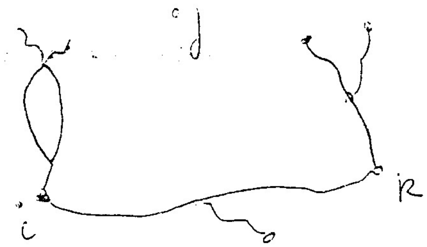
(1)

(a) =



$S_{ik} \cup T_{ij} \cup T_{kj}$ ; $a_{ij} = a_{kj} = 0$

(b) =



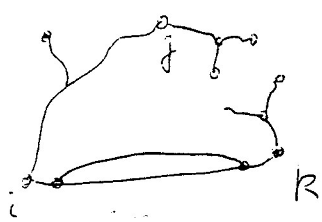
$T_{ij} \cup P_{ik} \cup T_{kj}$ ; $a_{ik} = a_{jk} = 0$

(c) =

$T_{ij} \cup P_{ik} \cup T_{kj}$ ; $a_{ki} = a_{ji} = 0$

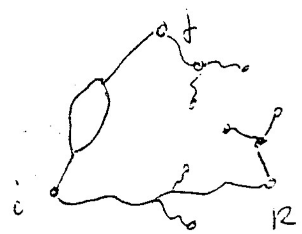
(2)

(a) =



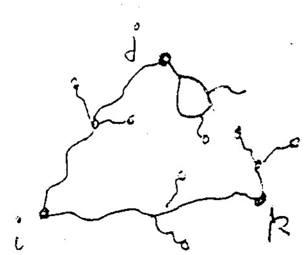
$S_{ik} \cup P_{ij} \cup Q_{jk}$ ; $a_{ij} = a_{kj} = 0$

(b) =



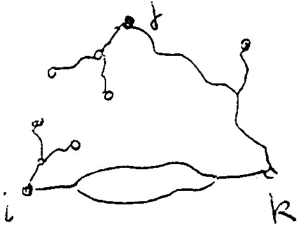
$P_{ik} \cup S_{ij} \cup Q_{jk}$ ; $a_{ik} = a_{jk} = 0$

(c) =

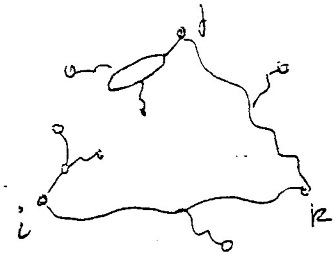


$P_{ij} \cup P_{ik} \cup R_{jk}$ ; $a_{ji} = a_{ki} = 0$

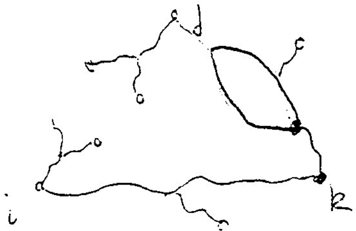
(3)

(a) = 


$S_{ik} \cup P_{kj} \cup Q_{ij}$ ; $a_{ij} = a_{kj} = 0$

(b) = 


$P_{ik} \cup P_{kj} \cup R_{ij}$ ; $a_{ik} = a_{jk} = 0$

(c) = 


$P_{ik} \cup S_{kj} \cup Q_{ij}$ ; $a_{ji} = a_{ki} = 0$

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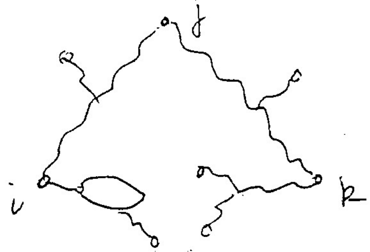
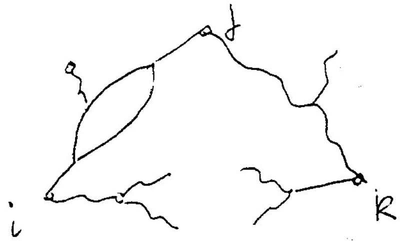
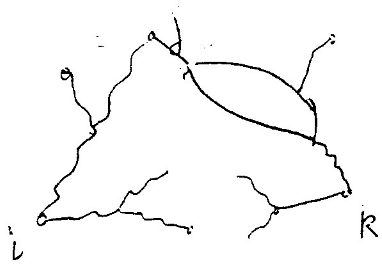
(4)

(a) = 


$R_{ik} \cup P_{kj} \cup P_{ij}$ ; $a_{ij} = a_{kj} = 0$

(b) = 


$Q_{ik} \cup S_{ij} \cup P_{jk}$ ; $a_{ik} = a_{jk} = 0$

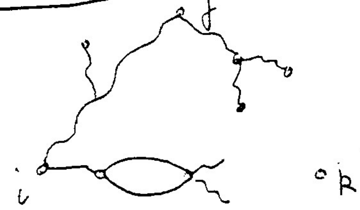
(c) = 


$Q_{ik} \cup P_{ij} \cup S_{jk}$ ; $a_{ji} = a_{ki} = 0$

## $T'_{ik}$ (Cases)

(1)

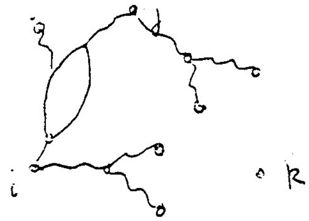
(a) =



$T_{ik} \cup P_{ij} \cup T_{jk}$

$a_{ij} = a_{kj} = 0$

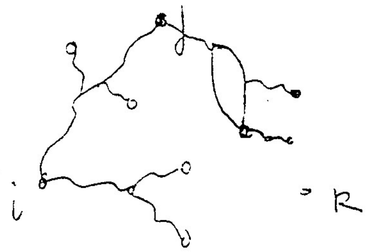
(b) =



$T_{ik} \cup S_{ij} \cup T_{jk}$

$a_{ik} = a_{jk} = 0$

(c) =



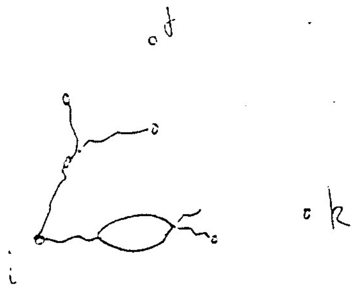
$T_{ik} \cup P_{ij} \cup T_{jk}$

$a_{ji} = a_{ki} = 0$

---

(2)

(a) =



$T_{ik} \cup T_{ij}$

$m_{jk} = 0, \; a_{ij} = 0$

(b) =

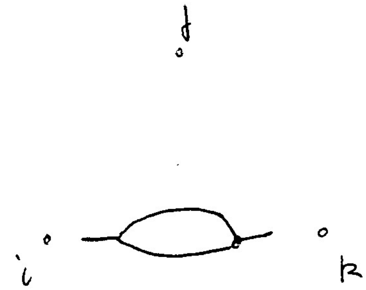
$T_{ik} \cup T_{ij}$

$m_{jk} = 0, \; a_{ik} = 0$

## Cases for $U'_{ik}$

(1)

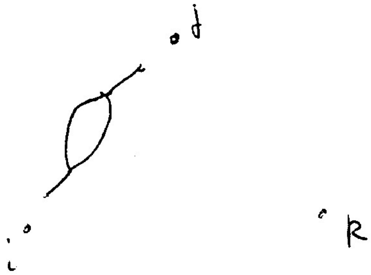
(a) =




$U_{ik}$

$m_{ij} = m_{jk} = 0$

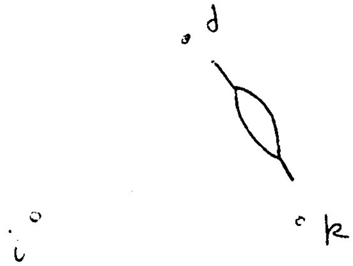
(b) =




$U_{ij}$

$m_{ik} = m_{jk} = 0$

(c) =



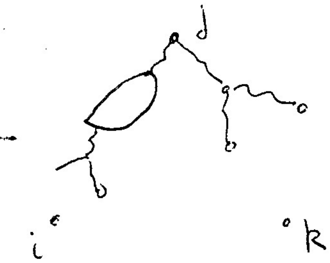

$U_{jk}$

$m_{ij} = m_{ik} = 0$

---

(2)

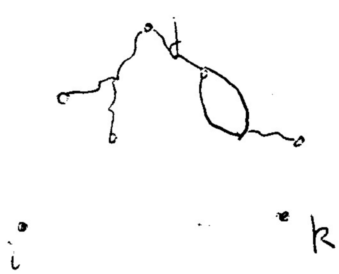
(a) =




$T_{ji} \, U \, T_{jk}$

$m_{ik} = 0, \ a_{jk} = 0$

(b) =

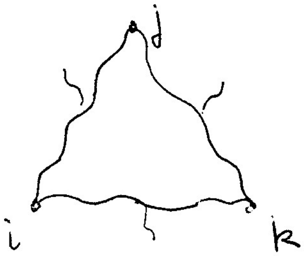



$T_{ji} \, U \, T_{jk}$

$m_{ik} = 0, \ a_{ji} = 0$

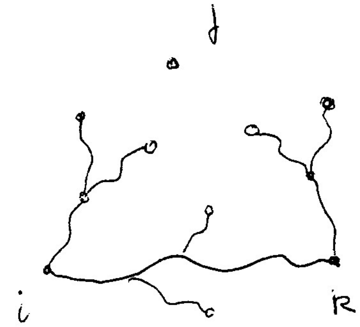
## Cases for $P'_{ik}$

(1) =




$P_{ik} \cup P_{ij} \cup P_{jk}$

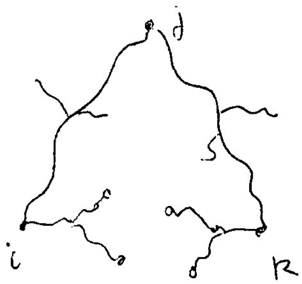
(2) =




$P_{ik} \cup T_{ij} \cup T_{kj}$

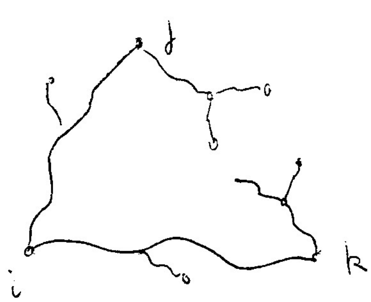
$a_{ij} = a_{kj} = 0$

(3) =




$P_{ij} \cup P_{jk} \cup Q_{ik}$

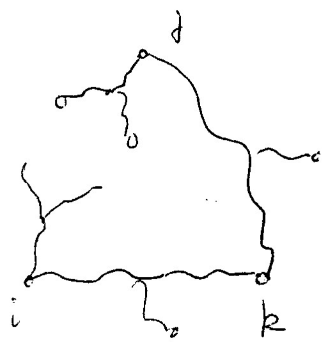
(4) =




$P_{ij} \cup P_{ik} \cup Q_{jk}$

$a_{ij} = 0$

(5) =




$P_{ik} \cup Q_{ij} \cup P_{kj}$

$a_{kj} = 0$

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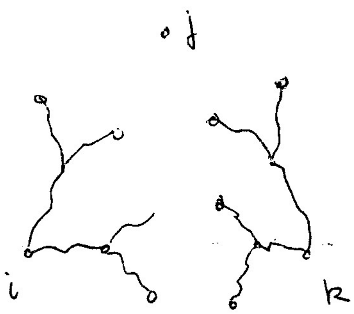
## Cases for $Q'_{ik}$

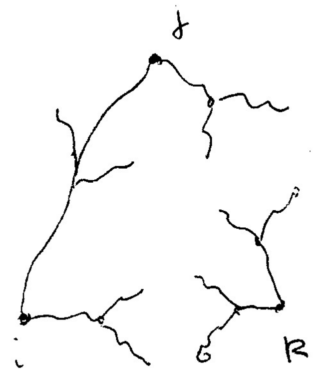
(1) =




$Q_{ik} \cup T_{ij} \cup T_{kj}$

$a_{ij} = a_{kj} = 0$

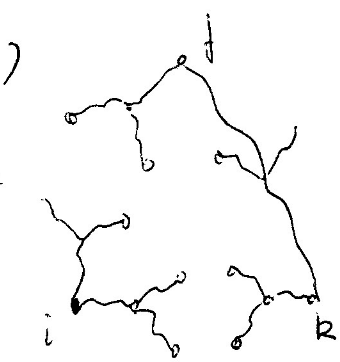
(2) =




$Q_{ik} \cup P_{ij} \cup Q_{jk}$

$a_{ij} = a_{kj} = 0$

(3) =



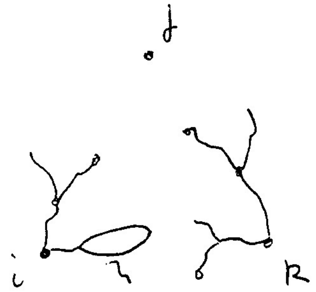

$Q_{ik} \cup Q_{ij} \cup P_{jk}$

$a_{ij} = a_{kj} = 0$

## Cases for $R'_{ik}$

(1)

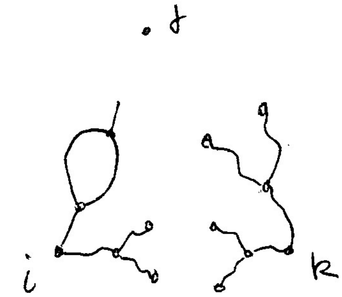
(a) =




$R_{ik} \cup T_{ij} \cup T_{kj}$

$a_{ij} = a_{kj} = 0$

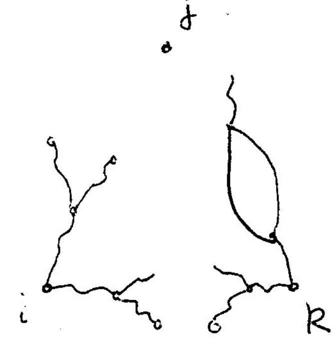
(b) =




$Q_{ik} \cup T_{ij} \cup T_{kj}$

$a_{ik} = a_{jk} = 0$

(c) =

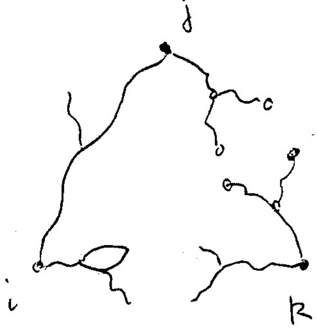



$Q_{ik} \cup T_{ij} \cup T_{kj}$

$a_{ji} = a_{ki} = 0$

(2)

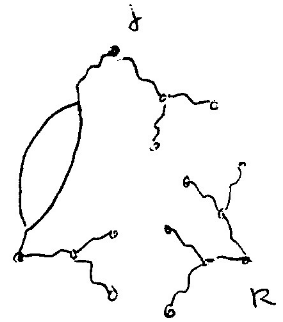
(a) =




$R_{ik} \cup P_{ij} \cup Q_{jk}$

$a_{ij} = a_{kj} = 0$

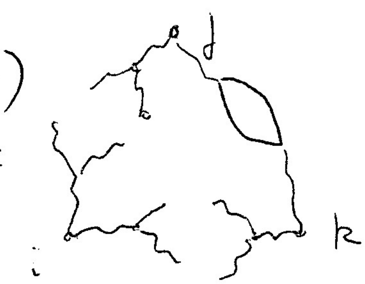
(b) =




$Q_{ik} \cup S_{ij} \cup Q_{jk}$

$a_{ik} = a_{jk} = 0$

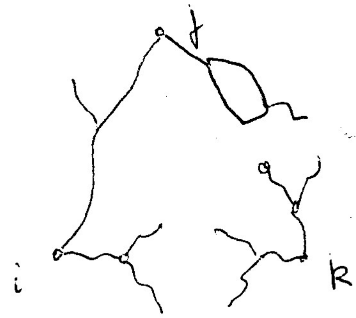
(c) =




$Q_{ik} \cup Q_{ij} \cup S_{jk}$

$a_{ji} = a_{ki} = 0$

(c) =

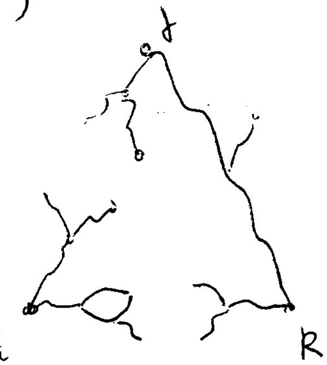



$Q_{ik} \cup P_{ij} \cup R_{jk}$

$a_{ji} = a_{ki} = 0$

(3)

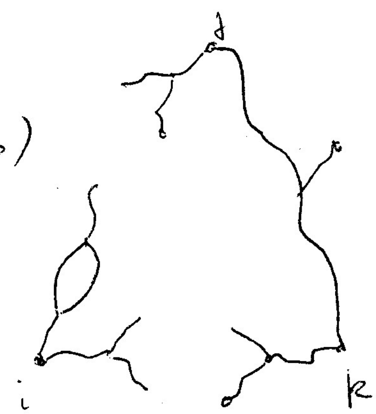
(a) =




$R_{ik} \cup Q_{ij} \cup P_{jk}$

$a_{ij} = a_{kj} = 0$

(b) =



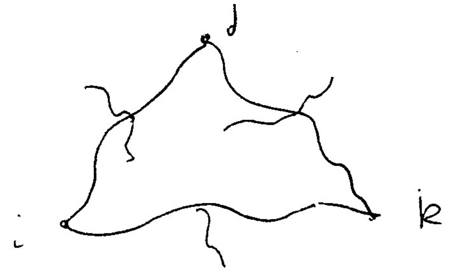

$Q_{ik} \cup R_{ij} \cup P_{jk}$

$a_{ik} = a_{jk} = 0$

# EDGE CONNECTIVITY CASE

## Cases for $S_{ik}^{i}$

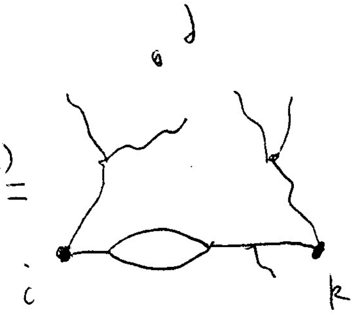
(1) =




$P_{ik} \cup P_{ij} \cup P_{jk}$

(2)

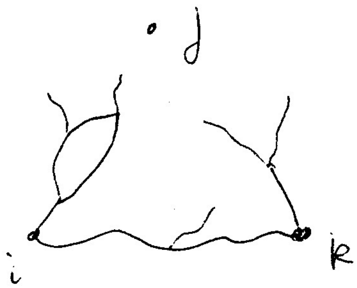
(a) =




$S_{ik} \cup T_{ij} \cup T_{kj}$

$b_{ij} = b_{kj} = 0$

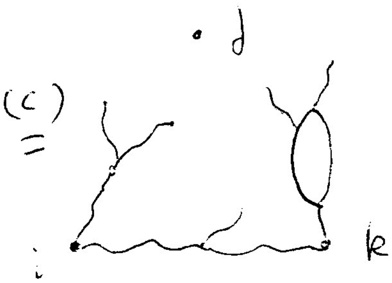
(b) =




$P_{ik} \cup T_{ij} \cup T_{kj}$

$b_{ik} = b_{jk} = 0$

(c) =




$P_{ik} \cup T_{ij} \cup T_{kj}$

$b_{ji} = b_{ki} = 0$

(d) =


$S_{ik}^{i} \cup T_{ij}^{i} \cup T_{kj}$

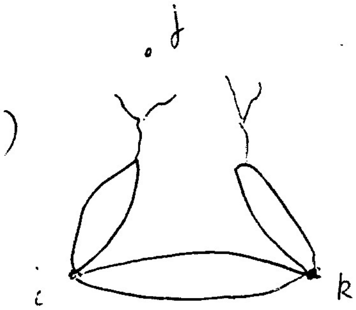
$b_{kj} = 0$

(e) =


$S_{ik}^{k} \cup T_{ij} \cup T_{kj}^{k}$

$b_{ij} = 0$

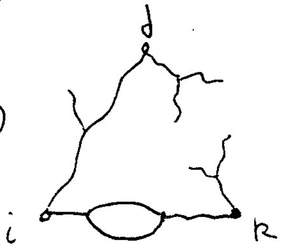
(f) =




$S_{ik}^{ik} \cup T_{ij}^{i} \cup T_{kj}^{k}$

(3)

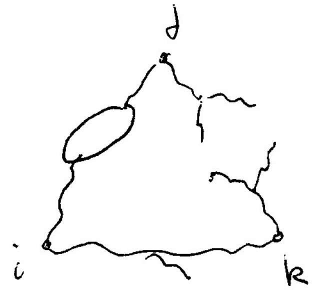
(a) =




$S_{ik} \cup P_{ij} \cup Q_{kj}$

$b_{ij} = b_{kj} = 0$

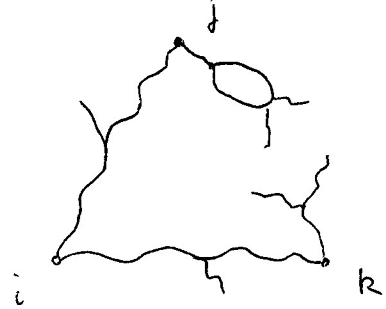
(b) =




$P_{ik} \cup S_{ij} \cup Q_{kj}$

$b_{ik} = b_{jk} = 0$

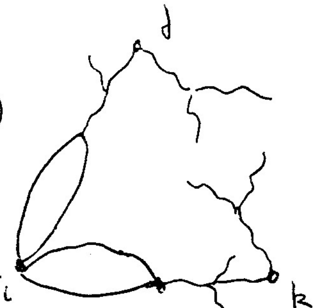
(c) =




$P_{ik} \cup P_{ij} \cup R_{jk}$

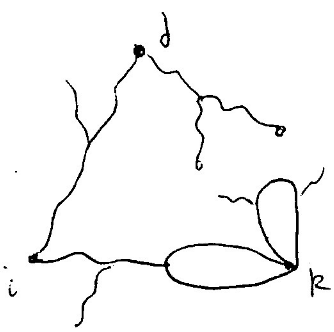
$b_{ji} = b_{ki} = 0$

(d) =




$S_{ik}^{i} \cup S_{ij}^{i} \cup Q_{kj}$

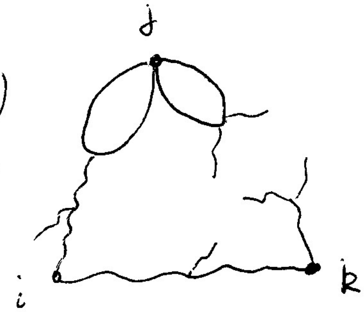
(e) =




$S_{ik}^{k} \cup P_{ij} \cup Q_{kj}^{k}$

$b_{ij} = 0$

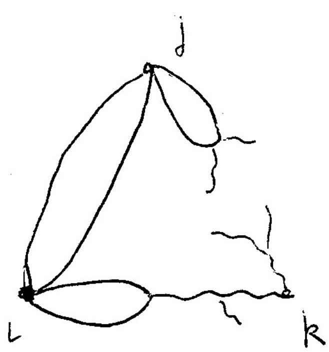
(f) =




$P_{ik} \cup S_{ij}^{j} \cup Q_{jk}^{j}$

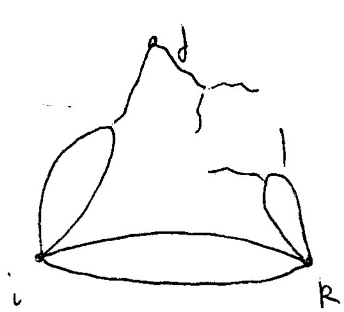
$b_{ik} = 0$

(g) =



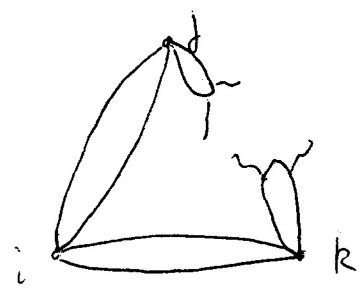

$S_{ik}^{i} \cup S_{ij}^{ij} \cup Q_{jk}^{j}$

(h) =




$S_{ik}^{ik} \cup S_{ij}^{i} \cup Q_{kj}^{k}$

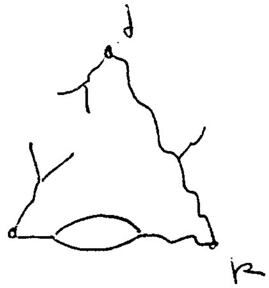
(i) =




$S_{ik}^{ik} \cup S_{ij}^{ij} \cup Q_{jk}^{jk}$

(4)

(a) =




$S_{ik} \cup Q_{ij} \cup P_{kj}$

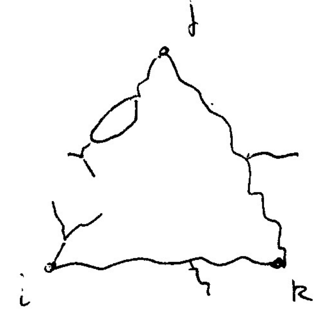
$b_{ij} = b_{kj} = 0$

(b) =


$P_{ik} \cup Q_{ij} \cup S_{kj}$

$b_{ki} = b_{ji} = 0$

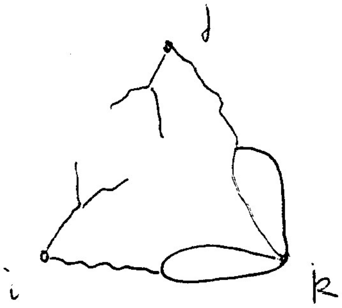
(c) =




$P_{ik} \cup P_{jk} \cup R_{ij}$

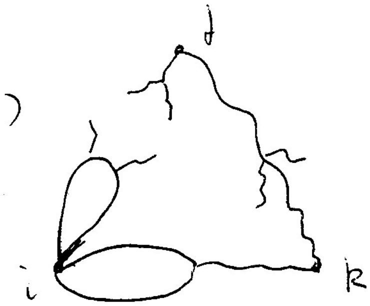
$b_{ik} = b_{jk} = 0$

(d) =




$S_{ik}^{k} \cup S_{kj}^{k} \cup Q_{ij}$

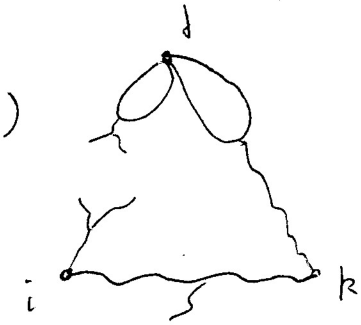
(e) =




$S_{ik}^{i} \cup Q_{ij}^{i} \cup P_{kj}$

$b_{kj} = 0$

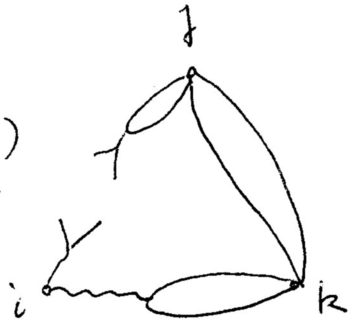
(f) =




$P_{ik} \cup Q_{ij}^{j} \cup S_{kj}^{j}$

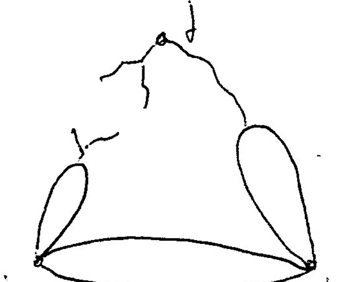
$b_{ki} = 0$

(g) =



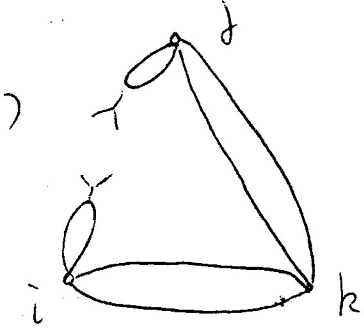

$S_{ik}^{k} \cup S_{jk}^{jk} \cup Q_{ij}^{j}$

(h) =




$S_{ik}^{ik} \cup Q_{ij}^{i} \cup S_{kj}^{k}$

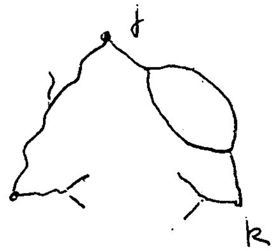
(i) =




$S_{ik}^{ik} \cup S_{jk}^{jk} \cup Q_{ij}^{ij}$

(5.)

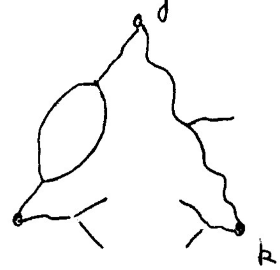
(a) =



$P_{ij} \cup S_{jk} \cup Q_{ik}$

$b_{ji} = b_{ki} = 0$

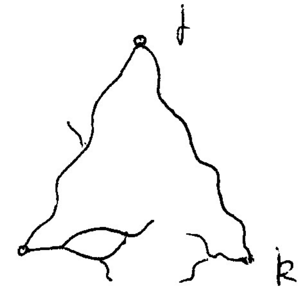
(b) =



$S_{ij} \cup P_{jk} \cup Q_{ik}$

$b_{ik} = b_{jk} = 0$

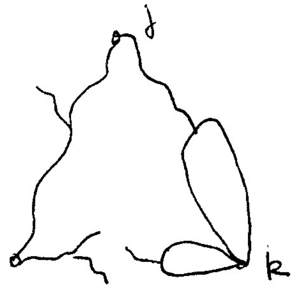
(c) =



$P_{ij} \cup P_{jk} \cup R_{ik}$

$b_{ij} = b_{kj} = 0$

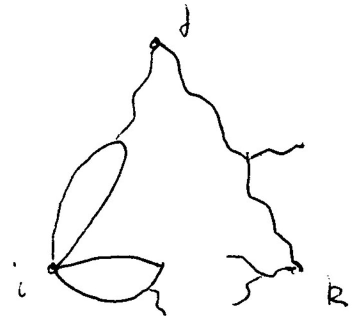
(d) =



$Q^{k}_{ki} \cup S^{k}_{kj} \cup P_{ij}$

$b_{ji} = 0$

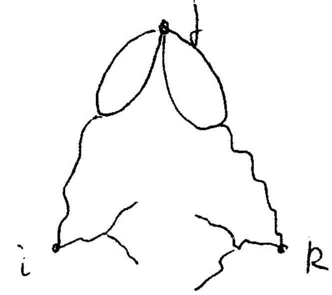
(e) =



$Q^{i}_{ik} \cup S^{i}_{ij} \cup P_{jk}$

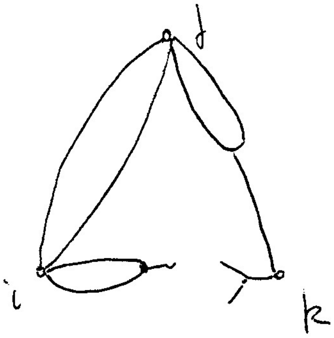
$b_{jk} = 0$

(f) =



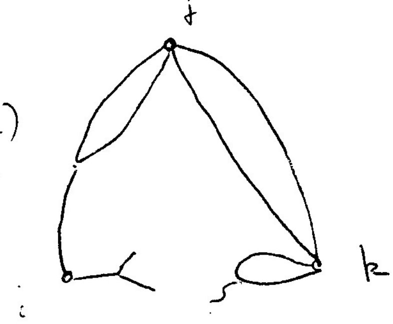
$S^{j}_{ij} \cup S^{j}_{jk} \cup Q_{ik}$

(g) =



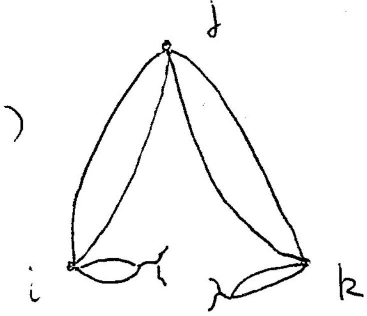
$S^{ij}_{ij} \cup S^{j}_{jk} \cup Q^{i}_{ik}$

(h) =



$S^{j}_{ij} \cup S^{jk}_{jk} \cup Q^{k}_{ik}$

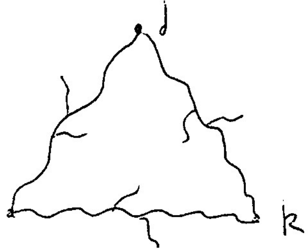
(i) =



$S^{ij}_{ij} \cup S^{jk}_{jk} \cup Q^{ik}_{ik}$

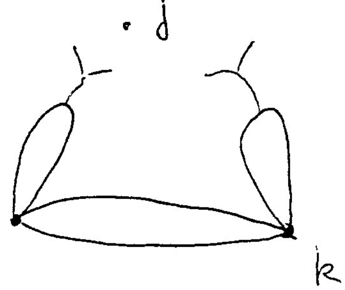
## Cases for $S_{ik}^{ik'}$

(1) =




$P_{ik} \cup P_{ij} \cup P_{jk}$

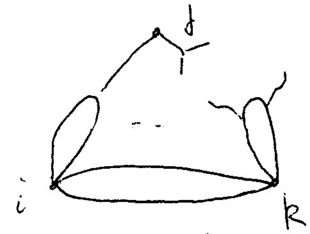
(2) =




$S_{ik}^{ik} \cup T_{ij}^{i} \cup T_{kj}^{k}$

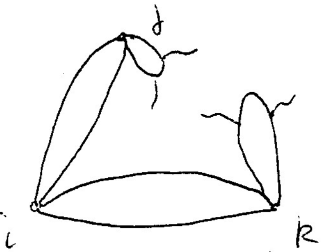
(3)

(a) =




$S_{ik}^{ik} \cup S_{ij}^{i} \cup Q_{kj}^{k}$

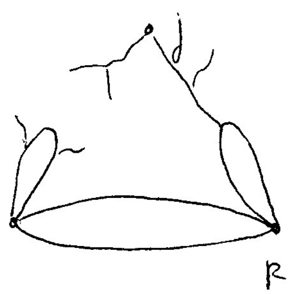
(b) =




$S_{ik}^{ik} \cup S_{ij}^{ij} \cup Q_{jk}^{jk}$

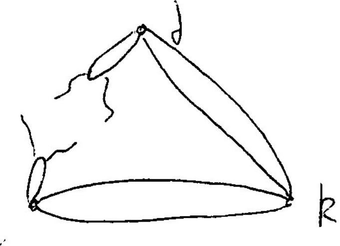
(4)

(a) =



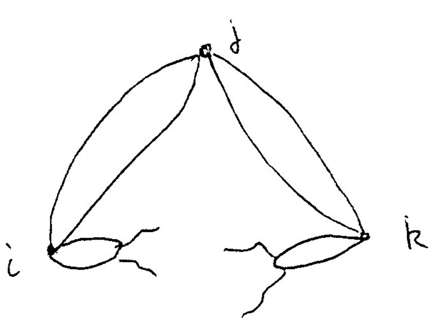

$S_{ik}^{ik} \cup Q_{ij}^{i} \cup S_{jk}^{k}$

(b) =




$S_{ik}^{ik} \cup Q_{ij}^{ij} \cup S_{jk}^{jk}$

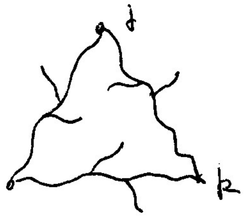
(5) =




$S_{ij}^{ij} \cup S_{jk}^{jk} \cup Q_{ik}^{ik}$

## Cases for $S'^{\,i}_{ik}$

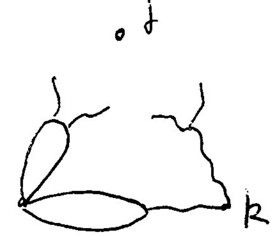
(1) =



$P_{ik} \cup P_{ij} \cup P_{jk}$

(2)

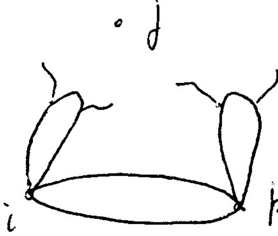
(a) =



$S_{ik}^{i} \cup T_{ij}^{i} \cup T_{kj}$

$b_{kj} = 0$

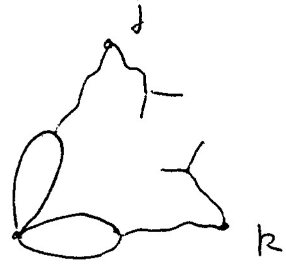
(b) =



$S_{ik}^{ik} \cup T_{ij}^{i} \cup T_{kj}^{k}$

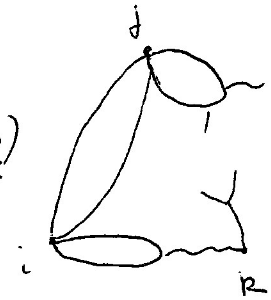
(3)

(a) =



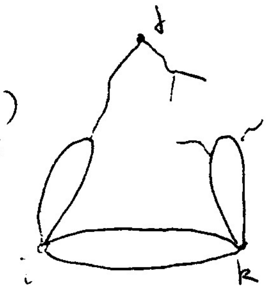
$S_{ik}^{i} \cup S_{ij}^{i} \cup Q_{jk}$

(b) =



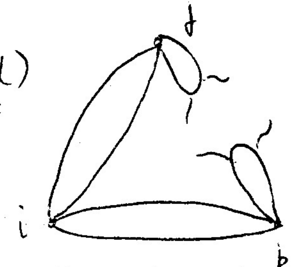
$S_{ik}^{i} \cup S_{ij}^{ij} \cup Q_{jk}^{j}$

(c) =



$S_{ik}^{ik} \cup S_{ij}^{i} \cup Q_{kj}^{k}$

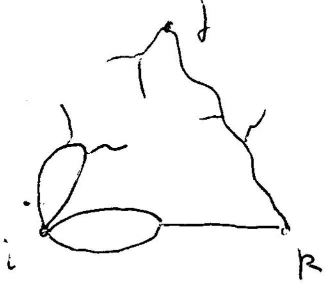
(d) =



$S_{ik}^{ik} \cup S_{ij}^{ij} \cup Q_{jk}^{jk}$

(4)

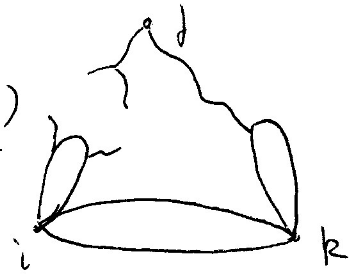
(a) =



$S_{ik}^{i} \cup Q_{ij}^{i} \cup P_{kj}$

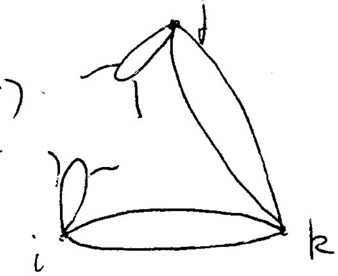
$b_{kj} = 0$

(b) =



$S_{ik}^{ik} \cup Q_{ij}^{i} \cup S_{kj}^{k}$

(c) =



$S_{ik}^{ik} \cup Q_{ij}^{ij} \cup S_{kj}^{kj}$

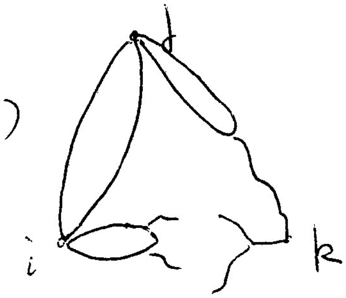
(5)

(a) =

$S_{ij}^{i} \cup Q_{ik}^{i} \cup P_{jk}$

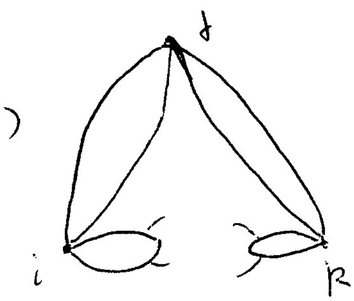
$b_{jk} = 0$

(b) =



$S_{ij}^{ij} \cup Q_{ik}^{i} \cup S_{jk}^{j}$

(c) =

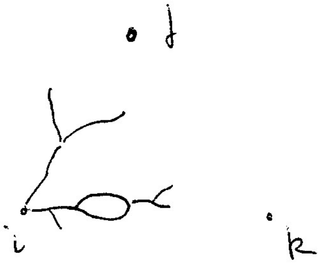


$S_{ij}^{ij} \cup S_{jk}^{jk} \cup Q_{ik}^{ik}$

# Cases for $T'_{ik}$

(1)

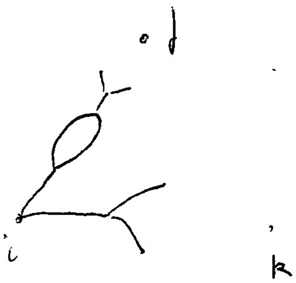
(a)




$T_{ik} \cup T_{ij}$

$m_{jk} = 0,\ b_{ij} = 0.$

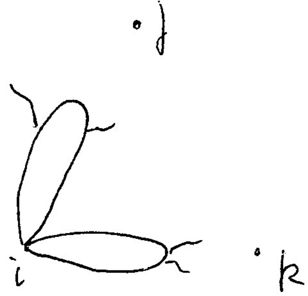
(b)




$T_{ik} \cup T_{ij}$

$m_{jk} = 0,\ b_{ik} = 0.$

(c)

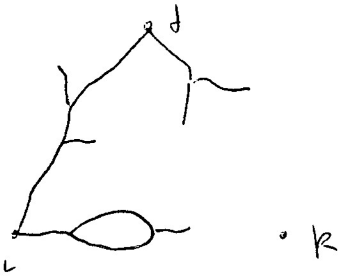



$T^{i}_{ij} \cup T^{i}_{ik}$

$m_{jk} = 0$

(2)

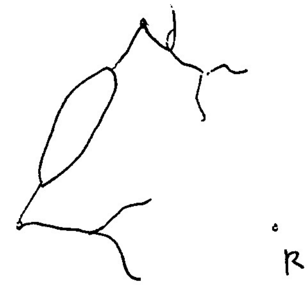
(a)




$T_{ik} \cup P_{ij} \cup T_{jk}$

$b_{ij} = b_{kj} = 0.$

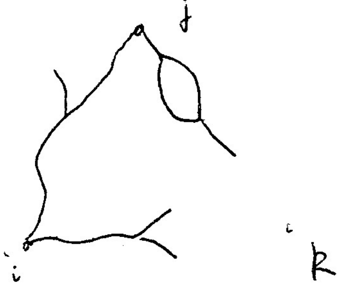
(b)




$T_{ik} \cup S_{ij} \cup T_{jk}$

$b_{ik} = b_{jk} = 0.$

(c)




$T_{ik} \cup P_{ij} \cup T_{jk}$

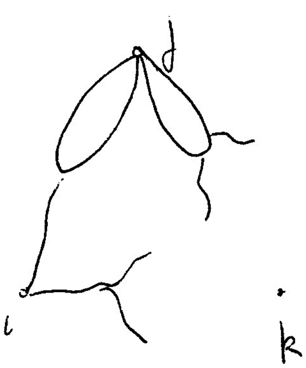
$b_{ji} = b_{ki} = 0.$

(d)


$T^{i}_{ik} \cup S^{i}_{ij} \cup T_{jk}$

$b_{jk} = 0.$

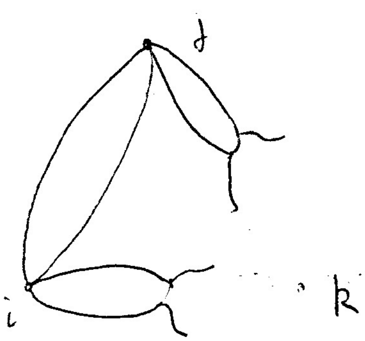
(e)




$T_{ik} \cup S^{j}_{ij} \cup T^{j}_{jk}$

$b_{ik} = 0.$

(f)

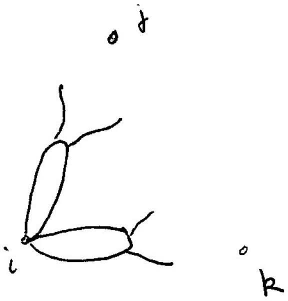



$T^{i}_{ik} \cup S^{ij}_{ij} \cup T^{j}_{jk}$

## Cases for $T'^{\,i}_{ik}$

(1)

$=$

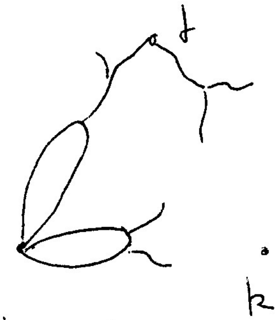


$T^i_{ij} \cup T^i_{ik}$

$m_{jk} = 0$

(2)

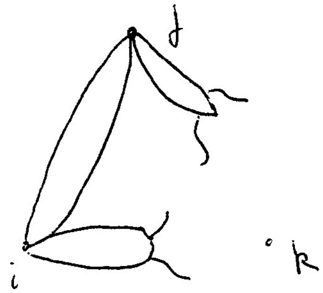
$\overset{(a)}{=}$



$S^i_{ij} \cup T^i_{ik} \cup T_{jk}$

$b_{jk} = 0$

$\overset{(b)}{=}$



$S^{ij}_{ij} \cup T^i_{ik} \cup T^j_{jk}$

## Cases for $U'_{ik}$

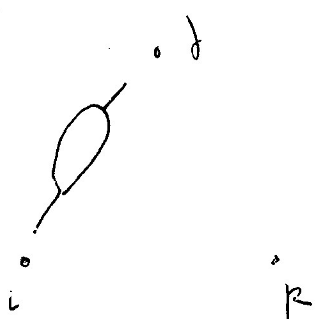
(1)

$\overset{(a)}{=}$

$U_{ik}$

$m_{ij} = m_{kj} = 0$

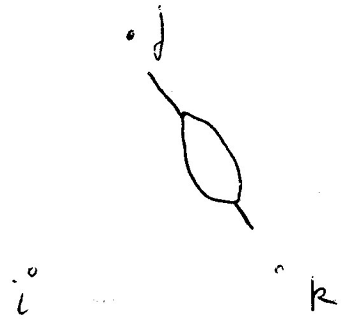
$\overset{(b)}{=}$



$U_{ij}$

$m_{ik} = m_{jk} = 0$

$\overset{(c)}{=}$

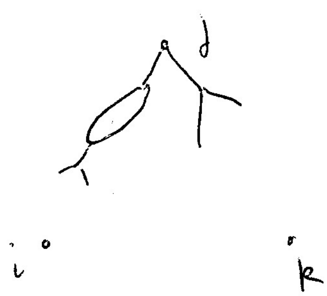


$U_{jk}$

$m_{ji} = m_{ki} = 0$

(2)

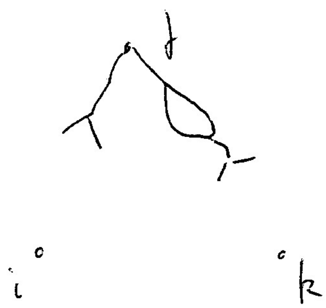
$\overset{(a)}{=}$



$T_{ji} \cup T_{jk}$

$m_{ik} = 0, \; b_{jk} = 0$

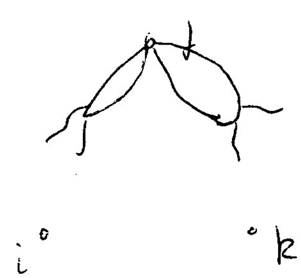
$\overset{(b)}{=}$



$T_{ji} \cup T_{jk}$

$m_{ik} = 0, \; b_{ji} = 0$

$\overset{(c)}{=}$



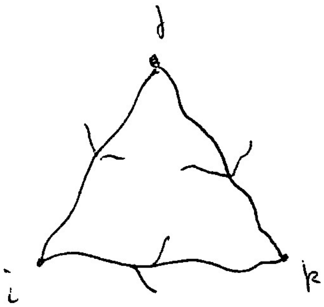
$T^j_{ji} \cup T^j_{jk}$

$m_{ik} = 0$

# Cases for $P'_{ik}$

(1)

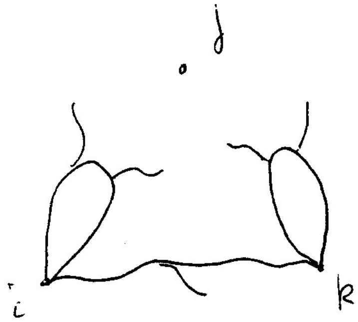
=




$P_{ik} \cup P_{ij} \cup P_{jk}$

(2)

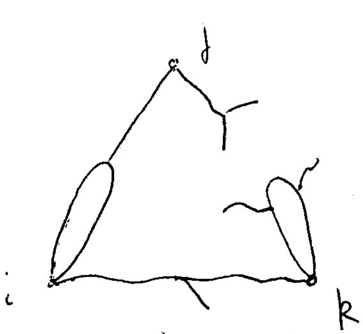
=




$P_{ik} \cup T^{i}_{ij} \cup T^{k}_{kj}$

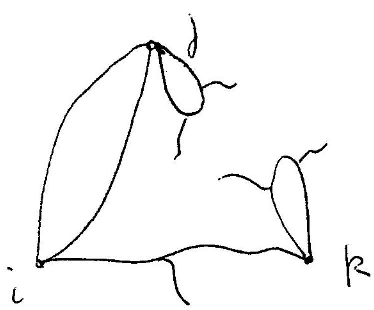
(3)

(a) =




$P_{ik} \cup S^{i}_{ij} \cup Q^{k}_{kj}$

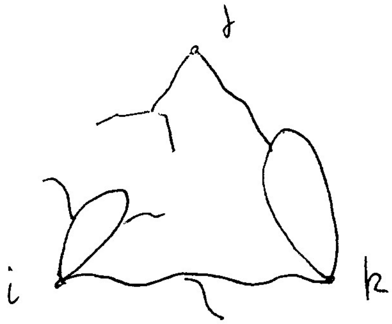
(b) =




$P_{ik} \cup S^{ij}_{ij} \cup Q^{kj}_{kj}$

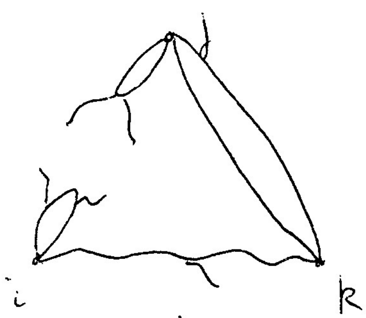
(4)

(a) =




$P_{ik} \cup Q^{i}_{ij} \cup S^{k}_{kj}$

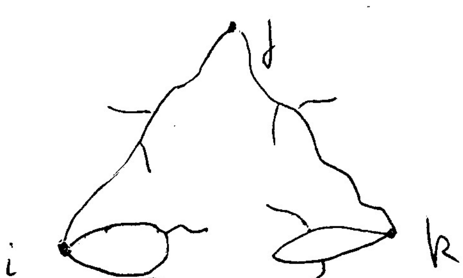
(b) =




$P_{ik} \cup Q^{ij}_{ij} \cup S^{kj}_{kj}$

(5)

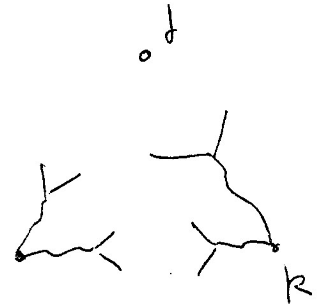
=




$P_{ij} \cup P_{jk} \cup Q^{ik}_{ik}$

## Cases for $Q_{ik}$

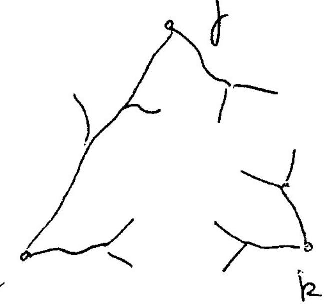
(1)

$=$ 

$Q_{ik} \cup T_{ij} \cup T_{kj}$

$b_{ij} = b_{kj} = 0$

(2)

$=$ 

$Q_{ik} \cup P_{ij} \cup Q_{jk}$

$b_{ij} = b_{kj} = 0$

(3)

$=$ 

$Q_{ik} \cup Q_{ij} \cup P_{jk}$

$b_{ij} = b_{kj} = 0$

## Cases for $Q^i_{ik}$

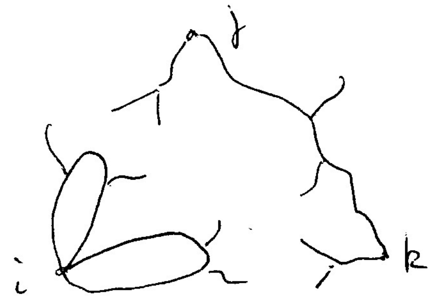
(1)

$=$ 

$Q^i_{ik} \cup T^i_{ij} \cup T_{kj}$

$b_{kj} = 0$

(2)

$=$ 

$Q^i_{ik} \cup Q^i_{ij} \cup P_{jk}$

$b_{kj} = 0$

(3)

(a) $=$ 

$Q^i_{ik} \cup S^i_{ij} \cup Q_{jk}$

(b) $=$ 

$Q^i_{ik} \cup S^{ij}_{ij} \cup Q^j_{jk}$

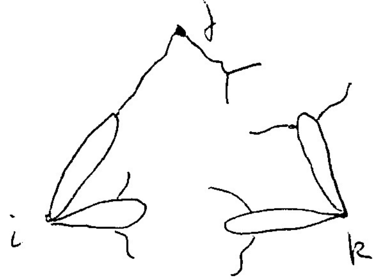
## Cases for $Q_{ik}^{ijk}$

(1)


$Q_{ik}^{ik} \cup T_{ij}^{i} \cup T_{kj}^{k}$

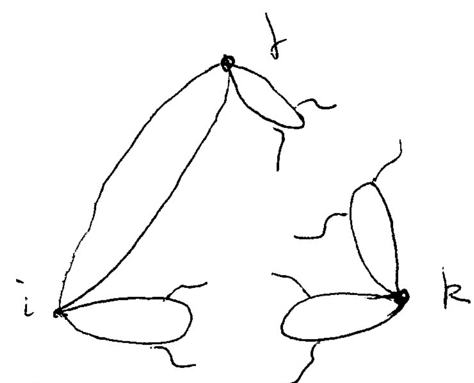
(2)

(a) =




$Q_{ik}^{ik} \cup S_{ij}^{i} \cup Q_{kj}^{k}$

(b) =



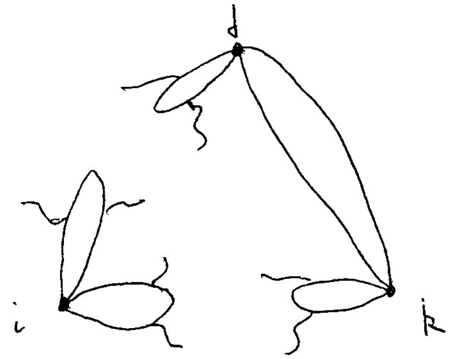

$Q_{ik}^{ik} \cup S_{ij}^{ij} \cup Q_{kj}^{kj}$

(3)

(a) =


$Q_{ik}^{ik} \cup Q_{ij}^{i} \cup S_{kj}^{k}$

(b) =

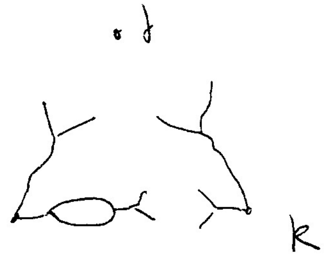



$Q_{ik}^{ik} \cup Q_{ij}^{ij} \cup S_{kj}^{kj}$

# Cases for $R'_{ik}$

(1)

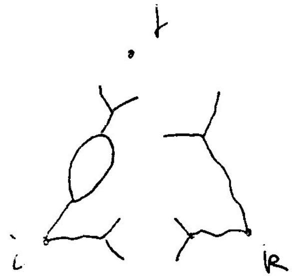
(a) =




$R_{ik} \cup T_{ij} \cup T_{kj}$

$b_{ij} = b_{kj} = 0$

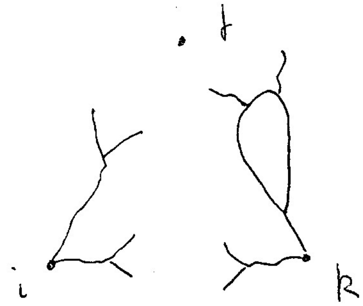
(b) =




$Q_{ik} \cup T_{ij} \cup T_{kj}$

$b_{ik} = b_{jk} = 0$

(c) =




$Q_{ik} \cup T_{ij} \cup T_{kj}$

$b_{ki} = b_{ji} = 0$

(d) =


$Q^{i}_{ik} \cup T^{i}_{ij} \cup T_{kj}$

$b_{jk} = 0$

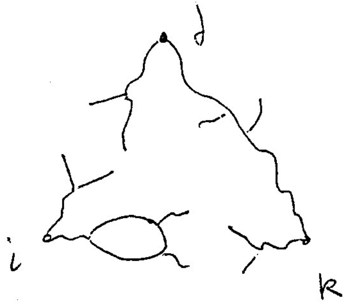
(e) =


$Q^{k}_{ik} \cup T_{ij} \cup T^{k}_{kj}$

$b_{ji} = 0.$

(2)

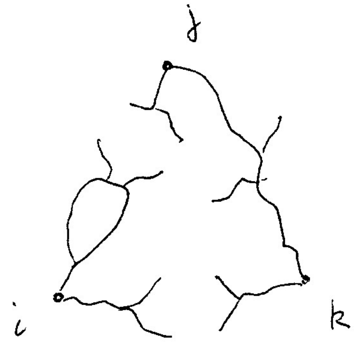
(a) =




$R_{ik} \cup Q_{ij} \cup P_{kj}$

$b_{ij} = b_{kj} = 0$

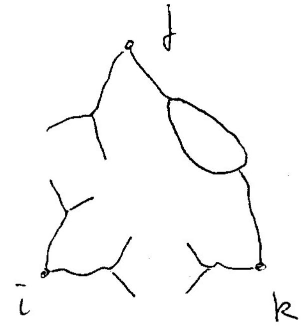
(b) =




$Q_{ik} \cup R_{ij} \cup P_{kj}$

$b_{ik} = b_{jk} = 0$

(c) =




$Q_{ik} \cup Q_{ij} \cup S_{kj}$

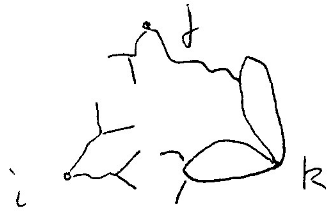
$b_{ji} = b_{ki} = 0$

(d) =


$Q^{i}_{ik} \cup Q^{i}_{ij} \cup P_{kj}$

$b_{jk} = b_{kj} = 0$

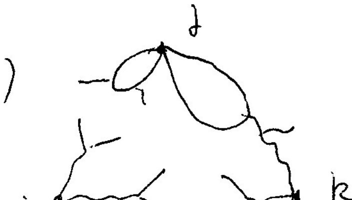
(e) =




$Q^{k}_{ik} \cup Q_{ij} \cup S^{k}_{kj}$

$b_{ji} = 0$

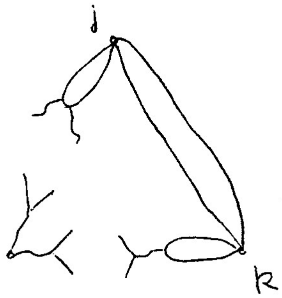
(f) =




$Q_{ik} \cup Q^{j}_{ij} \cup S^{j}_{kj}$

$b_{ki} = 0$

(g)
=

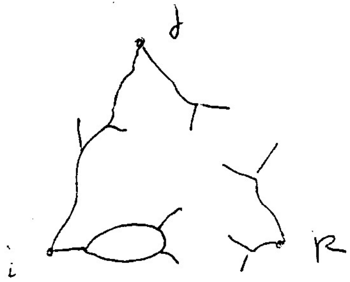



$Q_{ik}^{k} \cup Q_{ij}^{j} \cup S_{kj}^{kj}$

$Y_i = 0$

(3)

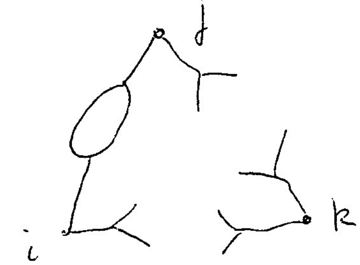
(a)
=




$R_{ik} \cup P_{ij} \cup Q_{jk}$

$b_{ij} = b_{kj} = 0$

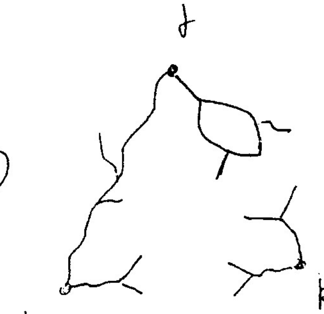
(b)
=




$Q_{ik} \cup S_{ij} \cup Q_{jk}$

$b_{ik} = b_{jk} = 0$

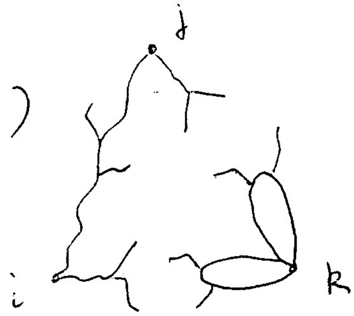
(c)
=




$Q_{ik} \cup P_{ij} \cup R_{jk}$

$b_{ji} = b_{ki} = 0$

(d)
=




$Q_{ik}^{k} \cup P_{ij} \cup Q_{jk}^{k}$

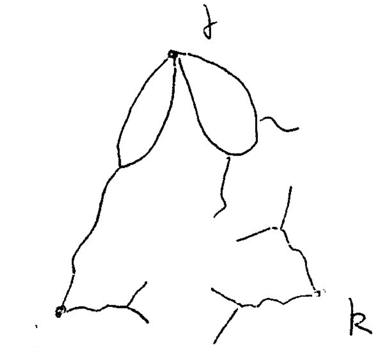
$b_{ij} = b_{ji} = 0$

(e)
=


$Q_{ik}^{i} \cup S_{ij}^{i} \cup Q_{jk}$

$b_{jk} = 0$

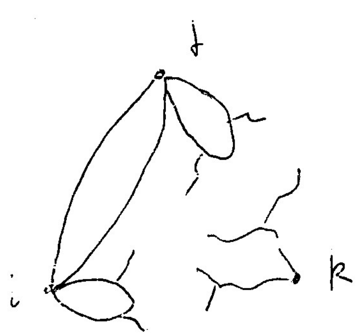
(f)
=




$Q_{ik} \cup S_{ij}^{j} \cup Q_{jk}^{j}$

$b_{ik} = 0$

(g)
=



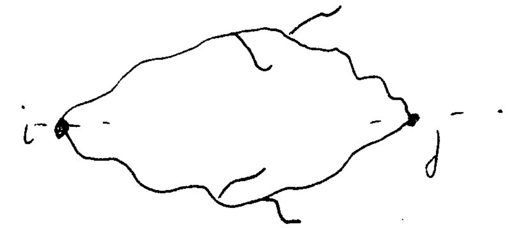

$Q_{ik}^{i} \cup S_{ij}^{ij} \cup Q_{jk}^{j}$

$Y_k = 0$

## Decompositions for edge connectivity case.

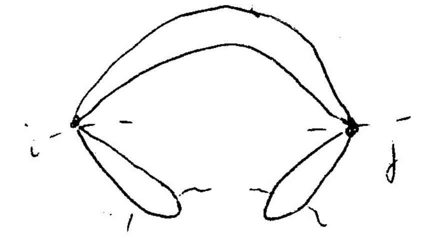
Upper graph $= G_1$, lower graph $= G_2$. Separated by - - -

(1)

= 

$P_{ij}^{1} \cup P_{ij}^{2}$

(2)

(a) = 

$S_{ij}^{ij\,1} \cup Q_{ij}^{ij\,2}$

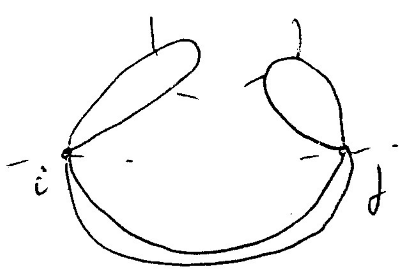
(b) = 

$S_{ij}^{i\,1} \cup Q_{ij}^{i\,2}$

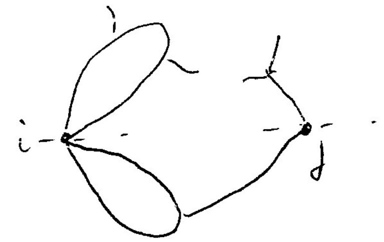
(c) = 

$S_{ij}^{j\,1} \cup Q_{ij}^{j\,2}$

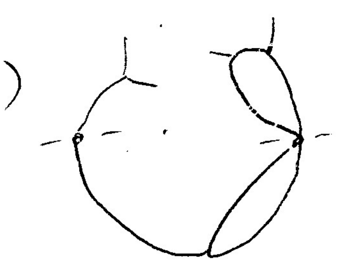
(3)

(a) = 

$S_{ij}^{ij\,2} \cup Q_{ij}^{ij\,1}$

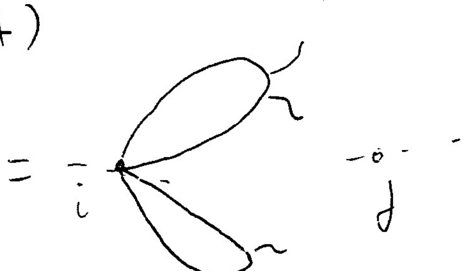
(b) = 

$S_{ij}^{i\,2} \cup Q_{ij}^{i\,1}$

(c) = 

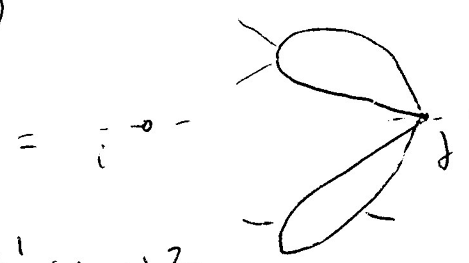
$S_{ij}^{j\,2} \cup Q_{ij}^{j\,1}$

(4)

= 

$T_{ij}^{i\,1} \cup T_{ij}^{i\,2}$

(5)

= 

$T_{ij}^{j\,1} \cup T_{ij}^{j\,2}$