Stat873 **HW11** **Not to be collected**

1. With $A \in R^{n_{..} \times a}$ and $B \in R^{n_{..} \times b}$ defined in L24, show that

$$\mathcal{R}(1_{n_{..}}, A - 1_{n_{..}} 1_a^+, B - 1_{n_{..}} 1_b^+) \subset \mathcal{R}(1_{n_{..}} 1_{n_{..}}^+, AA^+ - 1_{n_{..}} 1_{n_{..}}^+, BB^+ - 1_{n_{..}} 1_{n_{..}}^+).$$

2. data file 873.txt contains numeric variable y and character variable A and B.

   (1) Find SSA=SSM by running

```
data a;
     infile "D:\873.txt";
     input y A $ B $ @@;
proc anova;
     class A;
     model y=A;
     run;
```

   (2) Find SSB=SSM by running

```
proc anova;
     class B;
     model y=B;
     run;
```

   (3) Find SSM by running

```
proc anova;
     class A B;
     model y=A B A*B;
     run;
```

   (4) Does SSA in (1) equal SSA in (3)? Does SSB in (2) equal SSB in (3)? Is SSM-SSA-SSB equal to SSAB in (3)? This is how proc anova calculates SSA, SSB and SSAB. Did SAS log give a warning?