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M M M M M M MAN
                                                                                    Spec - sendoustic
And - determination

And - determination
S-Adjustaunt
- Filteny
- prediction
                                                              E\{s'\}=0 E\{e'\}=0
E\{z'\}=0
   Z=J-A74
          S = \begin{bmatrix} S_1 & S_2 & \cdots & S_p \end{bmatrix}^T
Z = \begin{bmatrix} Z_1 & Z_2 & \cdots & Z_m \end{bmatrix}^T
      V = \begin{bmatrix} S_1 & S_2 & \dots & S_p & Z_1 & \dots & Z_m \end{bmatrix}^T = \begin{bmatrix} S^T & Z^T \end{bmatrix}
P = \begin{bmatrix} S^T & 
                \sum_{v} \begin{bmatrix} Q_{35} & Q_{52} \\ Q_{25} & Q_{22} \end{bmatrix}
                                                                                                                 Q<sub>11</sub> -- (2,5) = E{SS}}
Q<sub>12</sub> -- (2,5) = E{SS}}
Q<sub>13</sub> -- (2,5) = E{(4-AN)(4-AN)}-E{(4-E{3})(4-E{3})} = Q<sub>33</sub>
                                                                                                                    Q<sub>SZ</sub>= E{SZ<sup>T</sup>}=E{S(y-Ax)} = Qsy
                                                                                                                          E{Y} = A72
                                     = \[ \begin{pmatrix} \alpha_{55} & \alpha_{57} \\ \alpha_{15} & \begin{pmatrix} \alpha_{17} \\ \alpha_{17} & \b
                                                                                  Qec = cov(e,e) = E/eeT} & D

Qss; cov(s,s) = E/s'sT] & Q
                                                                       = E{5'5'}}+E{05}}+E{5'0}+6{00}}
                                                                                                                                                                                       Qyy = Q55 + Qee
                                                                                     Qoy = E[SZT] = E[S(S'*e)] - E[SS'T] + E[SET]
                                                                                                                                                                                                                                                                                                Ax+ B@qw =1
                                                                                                                                                                                                 = E { S 5 1 = Q 551
                                                                                AR + BV - J=0)
                                                                                                                                                                                                                              = [O I Mxm]
                                                                                                                   B=
                                                                PIZ
                                                                                                                                                                                                                                                           AR
                                                                                                                                                                                                                                                                                                                                                                                                                                                 g-Ax
                                                                                                                                                                                                                                                                                                                                                                                       ABK
                                                                                                       (v<sup>T</sup>pv)
                                                                                                                         L(v, x) = \frac{1}{2} v^{T} p v + \lambda^{T} (A x + B v - y)
                                                                                                                                                                                                                                                                                                                                                                                   Sh (64)
                                                                                                                                \frac{3L(\sqrt{N})}{\sqrt{N}} = \sqrt{p} - \lambda^{T} = 0 \implies \sqrt{N} = p^{T} e^{T} \lambda
\frac{2L(\sqrt{N})}{\sqrt{N}} = \sqrt{\lambda^{T} A} = 0
\sqrt{A} \times (8p^{T} e^{T} \lambda) = \sqrt{\lambda^{T} A} = 0
\sqrt{A} \times (8p^{T} e^{T} \lambda) = \sqrt{\lambda^{T} A} = 0
                                                                                                                                                                                                                                          ATOP'ET) AX + ATA = ATOP'ET) Y
                                                                                                                                                                      ATA = 0
                                                                                                                                          A(GP G) HAT + (GP G)(GP G)(GP AX)
\Rightarrow V - P G (GP G)(GP G)(GP AX)
BP G = GID = [0 i] \begin{bmatrix} Q_{33} & Q_{31} \\ Q_{35} & Q_{31} \end{bmatrix} \begin{bmatrix} 0 \\ 1 \end{bmatrix} = Q_{31} - \overline{Q}
A(Q_{11}) Ax = A(Q_{11}) J \qquad (\widehat{Q} = (\widehat{A}Q_{11}) A)^{-1} \widehat{A}(Q_{11}) J
                                                                                                                                                                 v= I Bajj (y-Ax)

\begin{bmatrix}
5 \\
7
\end{bmatrix} = \begin{bmatrix}
Q_{55} & Q_{57} \\
Q_{55} & Q_{17}
\end{bmatrix} \begin{bmatrix}
0 \\
1
\end{bmatrix} Q_{y1} (y - Ax)

                                                                                                                                                                                     S= (asy (ay) (y-Ax)
                                                                                                                                                                                                                                          22 = (ATQH'A) ATQH'Y=> 2= 64
                                                                                                                                                                                                                                                                a (ATQ11 A) AQ11 Q11 Q11 A (ATQ11 A)
                                                                                                                                                                                                                                                                     ( ATQ11 A)
                                                                                                                                                                                                      ($=<u>L</u>3)
                                                                                                                                                                                                                                                                        LA-0
                                                                                                                                                                                                                                                    L= Qsy Qyj [I-A(ATayj A) ATayj]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lay L =
                                                                                                                                                                                                                                                                                                                                                                                                                                 Lays = Qsy Qy [I - A (ATQy A) ATQy ] Qys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 will be discussed next week again
                                                                                                                                                                                                                                       3= LJ= H(I-AG)y
                                                                                                                                                                                                                                                                          = H (y-AGy) = H(y-AR)
                                                                                                                                                                                                                                                                                                                                                                                                                                           Lays = QsyLT)
                                                                                                                                                                                                                                                                                                                                                                                                                                            Lay L = Qy Qj [1 - A(Aay A) ATQj ] Qy Qy [I - A(ATQj A) ATQj ] Qys
                                                                                                                                                                                                                                                ês=5-5=5-hy
                                                                                                                                                                                                                                                                                        = 5-L (AX+Z)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       = asy any [T-A(ATayj'A) ATayj] ays
                                                                                                                                                                                                                                                                                              = S- LAN-LZ =
                                                                                                                                                                                                                                                                                                                                                                                                                        Layy L = asyayy [I - Al Alam A) Alam lays)
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y= A72+e J= A72+5'+e