eAppendix

```sas
/*Generate data*/
DATA a;
      CALL STREAMINIT(123);
      DO id=1 to 1000000;

            PA=0.5;
            A=rand("Bern",PA);

            PU = 0.3;
            U=rand("Bern",PU);

            PW = 0.2+0.4*A+0.3*U;
            W = rand("Bern", PW);

            PS = 0.1+0.8*W;
            S = rand("Bern", PS);

            PY=0.3+0.5*U-0.2*A;
            Y=rand("Bern",PY);

            OUTPUT;
      END;
RUN;

/*Truth*/
PROC GENMOD DATA=a DESC;
      MODEL Y=A / DIST=bin LINK=identity;
      ODS SELECT modelinfo parameterestimates;
      TITLE "truth";
RUN;

/*Crude*/
PROC GENMOD DATA=a DESC;
      MODEL Y=A / DIST=bin LINK=identity;
      ODS SELECT modelinfo parameterestimates;
      TITLE "crude";
      WHERE S=0;
RUN;

/*Stratified on W*/
PROC GENMOD DATA=a DESC;
      MODEL Y=A W/ DIST=bin LINK=identity;
      ODS SELECT modelinfo parameterestimates;
      TITLE "stratified";
      WHERE S=0;
RUN;

/*Gformula*/
TITLE "G-comp Models";
ODS SELECT NONE;
PROC GENMOD DATA=a DESC;
      WHERE S=0;
      MODEL y=a w / DIST=bin LINK=identity;
      ODS OUTPUT parameterestimates=yest(keep=parameter estimate stderr);
```

```
	RUN;

	PROC GENMOD DATA=a DESC;
	     MODEL W=A / DIST=bin LINK=identity;
	     ODS OUTPUT parameterestimates=west(keep=parameter estimate stderr);
	RUN;
	ODS SELECT ALL;

	DATA west;
	     SET west;
	     RETAIN z 1 intw intwse;
	     IF parameter="Intercept" THEN DO; intw=estimate; intwse=stderr; END;
	     IF parameter="A" THEN DO; wona=estimate; wonase=stderr; OUTPUT; END;
	     KEEP z intw intwse wona wonase;
	RUN;

	DATA yest;
	     SET yest;
	     RETAIN z 1 inty intyse yona yonase;
	     IF parameter="Intercept" THEN DO; inty=estimate; intyse=stderr; END;
	     IF parameter="A" THEN DO; yona=estimate; yonase=stderr; END;
	     IF parameter="W" THEN DO; yonw=estimate; yonwse=stderr; OUTPUT; END;
	     KEEP z inty intyse yona yonase yonw yonwse;
	RUN;

	PROC PRINT DATA=west; TITLE "G-comp model P(W|A)";
	PROC PRINT DATA=yest; TITLE "G-comp model P(Y|A,W,S=0)"; RUN;

	DATA b;
	     MERGE west yest;
	     BY z;
	     gcomp1=0; gcomp0=0;
	     DO A=0 TO 1;
	          DO W=0 TO 1;
	               pw = (intw + wona*A);
	               IF W=0 THEN pw=1-pw;
	               IF A=0 THEN gcomp0=gcomp0 + pw*(inty + yona*A + yonw*W);
	               ELSE gcomp1=gcomp1 + pw*(inty + yona*A + yonw*W);
	          END;
	     END;
	     gcomp=gcomp1-gcomp0;
	     DROP A W pw;
	RUN;

	PROC PRINT DATA = b; VAR gcomp; TITLE "gcomp"; RUN;
```