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Missing Values in SAS 6.12, US-Version

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Fehlende Werte in SAS 6.12, US-Version

Für das Seminar

Fehlende Werte

von

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1. Gesellschaftliche Relevanz und Rahmen

Fast jeder Deutsche verwendet in seinem Leben irgendwann ein Medikament. Bevor Medikamente zugelassen werden, und damit vermarktet werden können, muß seit Anfang der 90-er Jahre die Wirksamkeit nachgewiesen worden sein (gemäß AMG, Arzneimittelgesetz). Die Wirksamkeit von Medikamenten wird meist mit Arzneimittelstudien nachgewiesen. Dabei liegen häufig unvollständige Datensätze, oder gar fehlende Datensätze vor. Für die Auswertung der Daten werden aufwendige Statistikprogramme eingesetzt, die bis in die 80-er Jahre nur auf Großrechnern liefen.

Führend bei der Zulassung von Medikamenten ist die amerikanische FDA (Food and Drug Administration), die als Datenschnittstelle das SAS-5-Transport-Format¹ vorschreibt (*.xpt). Die FDA hat als Standardsoftware für die Prüfer die „SAS-Viewer, Version 7“ vorgeschrieben². Dieser Viewer ist Freeware (Sasview7.exe), die vom SAS-Server heruntergeladen werden kann. An dem Statistischen Institut der LMU ist derzeit die Version 6.12 sowohl für das Hauptprogramm wie für den Viewer vorhanden. Es ist also empfehlenswert, zu prüfen, ob SAS-5 wieder zur Verfügung gestellt werden kann, und der SAS-Viewer 7.0 zur Verfügung gestellt werden kann. SAS 6.12 kann nicht auf Anhieb das offizielle Transportformat *.xpt lesen aus dem Release 5.0. Es gibt ein SAS-Makro dazu, daß im Test leider versagte. Mit dem SAS-Viewer 7 war es möglich, eine *.xpt Datei einzulesen, diese Datei dann abzuspeichern als „Formatted Text *.prn“, und sie anschließend in SAS 6.12 einzulesen.

Weil die Prüfer die Eingabedaten also nicht selbst analysieren, muß der Pharmazeutische Hersteller auch die statischen Ergebnisse in SAS-Format mitliefern, damit die Prüfer mit dem SAS-Viewer die Dokumentation prüfen und nachvollziehen können.

Die führende Position von SAS in der Epidemiologie ist unbestritten. Die Art und Weise, wie SAS mit fehlenden Werten umgeht, ist sehr relevant, weil wir erst dadurch viele Forschungsergebnisse beurteilen können.

Medizinische Forschungsergebnisse umfassen bis zu 128 Datenfelder pro Proband. Die Datenqualität ist bei dem großen Umfang der Daten pro Proband meist eher niedrig. Beim 20. Datenfeld weiß man meist nicht mehr ob der Proband männlich oder weiblich, Kind oder Senior ist. In dem Tumorzentrum München wurde von **Stieber** festgestellt im Rahmen einer klinischen Studie festgestellt von **Stieber**, daß von 2.000 überprüften Datensätzen aus der Datenbank mehr als 50% korrigiert werden mußten.

Die große Zahl der Datenfelder pro Proband hat einerseits den Leitspruch „Publish or Perish!“ zur Grundlage. Weil die meisten medizinischen Forscher auf jeden Fall veröffentlichen wollen, hoffen sie, daß wenn sie nur ausreichend viele Variable betrachten, sich dann irgendeine signifikante Erkenntnis finden läßt. Für eine gegebene Gruppe von Probanden ist es auch so, daß die Wahrscheinlichkeit, irgendeine signifikante Beziehung zu finden, zunimmt mit der Anzahl der beobachteten Merkmale. Dieses Verfahren ist weniger seriös, wenn auch ziemlich häufig. Die seriöse Methode besteht darin, vor der Datenauswertung eine Pilotstudie zu machen, Thesen zu formulieren, dazu ein plausibles biologisches Modell zu formulieren, und erst dann die Daten auszuwerten.

Die FDA ist auch hier mitbeteiligt. Sie schlägt **124** Musterdaten zur Erhebung vor pro Proband³ -- als Minimum.

2 Methoden

2.1 Kennzeichnungen als "fehlender Wert"

Bei der Eingabe von Daten in ein Statistikprogramm hat man meist einige unvollständige Datensätze, oder es fehlen gar einige Datensätze.

Wenn man zwar eine Beobachtungsnummer (Datensatz), aber keinen Datenwert eingibt, betrachtet der Rechner die Eingabe meist als Wert "0" und verarbeitet diesen Wert. Weitere bekannte Eingabewerte für fehlende Beobachtungen sind: "-9", "9", "99", "999", "9999", "99999", ".", "X"⁴. Jeder Wert ist für den Leser in Ordnung, solange für diesen Leser der Wert ganz offensichtlich kein Beobachtungswert sein kann. Solche Eingaben werden von SAS jedoch nicht grundsätzlich beanstandet und weiterverarbeitet.

2.2 Einsetzen fehlender Werte einsetzen in einen zweiten Datensatz.

Wenn man für die Fälle mit fehlenden Werten die Werte ermittelt hat, kann man sie einsetzen. Dabei macht man eine zweite Datei auf. Denn nach den Regeln der Food and Drug Administration (USA) ist es bei klinischen Studien verboten, die Ersterfassungsdatei zu ändern. Man muß eine Zweitdatei erzeugen mit einem vollständigen Änderungsprotokoll!

2.3 SAS-Kennzeichnung als "fehlender Wert".

Für SAS ist **nur** ".", also ein Punkt, ein Zeichen für einen fehlenden Wert. Wenn SAS einen fehlenden Wert entdeckt (das ist nicht immer der Fall), setzt SAS als Standardvorgabe einen Punkt ".". Über den Menüpunkt Globals -> Options -> Global Options kann man ein anderes Zeichen, z.B. "X", wählen.

2.4 Eingabedaten

Im Rahmen dieser Studie wurden unterschiedliche SAS-Befehle und SAS-Prozeduren angewandt auf Muster-Datasets:

CLOK Das CLASS-Dataset von SAS mit 19 richtig kodierten Datensätzen (records)⁵. Dieses Dataset hat 5 Variable, nämlich AGE (Alter), Name, SEX (Geschlecht), WEIGHT (Gewicht in US-Pfund), und HEIGHT (Größe in Zoll).

CLMVMISC Das CLASS-Dataset mit 19 Datensätzen, wovon 8 Datensätze verstümmelt wurden mit Eingaben für Datenfelder wie oben dargestellt⁶.

CL MVOK Das CLASS-Dataset mit 19 Datensätzen, wovon 8 Datensätze verstümmelt wurden an gleicher Stelle wie bei CLMVMISC, aber richtig kodiert wurden (.)⁷.

2.5 *Getestete Prozeduren und Optionen*

Die getestete Prozeduren und Befehle werden besprochen in Abschnitt 3. Eine ausführbare SAS-Datei ist auf der Diskette enthalten. Als Text-Datei umfaßt sie 15 Seiten. Nicht alle Prozeduren und Optionen wurden getestet. Der SAS-Befehlsumfang ändert sich von Version zu Version. Wenn ein Befehl „ausgemustert“ wird, führt dies bei SAS dazu, daß er in den nächsten Versionen nicht mehr dokumentiert wird. Anschließend verschwindet er. Die Dokumentation im Institut für Statistik (Versionsstand 6.03 bis 6.06) ist zum Teil veraltet und zum Teil ist sie fragmentarisch (man bemerkt, daß die Algorithmen von unterschiedlichen Personen und Teams bearbeitet wurden). Die Online-Hilfe des Programms ist akzeptabel für jemanden, der sehr ausdauernd ist. Die Dokumentation auf der Web-Site von SAS ist interessant, ab und zu hilfreich, und oft verwirrend.

SAS ist ein sehr umfangreiches Programmpaket, daß in der getesteten Version über 370 MB Festplatte belegt. Zum Vergleich: Microsoft Office 97, mit allen Optionen, also einschließlich Word, Excel, usw., belegt ca. 191 MB Festplatte.

Die Optionen N (Anzeige der Anzahl der vollständigen Datensätze) und NMISS (Anzeige der Anzahl der unvollständigen Datensätze) wurden getestet.

Die verwendeten Einstellungen sind alle aufgezeigt über die Prozedur PROC OPTIONS. Dies ermöglicht es einem Dritten, die Tests nachzuvollziehen.

Prozeduren und Befehle, die für einen Epidemiologen oder Mediziner wichtig sind, wie DATA (Einlesen einer ASCII-Datei), PROC LIFEREG (Überlebensanalyse mit parametrischen Modellen), PROC LIFETEST (Überlebensanalyse nach Kaplan-Meier, Wilcoxon-Peto), PROC LOGISTIC (logistische Regression), PROC MEANS (Gesamtdurchschnittswerte), PROC OPTIONS (Reproduzierbarkeit der Testumgebung), PROC PHREG (Cox-Regression), und PROC PRINT (Datenausgabe) wurden getestet.

Die Prozeduren PROC GLIMMIX, PROC IML, und PROC MIXED wurden nicht erfolgreich getestet. Ein SAS-Macro, womit eine Transport-Datei der FDA hätte eingelesen werden können, wurde erfolglos getestet.

Als Entscheidungshilfe bei der Auswahl der Befehle und Prozeduren wurde zurückgegriffen auf **Kleinbaum**^{8,9}.

2.6 *Protokoll*

Das SAS-Protokoll ist auf der Diskette enthalten (Sowohl als Word-Datei wie als Log-Datei 28 Seiten).

2.7 *SAS-Ausgabe*

Die Ausgabe von SAS ist auf der Diskette enthalten (Als SAS-Text-Datei 191 Seiten, als Word-Datei 95 Seiten).

2.8 *Verwendete Software und Hardware.*

Als Statistik-programm wurde SAS in der US-Version 6.12 verwendet unter Windows NT 4.0, deutsch, Servicepack 4. Als Textverarbeitung wurde MS-Winword aus MS-Office 97, Service Release 2, deutsch, verwendet.

Als Hardware kam ein Pentium-PC zum Einsatz (200 MHz, 256 MB RAM, 14 GB SCSI-Festplatten), mit einem HP Laserjet 5L –Drucker.

3. SAS-Programme und -Prozeduren: Fehlende Werte

3.1 *DATA-Step entfernt Datensätze, wenn die Werte nicht plausibel sind*

In dem verstümmelten Datensatz CLMVMISC entfernt der DATA-Step die Datensätze für Mary, Ronald, und William wegen Fehler bei der Eingabe des Gewichtes (WEIGHT) der Schüler und wegen Verstoßes gegen die Datensatzlänge. Der DATA-Step ist unumgänglich. **In allen nachfolgenden Prozeduren stehen nur noch 16 von 19 Datensätze als Eingabe aus CLMVMISC zur Verfügung.**

3.2 *PROC ANOVA – Analysis of Variance*

Zeilen mit fehlenden Werten für beliebige abhängige oder unabhängige Variable in der CLASS-Anweisung schließt PROC ANOVA¹⁰ (ANOVA= Analysis of Variance) von der Varianzanalyse aus.

Bei mehreren abhängigen Variablen und Verwendung einer MANOVA-Anweisung oder einer REPEATED-Anweisung wird eine Beobachtung ausgeschlossen, wenn sie in irgendeiner der abhängigen Variablen oder der CLASS-Variablen fehlende Werte aufweist (multivariater Modus der Behandlung fehlender Werte). Gleiches gilt, wenn in der ANOVA-Prozeduranweisung die MANOVA-Option gewählt wurde.

Die Prozedur gruppiert die Analysen für die abhängigen Variablen nach den Mustern fehlender Werte; Analysevariable, bei denen das gleiche Muster fehlender Werte vorliegt bzw. bei denen jeweils dieselben Beobachtungen fehlende Werte aufweisen, werden zu einer Gruppe von Analysen zusammengefaßt.

Das Vorhandensein unterschiedlicher Muster fehlender Werte setzt die Möglichkeit zur interaktiven Nutzung des Programms außer Kraft. Dem kann begegnet werden, indem man die MANOVA-Option in der ANOVA Prozedur-Anweisung oder eine MANOVA- oder eine REPEATED-Anweisung vor der ersten RUN-Anweisung verwendet¹¹.

Es ist sinnvoll, das Protokoll genau durchzulesen, um festzustellen, ob, und wenn ja, welche Datensätze aus der Analyse eliminiert wurden. Wahlweise kann man die Anzahl der Freiheitsgrade in den unterschiedlichen STEPS von SAS vergleichen. Bei Unterschieden vor und nach ANOVA sind wahrscheinlich Datensätze eliminiert worden. Wenn Datensätze entfernt wurden, weil für eine Variable ein Datenwert fehlt, sollte man die Analyse nochmals laufen lassen, aber ohne die betroffene Variable.

Das Ergebnis des Testlaufs für die Durchschnittsgröße der SAS-Schul-Testklasse:

CLOK	61 Zoll (richtig), 19 Datensätze ausgewertet
CLMVMISC	125 Zoll, 14 Datensätze ausgewertet

CLMVOK 62 Zoll, 11 Datensätze ausgewertet.

PROC ANOVA setzt vollständige, korrekt kodierte Datensätze voraus.

Bei fehlerhaft kodierten (CLMVMISC) oder fehlenden (CLMVOK) Datenwerten berechnet PROC ANOVA keine F-Werte und keine p-Werte.

PROC ANOVA schreibt automatisch in die Ausgabedatei, daß eine geringere Anzahl von Datensätze ausgewertet wurde wegen fehlender Werte. PROC ANOVA gibt u.U. (z.B. wegen „unbalanced design“) einen Hinweis (z.B. auf PROC GLM).

PROC ANOVA akzeptiert die Optionen N und NMISS nicht.

3.3 **PROC CHART**

PROC CHART stört sich nicht an falsch kodierten oder unvollständigen Werten. PROC CHART schreibt nicht automatisch in die Ausgabedatei, daß die Rede ist von fehlenden Werten.

PROC CHART akzeptiert die Optionen N und NMISS nicht.

3.4 **PROC CORR**

In der Beispielklasse gibt es Schüler, für die das Geschlecht nicht angegeben wird. PROC CORR berechnet hier ganz ungestört Korrelationswerte für das dritte Geschlecht „ „ (CLMVMISC), es sei denn, daß die fehlende Werte mit „ . „ kodiert werden (CLMVOK).

Fehlende Werte werden in der SAS-Ausgabe nicht automatisch angezeigt. Im Protokoll gibt PROC CORR eine Warnung, wenn ein Datenwert in nur einem Datensatz auftaucht.

PROC CORR akzeptiert die Optionen N und NMISS nicht.

3.5 **PROC EXPAND**

Bei Zeitreihen ist es wichtig, daß die Beobachtungen mit einer bestimmten Frequenz gemacht werden, d.h. daß die Zeitabstände gleich sind zwischen den einzelnen Beobachtungen. Oft fehlt entweder der Datenwert oder der ganze Datensatz. Hier müssen also entweder Datensätze eingesetzt werden oder Datenwerte als fehlend angegeben werden.

In der Prozedur EXPAND wird bei Zeitreihen interpoliert. Die Prozedur fügt fehlende Datensätze ein, und versieht sie mit dem Datenwert ".". Dabei berücksichtigt sie automatisch die Kalendereffekte¹² wie Zahl der Tage pro Monat und pro Jahr (Schaltjahr).

Das Beispiel von SAS befaßt sich mit der Problematik von fehlenden Kassenbeständen; 17 Monatsbestände sind bekannt; für 4 Monate fehlt der Bestand.

PROC EXPAND akzeptiert die Optionen N und NMISS nicht.

3.6 *PROC FREQ*

PROC FREQ zählt die Werte in einem Datenfeld auf. Wenn in einem Datensatz nichts eingegeben ist (Leerstelle), dann wird dieser Datensatz gezählt als fehlender Wert, wie bei dem Punkt „.“ als Eingabe. Andere Kodierungen wie „9“, „999“, usw. werden von PROC FREQ fleißig verarbeitet. Beim nächsten Datenfeld wird neu festgestellt, wieviel Datensätze „fehlen“.

PROC FREQ akzeptiert die Optionen N und NMISS nicht.

3.7 *PROC GENMOD reagiert stark auf fehlende Werte*

Die Prozedur GENMOD überprüft, wie gut ein Modell paßt, z.B. über das Log Likelihood. Bei korrekten Eingabedaten (CLOK) ist das Testergebnis -40,8; bei falscher Kodierung (CLMVMISC) ist das Testergebnis -92,2; bei richtiger Kodierung fehlender Werte ist das Testergebnis -28,9.

PROC GENMOD akzeptiert die Optionen N und NMISS nicht.

3.8 *PROC GLM schränkt die Verarbeitung ein, wenn Datenwerte fehlen*

PROC GLM (Generalised Linear Model) findet Anwendung für beim generalisierten linearen Modell. Es soll z.B. dann verwendet werden, wenn PROC ANOVA in Schwierigkeiten kommt. Die arithmetischen Mittelwerte sind wie bei PROC ANOVA. Die F- und p-Werte für den vollständigen Datensatz (CLOK) sind wie bei PROC ANOVA. PROC GLM ist rechenintensiver als PROC ANOVA: bei 19 Datensätzen 0,54 Sekunden im Vergleich zu 0,38 Sekunden.

PROC GLM setzt vollständige, korrekt kodierte Datensätze voraus. **Bei fehlerhaft kodierten (CLMVMISC) oder fehlenden (CLMVOK) Datenwerten berechnet PROC GLM keine F-Werte und keine p-Werte.**

PROC GLM akzeptiert die Optionen N und NMISS nicht.

3.9 *PROC LIFEREG schwankt und wankt bei fehlenden Werten*

Die Prozedur LIFEREG paßt parametrische Modelle an (zensierte) Überlebensdaten an. PROC LIFEREG verwendet 19, 14, bzw. 11 Datensätze bei den Testfällen. Das Log Likelihood für WEIBULL ist 35,5; -3,4; 20.

PROC LIFEREG akzeptiert die Optionen N und NMISS nicht.

3.10 *PROC LIFETEST reagiert stark auf falsche Kodierungen*

Die Prozedur LIFETEST paßt nichtparametrische Modelle an (zensierte) Überlebensdaten an. Das arithmetische Mittel des Alters der männliche Schüler in den Testdateien wurde ermittelt als 13,4; **136,5** (sic!); 13,1.

PROC LIFETEST akzeptiert die Optionen N und NMISS nicht.

Der komplette Output der PROC LIFETEST ist dieser Arbeit als Anhang beigelegt.¹³

3.10 PROC LOGISTIC reagiert stark auf Fallzahl und auf falsche Kodierungen

Die Prozedur LOGISTIC liefert eine logistische Regression. Von den Testfällen wurden 19, 14, bzw. 13 Datensätze weiterverarbeitet. Die Likelihoodwerte (- 2 Log L) für Intercept + Kovarianz sind stark gestreut: **105,7; 62,1; 52,5**.

PROC LOGISTIC akzeptiert die Optionen N und NMISS nicht.

3.11 PROC MEANS reagiert stark auf falsche Kodierungen

Die Prozedur MEANS wird verwendet um Gesamtdurchschnittswerte zu errechnen.

Sie gibt viele arithmetische Informationen unverdünnt weiter. Es werden keine Datensätze eliminiert. So wird die Durchschnittsgröße der Schülerinnen in Zoll errechnet als 60,1; **193,9 (sic!)**; und 59,7.

Die Optionen N und NMISS werden von PROC MEANS **wohl** akzeptiert.

3.12 PROC NESTED reagiert stark auf falsche Kodierungen

In der Testklasse ist das Durchschnittsalter laut PROC NESTED 13,3; **83,7**; 13,3. PROC NESTED führt ein F-Test nur durch bei einem „balanced design“.

PROC NESTED akzeptiert die Optionen N und NMISS nicht.

3.13 PROC NPAR1WAY

Die Prozedur NPAR1WAY ist ein Sammelsurium von nichtparametrischen Tests, die auf fehlende Werte unterschiedlich reagieren. In der Epidemiologie ist die Verwendung von PROC NPAR1WAY nicht sehr üblich, weshalb die Ergebnisse hier nicht diskutiert werden. Sie liegen der Arbeit jedoch auf einer Diskette bei.

PROC NPAR1WAY akzeptiert die Optionen N und NMISS nicht.

3.13 PROC OPTIONS

Die Prozedur `OPTIONS` ist wichtig, weil sie die Einstellungen des SAS-Systems dokumentiert. Bei den vielen Parametern von SAS wird durch diese Dokumentation klar, wie das Testsystem eingerichtet war, und sie ermöglicht dadurch eine Reproduzierung des Tests.

`PROC OPTIONS` akzeptiert die Optionen `N` und `NMISS` nicht.

3.16 *PROC PHREG – Die Cox-Regression*

Die Cox-Regression, auch PHM (Proportional Hazards Method) genannt, ist sehr beliebt bei den Medizinern. Sie ist eine semi-parametrische Methode die als ziemlich robust gilt¹⁴, weil sie fast immer akzeptable Werte liefert, auch wenn die Anwender Fehler machen. Die Testfälle kommen zu Likelihoodwerte (- 2 Log L, mit Kovariaten) von 73,2; 53,6; 43,9. Es werden 19, 14, und 13 Datensätze verwendet. **Die Robustheit, z.B. im Vergleich zu PROC LIFEREG, zu PROC LIFETEST, zu PROC LOGISTIC, ist auffällig.**

`PROC PHREG` akzeptiert die Optionen `N` und `NMISS` nicht.

3.17 *PROC PLOT*

Bei den Testfällen werden 19; 16; und 14 Datensätze verwendet. **Bei dem Datensatz CLMVMISC wird ein Schüler mit einer Größe von 999 Zoll eingezeichnet.** Bei dem Dataset CLMVOK zeigt `PROC PLOT` im Output, daß 5 Datensatzwerte fehlen.

`PROC PLOT` akzeptiert die Optionen `N` und `NMISS` nicht.

3.18 *PROC PRINT*

`PROC PRINT` druckt den Inhalt der SAS-Work-Datasets aus, d.h. die Ausgabe vom `DATA`-Step.

Die Option `NMISS` wird von `PROC PRINT` **nicht** akzeptiert; die Option `N` dagegen **wohl**.

3.19 *PROC PROBIT*

`PROC PROBIT` errechnet Log Likelihoodwerte. Für die Testfälle ergibt sich: -52,3; **-31,3**; **-26,0**. Die Anzahl der Beobachtungen mit fehlenden Werten wird von der Prozedur automatisch angegeben.

`PROC PROBIT` akzeptiert die Optionen `N` und `NMISS` nicht.

3.20 *PROC RANK*

PROC RANK gibt eine Rangordnung zurück. Damit überhaupt ein Ergebnis sichtbar wird, muß PROC PRINT aufgerufen werden.

PROC RANK akzeptiert die Optionen N und NMISS nicht.

3.21 *PROC REG*

Die Prozedur PROC REG¹⁵ ist eine allgemeine Regressionsprozedur. Wenn in einem Datensatz ein Datenfeldwert fehlt, wird dieser Datensatz bei allen Modellen außer Betracht gelassen. Dies ist auch dann der Fall, wenn in den selektierten Modellen die fehlende Variable gar nicht betrachtet wird!

Bei PROC REG gibt das Protokoll an, welche Datensätze aus der Analyse eliminiert wurden. Wahlweise kann man die Anzahl der Freiheitsgrade in den unterschiedlichen STEPS von SAS vergleichen. Bei Unterschieden vor und nach PROC REG sind wahrscheinlich Datensätze eliminiert worden. Damit überhaupt ein Ergebnis sichtbar wird, muß PROC PRINT aufgerufen werden.

PROC REG akzeptiert die Optionen N und NMISS nicht.

3.22 *PROC RSREG*

Die Prozedur RSREG ist leistungsfähiger als PROC REG. Sie liefert mehr Ergebnisse, und sie ist schneller. Der Aufruf von PROC PRINT ist nicht mehr erforderlich.

PROC RSREG akzeptiert die Optionen N und NMISS nicht.

3.23 *PROC STANDARD*

PROC STANDARD ermöglicht es, Datensätze neu zu bearbeiten, so daß am Ende ein vorgegebener Mittelwert (MEANS) oder eine Standardabweichung erreicht wird. Es ist auch möglich, vorzugeben, was der Mittelwert der „fehlenden Werte“ sein soll. Diese Prozedur kann leicht verwendet werden zur Datenmanipulation.

PROC STANDARD akzeptiert die Optionen N und NMISS nicht.

3.24 *PROC SUMMARY*

Die Prozedur SUMMARY gibt eine Übersicht über die Anzahl der Datensätze in einem Dataset.

Die Option PRINT muß aktiviert werden, damit eine Ausgabe erzeugt wird. Die Optionen N und NMISS werden von PROC SUMMARY **wohl** akzeptiert. Die Datenfelder die mit “.” markiert wurden, werden als gültige Werte akzeptiert, gleichgültig ob man die Option MISSING verwendet hat oder nicht.

3.25 PROC TABULATE

PROC TABULATE gibt eine Übersicht über die Wertbereiche in einem Dataset. Standardvorgabe ist die Summe der Datenwerte pro Datenfeld. Diese Prozedur gibt wenig Information im Standardfall.

PROC TABULATE akzeptiert die Optionen N und NMISS nicht.

3.26 PROC TTEST

Die Prozedur TTEST errechnet Werte wie arithmetisches Mittel und Standardabweichung. Sie bietet standardmäßig viele Informationen an.

Wenn die CLASS-Variable mehr als zwei Werte hat wie bei dem Datensatz CLMVMISC für die Variable SEX (nämlich B, F, und M), bricht die Prozedur ab.

PROC TTEST akzeptiert die Optionen N und NMISS nicht.

3.27 PROC UNIVARIATE

Die Prozedur UNIVARIATE liefert eine einfache Regression.

PROC UNIVARIATE akzeptiert die Optionen N und NMISS nicht.

4. Jeder Wert im Datensatzfeld ein falscher Wert

Weiter gibt es Datenwerte, die in bestimmten Kontexten unzutreffend sind. Die Zahl der Schwangerschaften (Parität) ist bei Frauen ein sinnvolles Datum. Bei Männern gibt man oft 9 oder 99 ein. Die Zahl 9 könnte zu Problemen führen, weil für einen Computer 9 Schwangerschaften ein durchaus akzeptabler Datenwert ist (für Frauen). Hier wäre eine Kennzeichnung wie "N" (Nicht zutreffend) sinnvoller.

Der Forscher muß in solchen Fällen selbst nachhelfen, z.B. durch eine kritische Datenexploration. Die Mitarbeiter von SAS haben hierfür ein Makro¹⁶ entwickelt, das Variable aufspürt, die keine Werte haben. In anderen Worten: Für jeden Datensatz (Beobachtung) ist das Datenfeld einer bestimmten Variablen unbesetzt. Bei modernen medizinischen Forschungsprojekten ist es durchaus üblich, daß bis zu 128 (sic: 128!) Parameter pro Proband erfaßt werden. Bei der Eingabe von Feld 47 weiß man schon meist nicht mehr, ob der Proband klein oder groß ist. Bei der Eingabe von Feld 99 weiß man meist nicht mehr, ob der Proband im Kinderwagen gefahren wird, selbst Porsche fährt, oder im Rollstuhl geschoben wird.

5. Zusammenfassung & Bewertung

SAS behandelt fehlende Werte im Normalfall nur dann als fehlende Werte, wenn sie mit "." gekennzeichnet sind. Die Überprüfung des Eingabedatensatzes auf Plausibilität und Vollständigkeit liegt schwerpunktmäßig beim Anwender. Sind fehlende Werte mit "." gekennzeichnet, behandelt SAS sie durchaus unterschiedlich. Der Anwender sollte sich die Anzahl der Datensätze und der Freiheitsgrade schon vorab notieren. Nach dem Lauf sollte er das Protokoll sehr ruhig und genau studieren.

Es gibt bei SAS mehrere Prozeduren, die nur vollständige Datensätze akzeptieren. Der Anwender sollte in Betracht ziehen, drei Vervollständigungen pro Variable vorzunehmen und sie zu analysieren:

- eine Ergänzung der fehlenden Werte mit Minimalangaben,
- eine "realistische" Ergänzung,
- und eine Ergänzung mit Maximalangaben.

Die Bewertung der dann vorliegenden Analysen ist wiederum Sache des Anwenders. Bei Vorliegen von einer Variablen mit fehlenden Werten kommt man auf $1 + 3 = 4$ Analysen. Liegen jedoch zwei Variable mit fehlenden Werten vor, dann kommt man auf eine Gesamtzahl von $1 + 3 * 3 = 10$ Analysen. Die Aussagekraft der "Meta"-Analyse nimmt natürlich entsprechend ab, und der Arbeitsaufwand nimmt zu.

Der Anwender sollte überlegen, ob die Variable mit den fehlenden Werten überhaupt relevant ist und verwertet werden sollte. In der modernen medizinischen Forschung werden gelegentlich oft viele Variable beobachtet.

Die theoretische Begründung (das biologische Modell) wird später nachgereicht.

Meint der Anwender, daß eine Variable mit fehlenden Werten relevant ist und bleibt, sollte er auf einem Follow-Up bei der Datenerhebung bestehen, um herauszufinden, warum die Werte fehlen. Fehlen sie etwa, weil der Patient verstorben ist?

Ist die Datenqualität nicht mehr verbesserbar, stellt sich die Frage nach dem statistischen Verfahren. Kann man ein Verfahren anwenden, das nicht so anspruchsvoll ist wie das vorliegende Verfahren? Kahn & Sempos¹⁷ haben in der Framingham Heart Study¹⁸ dargestellt, daß die Schlußfolgerungen die gleichen waren, unabhängig davon, welche statistische Verfahren sie anwandten: Mantel-Haenszel, multiple Regression (kategorisch und multivariat stratifiziert), logistische Regression (alle Variablen numerisch, und nur Geschlecht kategorisch), Personenjahre (indirekt, Rothman-Boice), Lebenstabellenstratifikation, oder Cox Regression (alle Variablen numerisch, und nur Geschlecht kategorisch).

Bei der Frage nach der Robustheit der Verfahren wird offenbar, daß die Robustheit von Software zu Software unterschiedlich ist bei SAS. Im Testfall CLMVMISC gehen im DATA-Step von 19 Datensätze 3 Datensätze endgültig verloren. Bei gewissen Prozeduren führt falsche Kodierung zum Abbruch, bei anderen führen fehlende Werte, die vom Algorithmus als solche erkannt werden, zum Abbruch. Wenn der Algorithmus für mehrere Datensätze überhaupt lauffähig ist, ist ein Vergleich der Ergebnisse möglich.

Wenn das Analyseverfahren und das Analyseergebnis endgültig feststehen, sollte der Anwender das SAS-Protokoll nochmals studieren.

Bei einer Beurteilung der Behandlung von fehlenden Werten durch SAS wäre die Note 5 (nicht ausreichend) im Hinblick darauf gerechtfertigt, daß ein Uneingeweihter (z.B. ein Arzt, der seine erste größere Untersuchung im Rahmen seiner Dissertation macht) bei der Anwendung von SAS leicht zu falschen Schlußfolgerungen kommt, da die Behandlung von fehlenden Werten uneinheitlich ist. Einmal werden die Datensätze eliminiert. Das andere Mal werden Datensätze erzeugt und eingesetzt. Das dritte Mal wird die Anzahl der Datensätze mit fehlenden Werten angezeigt. Der Editor für die Makrosprache ist ausbaufähig im Vergleich mit dem bekannten Visual Basic-Editor von Microsoft dienen (In jedem Office-97-Paket dabei, für Makro-Erstellung, z.B. in Excel). SAS bietet wenig interaktives Komfort, z.B. im Vergleich zu SPSS (8.0).

Für die Anwendung durch Spezialisten (mindestens Magister in Public Health oder Diplom-Statistiker mit Schwerpunkt Biometrie) würde SAS die Note 4 erhalten - gerade ausreichend. Denn bei gründlichem und aufwendigem Studium der Dokumentation, der Programm-Hilfe-Funktion, und des www.sas.com kann er erforschen, wie SAS in seinem Fall mit fehlenden Werten umgeht, um so zu den richtigen Schlußfolgerungen für seine Arbeit zu kommen..

Aufgrund der Vorgaben der Food and Drug Administration sollte geprüft werden, ob neben dem SAS-Paket 6.12 und dem SAS-Viewer 6.12 noch das SAS-Paket 5 und der SAS-Viewer 7 den Studenten zur Verfügung gestellt werden können. Über den Sonderforschungsbereich 386 könnte eine Abstimmung mit dem IBE (Institut für Biometrie, Epidemiologie und Medizinische Informatik der LMU München) stattfinden.

Ferner sollten in einer weiteren Studie weitere Datensätze, darunter auch größere Datensätze aus der Epidemiologie getestet werden, um die Robustheit der einzelnen Algorithmen zu beurteilen. Dabei können weitere Optionen und Prozeduren in den Test einbezogen werden.

¹ FDA, Food and Drug Administration, 2867fnl.pdf, www.fda.gov/cder/guidance, 1999, Seite 12.

² FDA, Food and Drug Administration, 2867fnl.pdf, www.fda.gov/cder/guidance, 1999, Seite 13.

³ FDA, Food and Drug Administration, 2353fnl.pdf, www.fda.gov/cder/guidance, 1999, Seite 70-74.

⁴ Altman-D, *Practical Statistics for Medical Research*, Chapman & Hall, Weinheim, 1997, Seite 109.

⁵ /* Im Datensatz CLOK sind alle 19 Datensätze vollständig */
DATA CLOK;

LENGTH NAME \$10 SEX \$1;

INPUT NAME \$ SEX \$ AGE HEIGHT WEIGHT;

CARDS;

ALFRED	M	14	69	112.5
ALICED	F	13	56.5	84
BARBARA	F	13	65.3	98
CAROL	F	14	62.8	102.5
HENRY	M	14	63.5	102.5
JAMES	M	12	57.3	83
JANE	F	12	59.8	84.5
JANET	F	15	62.5	112.5
JEFFREY	M	13	62.5	84
JOHN	M	12	59	99.5
JOYCE	F	11	51.3	50.5
JUDY	F	14	64.3	90
LOUISE	F	12	56.3	77
MARY	F	15	66.5	112
PHILIP	M	16	72	150
ROBERT	M	12	64.8	128
RONALD	M	15	67	133
THOMAS	M	11	57.5	85
WILLIAM	M	15	66.5	112

RUN;

⁶ /* Im Datensatz CLMVMISC sind Datensätze falsch kodiert oder unvollständig */

DATA CLMVMISC;

LENGTH NAME \$10 SEX \$1;

INPUT NAME \$ SEX \$ AGE HEIGHT WEIGHT;

CARDS;

ALFRED	M	14	69	112.5
ALICED	F	13	56.5	84
BARBARA	F	13	65.3	98
CAROL	F	14	62.8	102.5
HENRY	M	14	63.5	102.5
JAMES	M	12	57.3	83
JANE	F	12	59.8	84.5
JANET	F	15	62.5	112.5
JEFFREY	M	13	62.5	84
JOHN	M	12	59	99.5
JOYCE	F	11	51.3	50.5

JUDY	F	14	999	999
LOUISE				
MARY	999	15	66.5	112
PHILIP	M	16	72	999
ROBERT	M	12	999	
RONALD	M	999		133
THOMAS	B		57.5	85
WILLIAM		15	66.5	112

RUN;

⁷ /* Im Datensatz CLMVOK sind Datensätze unvollständig aber richtig kodiert */

```
DATA CLMVOK;
  LENGTH NAME $10 SEX $1;
  INPUT NAME $ SEX $ AGE HEIGHT WEIGHT;
CARDS;
ALFRED      M      14      69      112.5
ALICED      F      13      56.5     84
BARBARA     F      13      65.3     98
CAROL       F      14      62.8    102.5
HENRY       M      14      63.5    102.5
JAMES       M      12      57.3     83
JANE        F      12      59.8     84.5
JANET       F      15      62.5    112.5
JEFFREY     M      13      62.5     84
JOHN        M      12      59      99.5
JOYCE       F      11      51.3    50.5
JUDY        F      14      .        .
LOUISE      .      .      .        .
MARY        .      15      66.5    112
PHILIP      M      16      72      .
ROBERT      M      12      .        .
RONALD      M      .      .        133
THOMAS     .      .      57.5     85
WILLIAM     .      15      66.5    112
RUN;
```

⁸ Kleinbaum-D, Kupper-L, Muller-K, Nizam-A, *Applied Regression Analysis and other Multivariable Methods*, Duxbury Press, Bonn, 1998.

⁹ Kleinbaum-D, *Survival Analysis*, Springer Verlag, Berlin, 1997.

¹⁰ The SAS Institute, *statview1565.html*, www.sas.com, 1999, FAQ# 1565.

¹¹ The SAS Institute, *Datenverarbeitung und statistische Auswertung mit SAS, Band I*, Version 6.04, Gustav Fischer Verlag, Stuttgart, 1992, Seite 638.

¹² The SAS Institute, *SAS/ETS Software Data Manipulation - Time Series Interpolation and Frequency Conversion*, http://www.sas.com/rnd/app/ets/ets_data.html, 1999.

The LIFETEST Procedure

Product-Limit Survival Estimates
SEX = F

AGE	Survival	Failure	Survival Standard Error	Number Failed	Number Left
0.0000	1.0000	0	0	0	9
11.0000	0.8889	0.1111	0.1048	1	8
12.0000	.	.	.	2	7
12.0000	0.6667	0.3333	0.1571	3	6
13.0000	.	.	.	4	5
13.0000	0.4444	0.5556	0.1656	5	4
14.0000	.	.	.	6	3
14.0000	0.2222	0.7778	0.1386	7	2
15.0000	.	.	.	8	1
15.0000	0	1.0000	0	9	0

Summary Statistics for Time Variable AGE

Quantile	Point Estimate	95% Confidence Interval [Lower, Upper)	
75%	14.0000	13.0000	15.0000
50%	13.0000	12.0000	14.0000
25%	12.0000	11.0000	14.0000
Mean	13.2222	Standard Error	0.4648

PROC LIFETEST: DATASET CLOK with complete records only 226
12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Product-Limit Survival Estimates
SEX = M

AGE	Survival	Failure	Survival Standard Error	Number Failed	Number Left
0.0000	1.0000	0	0	0	10
11.0000	0.9000	0.1000	0.0949	1	9
12.0000	.	.	.	2	8
12.0000	.	.	.	3	7
12.0000	0.6000	0.4000	0.1549	4	6
13.0000	0.5000	0.5000	0.1581	5	5
14.0000	.	.	.	6	4
14.0000	0.3000	0.7000	0.1449	7	3
15.0000	.	.	.	8	2
15.0000	0.1000	0.9000	0.0949	9	1
16.0000	0	1.0000	0	10	0

Summary Statistics for Time Variable AGE

Quantile	Point Estimate	95% Confidence Interval [Lower, Upper)	
75%	15.0000	13.0000	16.0000
50%	13.5000	12.0000	15.0000
25%	12.0000	11.0000	14.0000
Mean	13.4000	Standard Error	0.5207

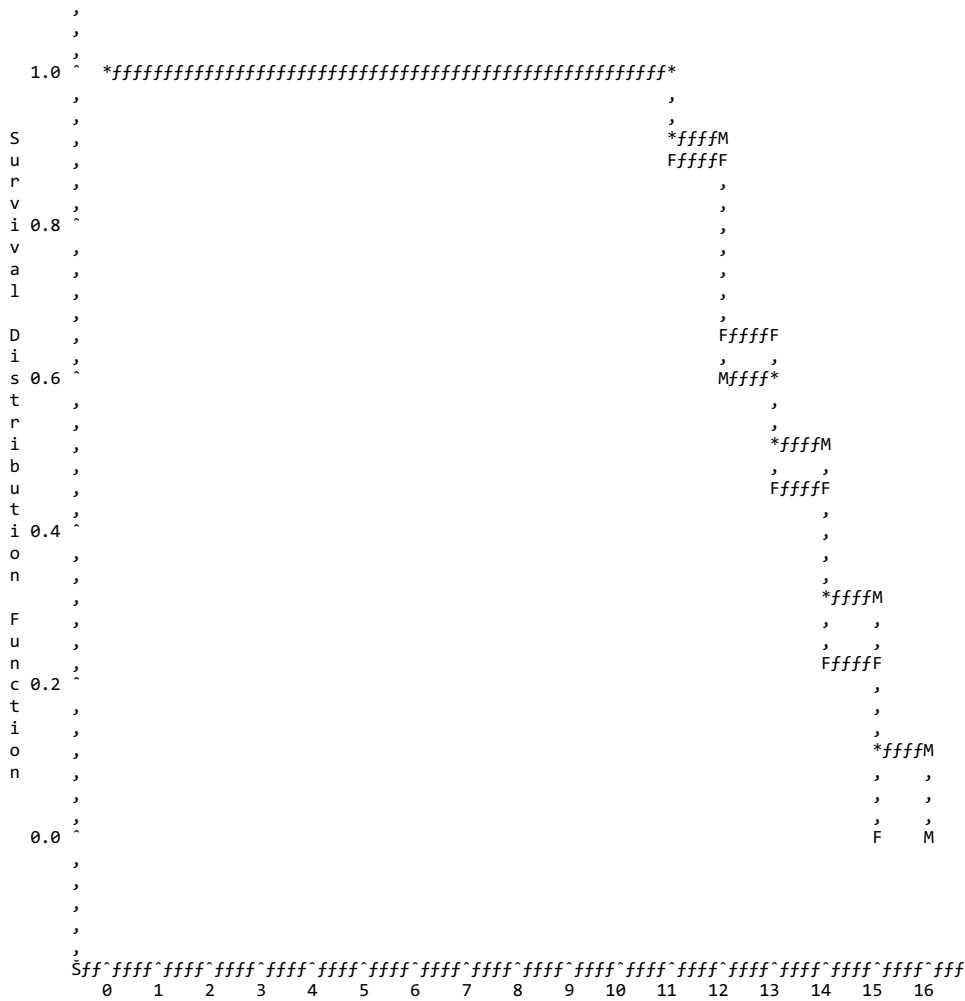
Summary of the Number of Censored and Uncensored Values

SEX	Total	Failed	Censored	%Censored
F	9	9	0	0.0000
M	10	10	0	0.0000
Total	19	19	0	0.0000

PROC LIFETEST: DATASET CLOK with complete records only 227
12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

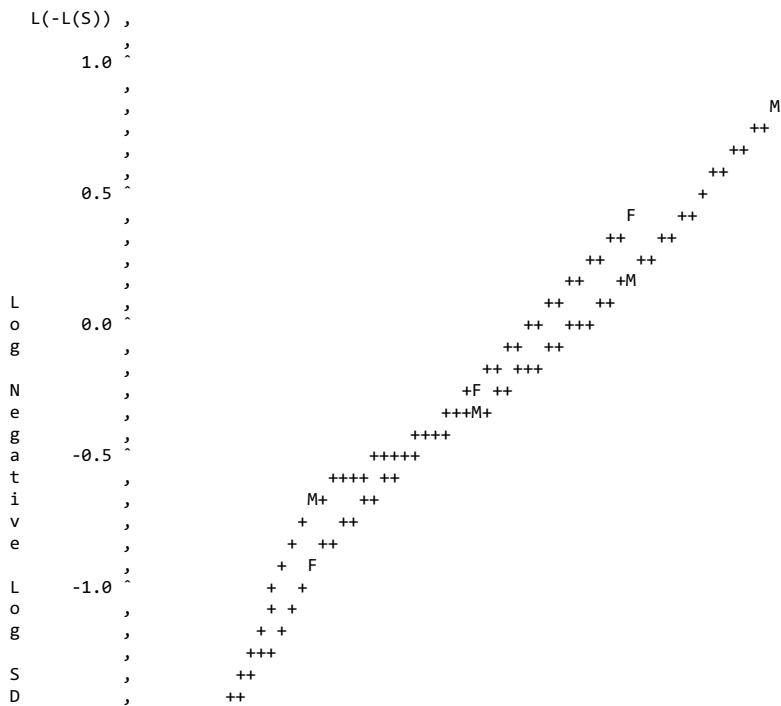
Survival Function Estimates

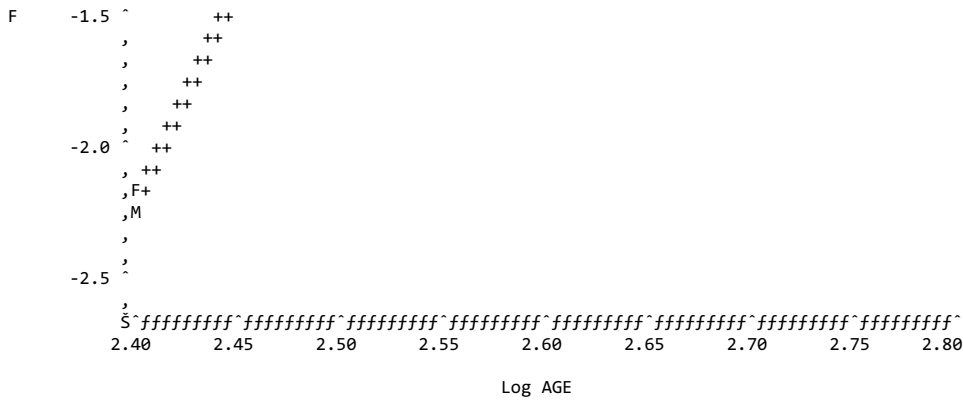


PROC LIFETEST: DATASET CLOK with complete records only 228
 12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Log(-Log(Survival Function)) Estimates





PROC LIFETEST: DATASET CLOK with complete records only 229
12:01 Tuesday, June 29, 1999

The LIFETEST Procedure
Legend for Strata Symbols
F:SEX=F M:SEX=M

PROC LIFETEST: DATASET CLOK with complete records only 230
12:01 Tuesday, June 29, 1999

The LIFETEST Procedure
Testing Homogeneity of Survival Curves over Strata
Time Variable AGE

Rank Statistics

SEX	Log-Rank	Wilcoxon
F	0.82191	5.0000
M	-0.82191	-5.0000

Covariance Matrix for the Log-Rank Statistics

SEX	F	M
F	2.87609	-2.87609
M	-2.87609	2.87609

Covariance Matrix for the Wilcoxon Statistics

SEX	F	M
F	584.364	-584.364
M	-584.364	584.364

Test of Equality over Strata

Test	Chi-Square	DF	Pr > Chi-Square
Log-Rank	0.2349	1	0.6279
Wilcoxon	0.0428	1	0.8361
-2Log(LR)	0.0008	1	0.9768

PROC LIFETEST: DATASET CLVMISC with some incorrectly, incomplete records 231
12:01 Tuesday, June 29, 1999

The LIFETEST Procedure
Product-Limit Survival Estimates
SEX = B

AGE	Survival	Failure	Survival Standard Error	Number Failed	Number Left
0.000	1.0000	0	0	0	1

57.500 0 1.0000 0 1 0

Summary Statistics for Time Variable AGE

Quantile	Point Estimate	95% Confidence Interval [Lower, Upper)	
75%	57.500	.	.
50%	57.500	.	.
25%	57.500	.	.
Mean	57.500	Standard Error	.

PROC LIFETEST: DATASET CLMVMISC with some incorrectly, incomplete records 232
 12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Product-Limit Survival Estimates
 SEX = F

AGE	Survival	Failure	Survival Standard Error	Number Failed	Number Left
0.000	1.0000	0	0	0	7
11.000	0.8571	0.1429	0.1323	1	6
12.000	0.7143	0.2857	0.1707	2	5
13.000	.	.	.	3	4
13.000	0.4286	0.5714	0.1870	4	3
14.000	.	.	.	5	2
14.000	0.1429	0.8571	0.1323	6	1
15.000	0	1.0000	0	7	0

Summary Statistics for Time Variable AGE

Quantile	Point Estimate	95% Confidence Interval [Lower, Upper)	
75%	14.000	13.000	15.000
50%	13.000	12.000	14.000
25%	12.000	11.000	14.000
Mean	13.143	Standard Error	0.508

PROC LIFETEST: DATASET CLMVMISC with some incorrectly, incomplete records 233
 12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Product-Limit Survival Estimates
 SEX = M

AGE	Survival	Failure	Survival Standard Error	Number Failed	Number Left
0.000	1.0000	0	0	0	8
12.000	.	.	.	1	7
12.000	.	.	.	2	6
12.000	0.6250	0.3750	0.1712	3	5
13.000	0.5000	0.5000	0.1768	4	4
14.000	.	.	.	5	3
14.000	0.2500	0.7500	0.1531	6	2
16.000	0.1250	0.8750	0.1169	7	1
999.000	0	1.0000	0	8	0

Summary Statistics for Time Variable AGE

Quantile	Point Estimate	95% Confidence Interval [Lower, Upper)	
75%	15.000	13.000	999.000
50%	13.500	12.000	16.000
25%	12.000	12.000	14.000
Mean	136.500	Standard Error	123.215

Summary of the Number of Censored and Uncensored Values

SEX	Total	Failed	Censored	%Censored
-----	-------	--------	----------	-----------

B	1	1	0	0.0000
F	7	7	0	0.0000
M	8	8	0	0.0000
Total	16	16	0	0.0000

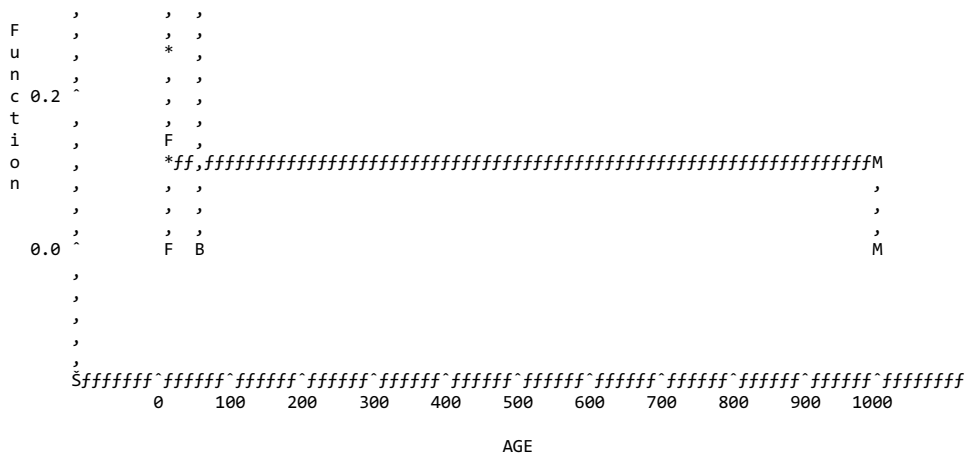
PROC LIFETEST: DATASET CLMMISC with some incorrectly, incomplete records 234
 12:01 Tuesday, June 29, 1999

The LIFETEST Procedure
 Survival Function Estimates

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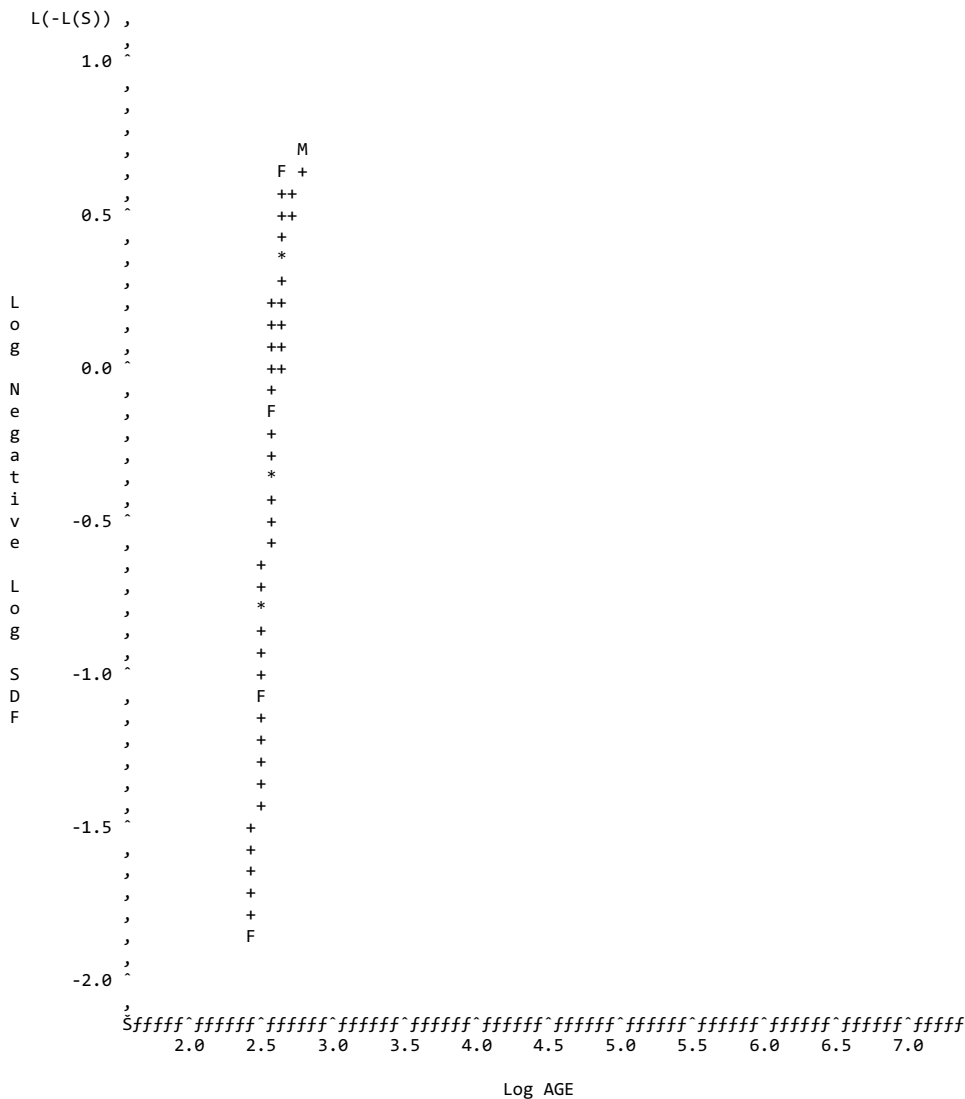
```



PROC LIFETEST: DATASET CLMVMISC with some incorrectly, incomplete records 235
 12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Log(-Log(Survival Function)) Estimates



PROC LIFETEST: DATASET CLMVMISC with some incorrectly, incomplete records 236
 12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Legend for Strata Symbols

B:SEX=B F:SEX=F M:SEX=M

PROC LIFETEST: DATASET CLMMISC with some incorrectly, incomplete records 237
12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Testing Homogeneity of Survival Curves over Strata
Time Variable AGE

Rank Statistics

SEX	Log-Rank	Wilcoxon
B	-1.1852	-13.000
F	1.8489	14.000
M	-0.6636	-1.000

Covariance Matrix for the Log-Rank Statistics

SEX	B	F	M
B	1.36222	-0.37997	-0.98225
F	-0.37997	2.31864	-1.93867
M	-0.98225	-1.93867	2.92091

Covariance Matrix for the Wilcoxon Statistics

SEX	B	F	M
B	105.000	-45.714	-59.286
F	-45.714	342.000	-296.286
M	-59.286	-296.286	355.571

Test of Equality over Strata

Test	Chi-Square	DF	Pr >
			Chi-Square
Log-Rank	2.0730	2	0.3547
Wilcoxon	1.8255	2	0.4014
-2Log(LR)	16.4205	2	0.0003

PROC LIFETEST: DATASET CLMVOK with some correctly-coded, incomplete records 238
12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Product-Limit Survival Estimates
SEX = F

AGE	Survival	Failure	Survival Standard Error	Number Failed	Number Left
0.0000	1.0000	0	0	0	7
11.0000	0.8571	0.1429	0.1323	1	6
12.0000	0.7143	0.2857	0.1707	2	5
13.0000	.	.	.	3	4
13.0000	0.4286	0.5714	0.1870	4	3
14.0000	.	.	.	5	2
14.0000	0.1429	0.8571	0.1323	6	1
15.0000	0	1.0000	0	7	0

Summary Statistics for Time Variable AGE

Quantile	Point Estimate	95% Confidence Interval [Lower, Upper)	
75%	14.0000	13.0000	15.0000
50%	13.0000	12.0000	14.0000
25%	12.0000	11.0000	14.0000
Mean	13.1429	Standard Error	0.5084

PROC LIFETEST: DATASET CLMVOK with some correctly-coded, incomplete records 239
12:01 Tuesday, June 29, 1999

The LIFETEST Procedure
Product-Limit Survival Estimates
SEX = M

AGE	Survival	Failure	Survival Standard Error	Number Failed	Number Left
0.0000	1.0000	0	0	0	7
12.0000	.	.	.	1	6
12.0000	.	.	.	2	5
12.0000	0.5714	0.4286	0.1870	3	4
13.0000	0.4286	0.5714	0.1870	4	3
14.0000	.	.	.	5	2
14.0000	0.1429	0.8571	0.1323	6	1
16.0000	0	1.0000	0	7	0

Summary Statistics for Time Variable AGE

Quantile	Point Estimate	95% Confidence Interval [Lower, Upper)	
75%	14.0000	12.0000	16.0000
50%	13.0000	12.0000	14.0000
25%	12.0000	12.0000	14.0000
Mean	13.2857	Standard Error	0.5654

Summary of the Number of Censored and Uncensored Values

SEX	Total	Failed	Censored	%Censored
F	7	7	0	0.0000
M	7	7	0	0.0000
Total	14	14	0	0.0000

NOTE: There were 5 observations with missing values, negative time values or frequency values less than 1.

PROC LIFETEST: DATASET CLMVOK with some correctly-coded, incomplete records 240
12:01 Tuesday, June 29, 1999

The LIFETEST Procedure
Survival Function Estimates

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v ,
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v ,
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The LIFETEST Procedure
 Testing Homogeneity of Survival Curves over Strata
 Time Variable AGE

Rank Statistics

SEX	Log-Rank	Wilcoxon
F	0.48718	0
M	-0.48718	0

Covariance Matrix for the Log-Rank Statistics

SEX	F	M
F	2.20112	-2.20112
M	-2.20112	2.20112

Covariance Matrix for the Wilcoxon Statistics

SEX	F	M
F	235.400	-235.400
M	-235.400	235.400

Test of Equality over Strata

Test	Chi-Square	DF	Pr >
			Chi-Square
Log-Rank	0.1078	1	0.7426
Wilcoxon	0.0000	1	1.0000
-2Log(LR)	0.0004	1	0.9839

¹⁴ **Kleinbaum-D**, *Survival Analysis*, Springer Verlag, Berlin, 1997, Seite 97.

¹⁵ **The SAS Institute**, *regproc1340.html*, www.sas.com, 1998, FAQ# 1340.

¹⁶ **Hahl-T, Shelton-R**, *Dropping Variables That Have Only Missing Values*, Observations Vol. 5, No. 4, The SAS Institute, v5n20pp1.html.

¹⁷ **Kahn-H, Sempos-C**, *Statistical Methods in Epidemiology*, Oxford, 1989, Seite 227.

¹⁸ **Dawber-TR**, *The Framingham Study: The Epidemiology of Atherosclerotic Disease*, Harvard University Press, Boston, 1980.

```

/*****/
/*      Fehlende Werte in SAS                               */
/* Eingabe: Musterdatensatz CLASS von SAS                   */
/*      NAME: Frits Fliers                                   */
/*      Von-der-Tann-Strasse 15                             */
/*      D-82346-Andechs-Erling                             */
/*      Tel. 08144-989346                                   */
/*      Fax: 08144-98481                                    */
/*                                                         */
/* Seminar: Fehlende Werte                                 */
/* Leitung: Prof. Dr. Dr. Helge Toutenburg                 */
/* PRODUCT: SAS US 6.12                                    */
/* Datum: Dienstag, den 29.6.1999                         */
/*                                                         */
/*Variable: SEX      Geschlecht      M      Männlich      */
/*              F      Weiblich      */
/*      AGE      Alter in ganzen Jahren                    */
/*      HEIGHT   Groesse in Zoll (0.1 genau)              */
/*      WEIGHT   Gewicht in Pfund (0.1 genau)             */
/*                                                         */
/*****/
/* Im Datensatz CLOK sind alle 19 Datensätze vollständig  */
*/

```

```

DATA CLOK;
  LENGTH NAME $10 SEX $1;
  INPUT NAME $ SEX $ AGE HEIGHT WEIGHT;
CARDS;
ALFRED      M      14      69      112.5
ALICED      F      13      56.5     84
BARBARA     F      13      65.3     98
CAROL       F      14      62.8    102.5
HENRY       M      14      63.5    102.5
JAMES       M      12      57.3     83
JANE        F      12      59.8    84.5
JANET       F      15      62.5    112.5
JEFFREY     M      13      62.5     84
JOHN        M      12      59      99.5
JOYCE       F      11      51.3    50.5
JUDY        F      14      64.3     90
LOUISE      F      12      56.3     77
MARY        F      15      66.5    112
PHILIP      M      16      72      150
ROBERT      M      12      64.8    128
RONALD      M      15      67      133
THOMAS      M      11      57.5     85
WILLIAM     M      15      66.5    112
RUN;

```

```

/* Im Datensatz CLVMISC sind Datensätze falsch kodiert oder unvollständig
*/

```

```

DATA CLVMISC;
  LENGTH NAME $10 SEX $1;
  INPUT NAME $ SEX $ AGE HEIGHT WEIGHT;
CARDS;
ALFRED      M      14      69      112.5
ALICED      F      13      56.5     84
BARBARA     F      13      65.3     98
CAROL       F      14      62.8    102.5
HENRY       M      14      63.5    102.5
JAMES       M      12      57.3     83
JANE        F      12      59.8    84.5

```

```

JANET      F   15      62.5      112.5
JEFFREY    M   13      62.5       84
JOHN       M   12       59       99.5
JOYCE      F   11      51.3      50.5
JUDY       F   14      999       999
LOUISE
MARY       999  15      66.5      112
PHILIP     M   16       72       999
ROBERT     M   12      999
RONALD     M   999
THOMAS     B
WILLIAM    15      66.5      112
RUN;

```

```

/* Im Datensatz CLMVOK sind Datensätze unvollständig aber richtig kodiert
*/

```

```

DATA CLMVOK;
  LENGTH NAME $10 SEX $1;
  INPUT NAME $ SEX $ AGE HEIGHT WEIGHT;
CARDS;
ALFRED     M   14      69       112.5
ALICED     F   13      56.5       84
BARBARA    F   13      65.3       98
CAROL      F   14      62.8      102.5
HENRY      M   14      63.5      102.5
JAMES      M   12      57.3       83
JANE       F   12      59.8      84.5
JANET      F   15      62.5      112.5
JEFFREY    M   13      62.5       84
JOHN       M   12       59       99.5
JOYCE      F   11      51.3      50.5
JUDY       F   14      .         .
LOUISE     .   .         .         .
MARY       .   15      66.5      112
PHILIP     M   16       72       .
ROBERT     M   12      .         .
RONALD     M   .         .         133
THOMAS     .   .         57.5      85
WILLIAM    .   15      66.5      112
RUN;

```

```

/
*****
*/
/* PROC SORT akzeptiert den Befehl N - Anzeige aller richtigen Werte - nicht
*/
/* PROC SORT akzeptiert den Befehl NMISS - Anzeige aller fehlenden Werte - nicht
*/
/
*****
*/
PROC SORT DATA=CLOK;
  TITLE 'PROC SORT CLOK CLASS DATA with complete data records only ';
BY SEX;
RUN;

PROC SORT DATA=CLVMISC;
  TITLE 'PROC SORT CLVMISC CLASS DATA with some incorrectly-coded, incomplete
records';
BY SEX;
RUN;

PROC SORT DATA=CLMVOK;
  TITLE 'PROC SORT CLMVOK CLASS DATA with some incorrectly-coded, incomplete

```



```

records';
BY SEX;
  RUN;

/
*****
**/
/* PROC ANOVA akzeptiert den Befehl N - Anzeige aller richtigen Werte - nicht
*/
/* PROC ANOVA akzeptiert den Befehl NMISS - Anzeige aller fehlenden Werte -
nicht */
/* PROC ANOVA - Analysis of Variance
*/
/* Als Eingabe ist ein "balanced design" o.ä. erforderlich
*/
/* PROC ANOVA ist schneller als PROC GLM oder PROC NESTED
*/
/
*****
**/
PROC ANOVA DATA=CLOK;
CLASS AGE WEIGHT;
  TITLE 'PROC ANOVA: DATASET CLOK with complete records only ';
MODEL HEIGHT = WEIGHT AGE(WEIGHT);
MEANS WEIGHT AGE(WEIGHT) ;
RUN;

PROC ANOVA DATA=CLMVMISC;
CLASS SEX WEIGHT AGE;
  TITLE 'PROC ANOVA: DATASET CLMVMISC with some incorrectly-coded, incomplete
records';
MODEL HEIGHT = WEIGHT AGE(WEIGHT) SEX SEX(WEIGHT);
MEANS WEIGHT AGE(WEIGHT) SEX(WEIGHT);
RUN;

PROC ANOVA DATA=CLMVOK;
CLASS SEX WEIGHT AGE;
  TITLE 'PROC ANOVA: DATASET CLMVOK with some incorrectly-coded, incomplete
records';
MODEL HEIGHT = WEIGHT AGE(WEIGHT) SEX SEX(WEIGHT);
MEANS WEIGHT AGE(WEIGHT) SEX(WEIGHT);
RUN;

/
*****
****/
/* PROC CHART akzeptiert den Befehl N - Anzeige aller richtigen Werte - nicht
*/
/* PROC CHART akzeptiert den Befehl NMISS - Anzeige aller fehlenden Werte - nicht
*/
/
*****
****/
PROC CHART DATA=CLOK;
  TITLE 'PROC CHART: DATASET CLOK with complete records only ';
HBAR SEX;
  RUN;

PROC CHART DATA=CLMVMISC;
  TITLE 'PROC CHART: DATASET CLMVMISC with some incorrectly-coded, incomplete
records';
HBAR SEX;
  RUN;

```

```

PROC CHART DATA=CLMVOK;
  TITLE 'PROC CHART: DATASET CLMVOK with some incorrectly-coded, incomplete
records';
HBAR SEX;
  RUN;

```

```

/
*****
*****/
/* PROC CORR akzeptiert den Befehl N nicht
*/
/* PROC CORR akzeptiert den Befehl NOMISS nicht
*/
/* akzeptiert Variable SEX nicht in der VAR Option
*/
/* PROC CORR Option NOMISS: schließt Datensätze mit fehlenden Werten in einer
der zu */
/*      korrelierenden Variablen von der Berechnung aus (fallweiser
Ausschluß). */
/*      Führt zu Rechenzeitverkürzung
*/
/*      Standardvorgabe: Paarweiser Ausschluß bei Fehlen eines Wertes in
einer */
/*      der beiden jeweils betrachteten Variablen
*/
/
*****
*****/

```

```

PROC CORR DATA=CLOK;
  TITLE 'PROC CORR: DATASET CLOK with complete records only ';
VAR AGE HEIGHT WEIGHT;
BY SEX;
  RUN;

```

```

PROC CORR DATA=CLOK NOMISS;
  TITLE 'PROC CORR: DATASET CLOK with complete records only ';
  TITLE2 'PROC CORR: DATASET CLOK Option NOMISS ';
VAR AGE HEIGHT WEIGHT;
BY SEX;
  RUN;

```

```

PROC CORR DATA=CLMVMISC;
  TITLE 'PROC CORR: DATASET CLMVMISC with some incorrectly-coded, incomplete
records';
VAR AGE HEIGHT WEIGHT;
BY SEX;
  RUN;

```

```

PROC CORR DATA=CLMVMISC NOMISS;
  TITLE 'PROC CORR: DATASET CLMVMISC with some incorrectly-coded, incomplete
records';
  TITLE2 'PROC CORR: DATASET CLMVMISC Option NOMISS ';
VAR AGE HEIGHT WEIGHT;
BY SEX;
  RUN;

```

```

PROC CORR DATA=CLMVOK;
  TITLE 'PROC CORR: DATASET CLMVOK with some incorrectly-coded, incomplete
records';
VAR AGE HEIGHT WEIGHT;
BY SEX;
  RUN;

```

```

PROC CORR DATA=CLMVOK NOMISS;
  TITLE 'PROC CORR: DATASET CLMVOK with some incorrectly-coded, incomplete
records';
  TITLE2 'PROC CORR: DATASET CLMVOK Option NOMISS ';
VAR AGE HEIGHT WEIGHT;
BY SEX;
  RUN;

/*****
/* PROC EXPAND akzeptiert die Option N nicht */
/* PROC EXPAND sakzeptiert die Option NMISS nicht */
*****/
PROC EXPAND DATA=CLOK;
  TITLE 'PROC EXPAND: DATASET CLOK with complete records only ';
  RUN;

PROC EXPAND DATA=CLMVMISC;
  TITLE 'PROC EXPAND: DATASET CLMVMISC with some incorrectly-coded, incomplete
records';
  RUN;

PROC EXPAND DATA=CLMVOK;
  TITLE 'PROC EXPAND: DATASET CLMVOK with some incorrectly-coded, incomplete
records';
  RUN;

/*****
/* PROC FREQ akzeptiert die Option N nicht */
/* PROC FREQ akzeptiert die Option NMISS nicht */
*****/
PROC FREQ DATA=CLOK;
  TITLE 'PROC FREQ: DATASET CLOK with complete records only ';
  RUN;

PROC FREQ DATA=CLMVMISC;
  TITLE 'PROC FREQ: DATASET CLMVMISC with some incorrectly-coded, incomplete
records';
  RUN;

PROC FREQ DATA=CLMVOK;
  TITLE 'PROC FREQ: DATASET CLMVOK with some incorrectly-coded, incomplete
records';
  RUN;

/*****
/* PROC GENMOD liefert */
/* Option N - Anzahl der vollständigen Datensätze nicht zulässig */
/* Option NMISS nicht zulässig */
*****/
PROC GENMOD DATA=CLOK;
CLASS=weight;
model height=age;
  TITLE 'PROC GENMOD: DATASET CLOK with complete records only ';
  RUN;

PROC GENMOD DATA=CLMVMISC;
CLASS=weight;
model height=age;
  TITLE 'PROC GENMOD: DATASET CLMVMISC with some incorrectly-coded, incomplete
records';

```

```

RUN;

PROC GENMOD DATA=CLMVOK;
CLASS=weight;
model height=age;
  TITLE 'PROC GENMOD: DATASET CLMVOK with complete records only ';
RUN;

/*****
/* PROC GLM liefert ein Generalised Linear Model */
/* Option N - Anzahl der vollständigen Datensätze nicht zulässig */
/* Option NMISS nicht zulässig */
/* MEANS gibt einen Wert, die nicht bezogen (adjusted) ist auf das Modell */
/* LSMEANS gibt einen Wert, die bezogen (adjusted) ist auf das Modell */
*****/
PROC GLM DATA=CLOK;
CLASS AGE WEIGHT;
  TITLE 'PROC GLM: DATASET CLOK with complete records only ';
MODEL HEIGHT = WEIGHT AGE(WEIGHT);
MEANS WEIGHT AGE(WEIGHT);
LSMEANS WEIGHT AGE(WEIGHT);
RUN;

PROC GLM DATA=CLVMISC;
CLASS SEX WEIGHT AGE;
  TITLE 'PROC GLM: DATASET CLVMISC with some incorrectly-coded, incomplete
records';
MODEL HEIGHT = WEIGHT AGE(WEIGHT) SEX SEX(WEIGHT);
MEANS WEIGHT AGE(WEIGHT);
LSMEANS WEIGHT AGE(WEIGHT) SEX(WEIGHT);
RUN;

PROC GLM DATA=CLMVOK;
CLASS SEX WEIGHT AGE;
  TITLE 'PROC GLM: DATASET CLMVOK with some incorrectly-coded, incomplete
records';
MODEL HEIGHT = WEIGHT AGE(WEIGHT) SEX SEX(WEIGHT);
MEANS WEIGHT AGE(WEIGHT);
LSMEANS WEIGHT AGE(WEIGHT) SEX(WEIGHT);
RUN;

/*****
/* PROC IML */
/* Option N - Anzahl der vollständigen Datensätze nicht zulässig */
/* NMISS - Anzahl der unvollständigen Datensätze unzulässig */
/* IML ist eine Programmierumgebung an sich, vergleichbar mit APL */
*****/

/*****
/* PROC LIFEREG liefert ein parametrisches Überlebensmodell */
/* Option N nicht zulässig */
*****/
PROC LIFEREG DATA=CLOK;
model height=age;
TITLE 'PROC LIFEREG: DATASET CLOK with complete records only ';
RUN;

PROC LIFEREG DATA=CLVMISC;

```

```
model height=age;
TITLE 'PROC LIFEREG: DATASET CLVMISC with complete records only ';
RUN;
```

```
PROC LIFEREG DATA=CLMVOK;
model height=age;
TITLE 'PROC LIFEREG: DATASET CLMVOK with complete records only ';
RUN;
```

```
/
*****
**/
/* PROC Lifetest liefert Kaplan-Meier (KM) Überlebenswahrscheinlichkeiten,
*/
/*          Logrank-Statistiken, Wilcoxon (Peto) Statistiken; KM Plots; und
*/
/*          Log-Log-KM Plots
*/
/* Option N Nicht zulässig
*/
/
*****
**/
```

```
PROC LIFETEST DATA=CLOK METHOD =KM PLOTS=(S,LLS);
TITLE 'PROC LIFETEST: DATASET CLOK with complete records only ';
    time AGE;
    STRATA SEX;
RUN;
```

```
PROC LIFETEST DATA=CLVMISC METHOD =KM PLOTS=(S,LLS);
    TITLE 'PROC LIFETEST: DATASET CLVMISC with some incorrectly, incomplete
records ';
    time AGE;
    STRATA SEX;
RUN;
```

```
PROC LIFETEST DATA=CLMVOK METHOD =KM PLOTS=(S,LLS);
TITLE 'PROC LIFETEST: DATASET CLMVOK with some correctly-coded, incomplete
records ';
    time AGE;
    STRATA SEX;
RUN;
```

```
/*****
/* PROC LOGISTIC liefert eine logistische Regression          */
/* Option N Nicht zulässig                                   */
/* Option NMISS nicht zulässig                               */
/*****
```

```
PROC LOGISTIC DATA=CLOK;
TITLE 'PROC LOGISTIC: DATASET CLOK with complete records only ';
model height=age weight;
RUN;
```

```
PROC LOGISTIC DATA=CLVMISC;
TITLE 'PROC LOGISTIC: DATASET CLVMISC with some incorrectly-coded, incomplete
records';
model height=age weight;
RUN;
```

```
PROC LOGISTIC DATA=CLMVOK;
TITLE 'PROC LOGISTIC: DATASET CLMVOK with complete data records only ';
model height=age weight;
RUN;
```

```

/
*****
***/
/* PROC MEANS
*/
/*
*/
/
*****
***/
PROC MEANS DATA=CLOK N NMISS  SKEWNESS KURTOSIS  MEAN STD MIN MAX RANGE
          SUM VAR USS CSS CV STDERR T PRT;
  TITLE 'PROC MEANS: DATASET CLOK with complete records only ';
  VAR AGE HEIGHT WEIGHT;
  BY SEX;
  RUN;

PROC MEANS DATA=CLVMISC N NMISS  SKEWNESS KURTOSIS  MEAN STD MIN MAX RANGE
          SUM VAR USS CSS CV STDERR T PRT;
  TITLE 'PROC MEANS: DATASET CLVMISC with some wrongly-coded, incomplete
records  ';
  VAR AGE HEIGHT WEIGHT;
  BY SEX;
  RUN;

PROC MEANS DATA=CLMVOK N NMISS  SKEWNESS KURTOSIS  MEAN STD MIN MAX RANGE
          SUM VAR USS CSS CV STDERR T PRT;
  TITLE 'PROC MEANS: DATASET CLMVOK with some correctly-coded, incomplete
records  ';
  VAR AGE HEIGHT WEIGHT;
  BY SEX;
  RUN;

/*****/
/* PROC MIXED                                     */
/* Option N nicht zulässig                       */
/* Option NMISS nicht zulässig                  */
/* PROC MIXED arbeitet mit einem experimental ODS */
/* ODS = Output Delivery System                 */
/* Im gegebenen Rahmen werden nur Serien-Standard-Produkte betrachtet */
/*****/

/*****/
/* PROC NESTED akzeptiert die Option N nicht     */
/* PROC NESTED akzeptiert die Option NMISS nicht */
/* PROC NESTED setzt eine CLASS-Variable voraus, hier SEX */
/* Die CLASS-Anweisung muß der PROC NESTED-Anweisung unmittelbar folgen */
/* Eine Beobachtung mit fehlendem Wert in einer der CLASS-Variablen oder der */
/* VAR-Variablen wird bei der Analyse nicht berücksichtigt */
/* *****/
PROC NESTED DATA=CLOK;
CLASS SEX;
  TITLE 'PROC NESTED: DATASET CLOK with complete records only ';
VAR AGE HEIGHT WEIGHT;
RUN;

PROC NESTED DATA=CLVMISC;
CLASS SEX;
  TITLE 'PROC NESTED: DATASET CLVMISC with some wrongly-coded, incomplete
records  ';

```

```

VAR AGE HEIGHT WEIGHT;
RUN;

PROC NESTED DATA=CLMVOK;
CLASS SEX;
TITLE 'PROC NESTED: DATASET CLMVOK with some correctly-coded, incomplete records
';
VAR AGE HEIGHT WEIGHT;
RUN;

/
*****/
/* PROC NPARIWAY akzeptiert die Option N nicht
*/
/* PROC NPARIWAY akzeptiert die Option NMISS nicht
*/
/* PROC NPARIWAY setzt eine CLASS-Variable voraus, hier SEX
*/
/
*****/
PROC NPARIWAY DATA=CLOK;
  TITLE 'PROC NPARIWAY: DATASET CLOK with complete records only ';
VAR AGE HEIGHT WEIGHT;
CLASS SEX;
  RUN;

PROC NPARIWAY DATA=CLMVMISC;
  TITLE 'PROC NPARIWAY: DATASET CLMVMISC with some wrongly-coded, incomplete
records ';
VAR AGE HEIGHT WEIGHT;
CLASS SEX;
  RUN;

PROC NPARIWAY DATA=CLMVOK;
TITLE 'PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete
records ';
VAR AGE HEIGHT WEIGHT;
CLASS SEX;
  RUN;

/*****/
/* PROC PHREG - PH ist Proportional Hazards Methode, d.h. Cox */
/* PROC PHREG liefert ein Cox Modell, ein stratifiziertes Cox-Modell */
/* unter Verwendung von STRATA oder ein erweitertes Cox-Modell */
/* PROC PHREG: Option N unzulässig */
/* Option NMISS unzulässig */
/*****/
PROC PHREG DATA=CLOK;
  TITLE 'PROC PHREG: DATASET CLOK with complete records only ';
model age * weight(1) = height;
RUN;

PROC PHREG DATA=CLMVMISC;
  TITLE 'PROC PHREG: DATASET CLMVMISC with some wrongly-coded, incomplete
records ';
model age * weight(1) = height;
RUN;

PROC PHREG DATA=CLMVOK;
TITLE 'PROC PHREG: DATASET CLMVOK with some correctly-coded, incomplete records
';
model age * weight(1) = height;

```

```

RUN;

/*****
/* PROC PLOT akzeptiert die Option N nicht */
/* PROC PLOT akzeptiert die Option NMISS nicht */
/* Option NOMISS: Ausschluß von Beobachtungen mit fehlenden Werten */
/* die Berechnung der Achsenwerten */
/* HAXIS setzt NOMISS für die horizontale Achse außer Kraft */
/* VAXIS setzt NOMISS für die vertikale Achse außer Kraft */
/* Standardvorgabe: Berücksichtigung */
*****/
PROC PLOT DATA=CLOK;
  TITLE 'PROC PLOT: DATASET CLOK with complete records only ';
  RUN;

PROC PLOT DATA=CLVMVMISC;
  TITLE 'PROC PLOT: DATASET CLVMVMISC with some wrongly-coded, incomplete records
';
  RUN;

PROC PLOT DATA=CLMVOK;
  TITLE 'PROC PLOT: DATASET CLMVOK with some correctly-coded, incomplete records
';
  RUN;

/*****
/* PROC PRINT akzeptiert die Option NMISS nicht */
*****/
PROC PRINT DATA=CLOK N;
  TITLE 'PROC PRINT: DATASET CLOK with complete records only ';
  RUN;

PROC PRINT DATA=CLVMVMISC N;
  TITLE 'PROC PRINT: DATASET CLVMVMISC with some wrongly-coded, incomplete
records ';
  RUN;

PROC PRINT DATA=CLMVOK N;
  TITLE 'PROC PRINT: DATASET CLMVOK with some correctly-coded, incomplete records
';
  RUN;

/*****
/* PROC PROBIT akzeptiert die Option N nicht */
/* PROC PROBIT akzeptiert die Option NMISS nicht */
*****/
PROC PROBIT DATA=CLOK;
class height;
  TITLE 'PROC PROBIT: DATASET CLOK with complete records only ';
model height = age weight;
by sex;
  RUN;

PROC PROBIT DATA=CLVMVMISC;
  TITLE 'PROC PROBIT: DATASET CLVMVMISC with some wrongly-coded, incomplete
records ';
class height;
model height = age weight;
by sex;
  RUN;

PROC PROBIT DATA=CLMVOK;
  TITLE 'PROC PROBIT: DATASET CLMVOK with some correctly-coded, incomplete records
';

```



```
class height;
model height = age weight;
by sex;
  RUN;
```

```
/* ***** */
/* PROC RANK akzeptiert die Option N nicht */
/* PROC RANK akzeptiert die Option NMISS nicht */
/* ***** */
PROC RANK DATA=CLOK;
  TITLE 'PROC RANK: DATASET CLOK with complete records only ';
  RUN;
```

```
PROC RANK DATA=CLVMISC;
  TITLE 'PROC RANK: DATASET CLVMISC with some wrongly-coded, incomplete records
';
  RUN;
```

```
PROC RANK DATA=CLMVOK;
  TITLE 'PROC RANK: DATASET CLMVOK with some correctly-coded, incomplete records
';
  RUN;
```

```
/* ***** */
/* PROC REG */
/* PROC REG akzeptiert die Option N nicht */
/* PROC REG akzeptiert die Option NMISS nicht */
/* Wenn eine Datenwert fehlt, wird der Datensatz ab dem Datensatz, wofür */
/* die Variable fehlt, außer Betracht gelassen */
/* ***** */
PROC REG DATA=CLOK;
  TITLE 'PROC REG: DATASET CLOK with complete records only ';
  RUN;
```

```
PROC REG DATA=CLVMISC;
  TITLE 'PROC REG: DATASET CLVMISC with some wrongly-coded, incomplete records
';
  RUN;
```

```
PROC REG DATA=CLMVOK;
  TITLE 'PROC REG: DATASET CLMVOK with some correctly-coded, incomplete records ';
  RUN;
```

```
/* ***** */
/* PROC RSREG */
/* PROC RSREG */
/* Option N unzulässig */
/* Option NMISS unzulässig */
/* ***** */
PROC RSREG DATA=CLOK;
  TITLE 'PROC RSREG: DATASET CLOK with complete records only ';
  RUN;
```

```
PROC RSREG DATA=CLVMISC;
  TITLE 'PROC RSREG: DATASET CLVMISC with some wrongly-coded, incomplete
records ';
  RUN;
```

```
PROC RSREG DATA=CLMVOK;
  TITLE 'PROC RSREG: DATASET CLMVOK with some correctly-coded, incomplete records
';
  RUN;
```

```

/*****/
/* PROC STANDARD */
/* PROC STANDARD */
/* Option N unzulässig */
/* Option NMISS unzulässig */
/*****/
PROC STANDARD DATA=CLOK;
  TITLE 'PROC STANDARD: DATASET CLOK with complete records only ';
RUN;

PROC STANDARD DATA=CLVMISC;
  TITLE 'PROC STANDARD: DATASET CLVMISC with some wrongly-coded, incomplete
records ';
RUN;

PROC STANDARD DATA=CLMVOK;
  TITLE 'PROC STANDARD: DATASET CLMVOK with some correctly-coded, incomplete
records ';
RUN;

/
*****/
/* PROC SUMMARY setzt die PRINT Option oder eine gültige OUTPUT-Anweisung voraus */
/
*****/
PROC SUMMARY DATA=CLOK N NMISS PRINT;
  TITLE 'PROC SUMMARY: DATASET CLOK with complete records only ';
  RUN;

PROC SUMMARY DATA=CLVMISC N NMISS PRINT;
  TITLE 'PROC SUMMARY: DATASET CLVMISC with some wrongly-coded, incomplete
records ';
  RUN;

PROC SUMMARY DATA=CLOK N NMISS PRINT;
  TITLE 'PROC SUMMARY: DATASET CLMVOK with some correctly-coded, incomplete
records ';
  RUN;

/
*****/
/* PROC TABULATE akzeptiert die Option N nicht */
/* PROC TABULATE akzeptiert die Option NMISS nicht */
/
*****/
PROC TABULATE DATA=CLOK;
  TITLE 'PROC TABULATE: DATASET CLOK with complete records only ';
  VAR AGE HEIGHT WEIGHT;
  CLASS SEX;
  TABLE AGE HEIGHT WEIGHT;
  RUN;

PROC TABULATE DATA=CLVMISC;
  TITLE 'PROC TABULATE: DATASET CLVMISC with some wrongly-coded, incomplete

```

```
records ' ;
VAR AGE HEIGHT WEIGHT;
CLASS SEX;
TABLE AGE HEIGHT WEIGHT;
RUN;
```

```
PROC TABULATE DATA=CLMVOK;
TITLE 'PROC TABULATE: DATASET CLMVOK with some correctly-coded, incomplete
records ' ;
VAR AGE HEIGHT WEIGHT;
CLASS SEX;
TABLE AGE HEIGHT WEIGHT;
RUN;
```

```
/
*****
***/
/* PROC TTEST akzeptiert die Option N nicht
*/
/* PROC TTEST akzeptiert die Option NMISS nicht
*/
/* PROC TTEST setzt eine CLASS Variable voraus
*/
/
*****
***/
PROC TTEST DATA=CLOK;
TITLE 'PROC TTEST: DATASET CLOK with complete records only ' ;
VAR AGE HEIGHT WEIGHT;
CLASS SEX;
RUN;
```

```
PROC TTEST DATA=CLMVMISC;
TITLE 'PROC TTEST: DATASET CLMVMISC with some wrongly-coded, incomplete
records ' ;
VAR AGE HEIGHT WEIGHT;
CLASS SEX;
RUN;
```

```
PROC TTEST DATA=CLMVOK;
TITLE 'PROC TTEST: DATASET CLMVOK with some correctly-coded, incomplete records
' ;
VAR AGE HEIGHT WEIGHT;
CLASS SEX;
RUN;
```

```
/
*****
***/
/* PROC UNIVARIATE akzeptiert die Option N nicht
*/
/* PROC UNIVARIATE akzeptiert die Option NMISS nicht
*/
/
*****
***/
PROC UNIVARIATE DATA=CLOK;
TITLE 'PROC UNIVARIATE: DATASET CLOK with complete records only ' ;
RUN;
```

```
PROC UNIVARIATE DATA=CLMVMISC;
TITLE 'PROC UNIVARIATE: DATASET CLMVMISC with some wrongly-coded, incomplete
records ' ;
RUN;
```

```
PROC UNIVARIATE DATA=CLMVOK;  
TITLE 'PROC UNIVARIATE: DATASET CLMVOK with some correctly-coded, incomplete  
records '  
RUN;
```

PROC ANOVA: DATASET CLOK with complete records only 244
 12:01 Tuesday, June 29, 1999

Analysis of Variance Procedure
 Class Level Information

Class	Levels	Values
AGE	6	11 12 13 14 15 16
WEIGHT	15	77 83 84 85 90 98 112 128 133 150 50.5 84.5 99.5 102.5 112.5

Number of observations in data set = 19

PROC ANOVA: DATASET CLOK with complete records only 245
 12:01 Tuesday, June 29, 1999

Analysis of Variance Procedure

Dependent Variable: HEIGHT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	15	454.91921053	30.32794737	4.99	0.1056
Error	3	18.24500000	6.08166667		
Corrected Total	18	473.16421053			
	R-Square	C.V.	Root MSE	HEIGHT Mean	
	0.961440	3.956093	2.46610354	62.33684211	

Source	DF	Anova SS	Mean Square	F Value	Pr > F
WEIGHT	14	433.79421053	30.98530075	5.09	0.1028
AGE(WEIGHT)	1	21.12500000	21.12500000	3.47	0.1592

PROC ANOVA: DATASET CLOK with complete records only 246
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Analysis of Variance Procedure

Level of WEIGHT	N	Mean	SD
77	1	56.3000000	.
83	1	57.3000000	.
84	2	59.5000000	4.24264069
85	1	57.5000000	.
90	1	64.3000000	.
98	1	65.3000000	.
112	2	66.5000000	0.00000000
128	1	64.8000000	.
133	1	67.0000000	.
150	1	72.0000000	.
50.5	1	51.3000000	.
84.5	1	59.8000000	.
99.5	1	59.0000000	.
102.5	2	63.1500000	0.49497475
112.5	2	65.7500000	4.59619408

Level of AGE	Level of WEIGHT	N	Mean	SD
12	77	1	56.3000000	.
12	83	1	57.3000000	.
13	84	2	59.5000000	4.24264069
11	85	1	57.5000000	.
14	90	1	64.3000000	.

13	98	1	65.3000000	.
15	112	2	66.5000000	0.00000000
12	128	1	64.8000000	.
15	133	1	67.0000000	.
16	150	1	72.0000000	.
11	50.5	1	51.3000000	.
12	84.5	1	59.8000000	.
12	99.5	1	59.0000000	.
14	102.5	2	63.1500000	0.49497475
14	112.5	1	69.0000000	.
15	112.5	1	62.5000000	.

PROC ANOVA: DATASET CLMVMISC with some incorrectly-coded, incomplete records 247
12:01 Tuesday, June 29, 1999

Analysis of Variance Procedure
Class Level Information

Class	Levels	Values
SEX	2	F M
WEIGHT	10	83 84 98 999 50.5 66.5 84.5 99.5 102.5 112.5
AGE	7	11 12 13 14 15 16 999

Number of observations in data set = 16

NOTE: Due to missing values, only 14 observations can be used in this analysis.

PROC ANOVA: DATASET CLMVMISC with some incorrectly-coded, incomplete records 248
12:01 Tuesday, June 29, 1999

Analysis of Variance Procedure

Dependent Variable: HEIGHT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	15	824260.78928571	54950.71928571	.	.
Error	-2	.	.	.	.
Corrected Total	13	824260.78928571			
R-Square		C.V.	Root MSE	HEIGHT Mean	
1.000000		0	0	125.39285714	

Source	DF	Anova SS	Mean Square	F Value	Pr > F
WEIGHT	9	394556.91928571	43839.65769841	.	.
AGE(WEIGHT)	2	429685.62500000	214842.81250000	.	.
SEX	1	65677.80071429	65677.80071429	.	.
SEX(WEIGHT)	3	364026.06928571	121342.02309524	.	.

PROC ANOVA: DATASET CLMVMISC with some incorrectly-coded, incomplete records 249
12:01 Tuesday, June 29, 1999

Analysis of Variance Procedure

Level of WEIGHT	N	Mean	SD
83	1	57.300000	.
84	2	59.500000	4.242641
98	1	65.300000	.
999	2	535.500000	655.487986
50.5	1	51.300000	.
66.5	1	15.000000	.
84.5	1	59.800000	.

99.5	1	59.000000	.
102.5	2	63.150000	0.494975
112.5	2	65.750000	4.596194

Level of AGE	Level of WEIGHT	N	Mean	SD
12	83	1	57.300000	.
13	84	2	59.500000	4.24264069
13	98	1	65.300000	.
14	999	1	999.000000	.
16	999	1	72.000000	.
11	50.5	1	51.300000	.
999	66.5	1	15.000000	.
12	84.5	1	59.800000	.
12	99.5	1	59.000000	.
14	102.5	2	63.150000	0.49497475
14	112.5	1	69.000000	.
15	112.5	1	62.500000	.

Level of SEX	Level of WEIGHT	N	Mean	SD
M	83	1	57.300000	.
F	84	1	56.500000	.
M	84	1	62.500000	.
F	98	1	65.300000	.
F	999	1	999.000000	.
M	999	1	72.000000	.
F	50.5	1	51.300000	.
M	66.5	1	15.000000	.
F	84.5	1	59.800000	.
M	99.5	1	59.000000	.
F	102.5	1	62.800000	.
M	102.5	1	63.500000	.
F	112.5	1	62.500000	.
M	112.5	1	69.000000	.

PROC ANOVA: DATASET CLMVOK with some incorrectly-coded, incomplete records 250
12:01 Tuesday, June 29, 1999

Analysis of Variance Procedure
Class Level Information

Class	Levels	Values
SEX	2	F M
WEIGHT	8	83 84 98 50.5 84.5 99.5 102.5 112.5
AGE	5	11 12 13 14 15

Number of observations in data set = 19

NOTE: Due to missing values, only 11 observations can be used in this analysis.

PROC ANOVA: DATASET CLMVOK with some incorrectly-coded, incomplete records 251
12:01 Tuesday, June 29, 1999

Analysis of Variance Procedure

Dependent Variable: HEIGHT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	11	229.74545455	20.88595041	.	.
Error	-1	.	.		
Corrected Total	10	229.74545455			

R-Square	C.V.	Root MSE	HEIGHT Mean
1.000000	0	0	60.86363636

Source	DF	Anova SS	Mean Square	F Value	Pr > F
WEIGHT	7	190.37545455	27.19649351	.	.
AGE(WEIGHT)	1	21.12500000	21.12500000	.	.
SEX	1	17.87345455	17.87345455	.	.
SEX(WEIGHT)	2	21.49654545	10.74827273	.	.

PROC ANOVA: DATASET CLMVOK with some incorrectly-coded, incomplete records 252
12:01 Tuesday, June 29, 1999

Analysis of Variance Procedure

Level of WEIGHT	N	Mean	SD
83	1	57.3000000	.
84	2	59.5000000	4.24264069
98	1	65.3000000	.
50.5	1	51.3000000	.
84.5	1	59.8000000	.
99.5	1	59.0000000	.
102.5	2	63.1500000	0.49497475
112.5	2	65.7500000	4.59619408

Level of AGE	Level of WEIGHT	N	Mean	SD
12	83	1	57.3000000	.
13	84	2	59.5000000	4.24264069
13	98	1	65.3000000	.
11	50.5	1	51.3000000	.
12	84.5	1	59.8000000	.
12	99.5	1	59.0000000	.
14	102.5	2	63.1500000	0.49497475
14	112.5	1	69.0000000	.
15	112.5	1	62.5000000	.

Level of SEX	Level of WEIGHT	N	Mean	SD
M	83	1	57.3000000	.
F	84	1	56.5000000	.
M	84	1	62.5000000	.
F	98	1	65.3000000	.
F	50.5	1	51.3000000	.
F	84.5	1	59.8000000	.
M	99.5	1	59.0000000	.
F	102.5	1	62.8000000	.
M	102.5	1	63.5000000	.
F	112.5	1	62.5000000	.
M	112.5	1	69.0000000	.

PROC CHART: DATASET CLOK with complete records only 253
12:01 Tuesday, June 29, 1999

SEX	Freq	Cum. Freq	Percent	Cum. Percent
F	9	9	47.37	47.37
M	10	19	52.63	100.00

\$ffff^ffff^ffff^ffff^ffff^ffff^ffff^ffff^ffff^ffff^
 1 2 3 4 5 6 7 8 9 10
 Frequency

PROC CHART: DATASET CLMVMISC with some incorrectly-coded, incomplete records 254
12:01 Tuesday, June 29, 1999

SEX	Freq	Cum. Freq	Percent	Cum. Percent
B	1	1	6.25	6.25


```

F      ,*****
      ,*****
M      ,*****
      ,*****
      $ffff^ffff^ffff^ffff^ffff^ffff^ffff^ffff^ffff^
      1      2      3      4      5      6      7      8

```

Frequency

PROC CHART: DATASET CLMVOK with some incorrectly-coded, incomplete records 255
12:01 Tuesday, June 29, 1999

```

SEX
      Cum.      Cum.
      Freq      Freq      Percent      Percent
F      ,*****
      ,*****
M      ,*****
      ,*****
      $ffff^ffff^ffff^ffff^ffff^ffff^ffff^ffff^ffff^
      1      2      3      4      5      6      7      8

```

Frequency

PROC CORR: DATASET CLOK with complete records only 256
12:01 Tuesday, June 29, 1999

----- SEX=F -----

Correlation Analysis

3 'VAR' Variables: AGE HEIGHT WEIGHT

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
AGE	9	13.222222	1.394433	119.000000	11.000000	15.000000
HEIGHT	9	60.588889	5.018328	545.300000	51.300000	66.500000
WEIGHT	9	90.111111	19.383914	811.000000	50.500000	112.500000

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 9

	AGE	HEIGHT	WEIGHT
AGE	1.00000 0.0	0.80780 0.0084	0.91926 0.0005
HEIGHT	0.80780 0.0084	1.00000 0.0	0.88655 0.0014
WEIGHT	0.91926 0.0005	0.88655 0.0014	1.00000 0.0

PROC CORR: DATASET CLOK with complete records only 257
12:01 Tuesday, June 29, 1999

----- SEX=M -----

Correlation Analysis

3 'VAR' Variables: AGE HEIGHT WEIGHT

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
AGE	10	13.400000	1.646545	134.000000	11.000000	16.000000
HEIGHT	10	63.910000	4.937937	639.100000	57.300000	72.000000
WEIGHT	10	108.950000	22.727186	1089.500000	83.000000	150.000000

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 10

	AGE	HEIGHT	WEIGHT
AGE	1.00000 0.0	0.87134 0.0010	0.70875 0.0218
HEIGHT	0.87134 0.0010	1.00000 0.0	0.85008 0.0018
WEIGHT	0.70875 0.0218	0.85008 0.0018	1.00000 0.0

PROC CORR: DATASET CLOK with complete records only 258
 PROC CORR: DATASET CLOK Option NOMISS
 12:01 Tuesday, June 29, 1999

----- SEX=F -----

Correlation Analysis

3 'VAR' Variables: AGE HEIGHT WEIGHT

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
AGE	9	13.222222	1.394433	119.000000	11.000000	15.000000
HEIGHT	9	60.588889	5.018328	545.300000	51.300000	66.500000
WEIGHT	9	90.111111	19.383914	811.000000	50.500000	112.500000

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 9

	AGE	HEIGHT	WEIGHT
AGE	1.00000 0.0	0.80780 0.0084	0.91926 0.0005
HEIGHT	0.80780 0.0084	1.00000 0.0	0.88655 0.0014
WEIGHT	0.91926 0.0005	0.88655 0.0014	1.00000 0.0

PROC CORR: DATASET CLOK with complete records only 259
 PROC CORR: DATASET CLOK Option NOMISS
 12:01 Tuesday, June 29, 1999

----- SEX=M -----

Correlation Analysis

3 'VAR' Variables: AGE HEIGHT WEIGHT

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
AGE	10	13.400000	1.646545	134.000000	11.000000	16.000000
HEIGHT	10	63.910000	4.937937	639.100000	57.300000	72.000000
WEIGHT	10	108.950000	22.727186	1089.500000	83.000000	150.000000

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 10

	AGE	HEIGHT	WEIGHT
AGE	1.00000 0.0	0.87134 0.0010	0.70875 0.0218
HEIGHT	0.87134 0.0010	1.00000 0.0	0.85008 0.0018
WEIGHT	0.70875 0.0218	0.85008 0.0018	1.00000 0.0

PROC CORR: DATASET CLMVMISC with some incorrectly-coded, incomplete records 260

----- SEX=B -----

Correlation Analysis

3 'VAR' Variables: AGE HEIGHT WEIGHT

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
AGE	1	57.500000	.	57.500000	57.500000	57.500000
HEIGHT	1	85.000000	.	85.000000	85.000000	85.000000
WEIGHT	0	.	.	.	.	.

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / Number of Observations

	AGE	HEIGHT	WEIGHT
AGE	.	.	.
	1	1	0
HEIGHT	.	.	.
	1	1	0
WEIGHT	.	.	.
	0	0	0

PROC CORR: DATASET CLVMISC with some incorrectly-coded, incomplete records 261
12:01 Tuesday, June 29, 1999

----- SEX=F -----

Correlation Analysis

3 'VAR' Variables: AGE HEIGHT WEIGHT

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
AGE	7	13.142857	1.345185	92.000000	11.000000	15.000000
HEIGHT	7	193.885714	355.052454	1357.200000	51.300000	999.000000
WEIGHT	7	218.714286	344.640496	1531.000000	50.500000	999.000000

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 7

	AGE	HEIGHT	WEIGHT
AGE	1.00000 0.0	0.28982 0.5284	0.33156 0.4675
HEIGHT	0.28982 0.5284	1.00000 0.0	0.99895 0.0001
WEIGHT	0.33156 0.4675	0.99895 0.0001	1.00000 0.0

PROC CORR: DATASET CLVMISC with some incorrectly-coded, incomplete records 262
12:01 Tuesday, June 29, 1999

----- SEX=M -----

Correlation Analysis

3 'VAR' Variables: AGE HEIGHT WEIGHT

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
AGE	8	136.500000	348.505380	1092.000000	12.000000	999.000000
HEIGHT	8	174.662500	333.556138	1397.300000	15.000000	999.000000
WEIGHT	7	221.000000	343.400641	1547.000000	66.500000	999.000000

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / Number of Observations

	AGE	HEIGHT	WEIGHT
AGE	1.00000 0.0 8	-0.19484 0.6438 8	-0.19541 0.6746 7
HEIGHT	-0.19484 0.6438 8	1.00000 0.0 8	0.38061 0.3996 7
WEIGHT	-0.19541 0.6746 7	0.38061 0.3996 7	1.00000 0.0 7

PROC CORR: DATASET CLMVMISC with some incorrectly-coded, incomplete records 263
 PROC CORR: DATASET CLMVMISC Option NOMISS
 12:01 Tuesday, June 29, 1999

----- SEX=B -----

Correlation Analysis

3 'VAR' Variables: AGE HEIGHT WEIGHT

PROC CORR: DATASET CLMVMISC with some incorrectly-coded, incomplete records 264
 PROC CORR: DATASET CLMVMISC Option NOMISS
 12:01 Tuesday, June 29, 1999

----- SEX=F -----

Correlation Analysis

3 'VAR' Variables: AGE HEIGHT WEIGHT

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
AGE	7	13.142857	1.345185	92.000000	11.000000	15.000000
HEIGHT	7	193.885714	355.052454	1357.200000	51.300000	999.000000
WEIGHT	7	218.714286	344.640496	1531.000000	50.500000	999.000000

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 7

	AGE	HEIGHT	WEIGHT
AGE	1.00000 0.0	0.28982 0.5284	0.33156 0.4675
HEIGHT	0.28982 0.5284	1.00000 0.0	0.99895 0.0001
WEIGHT	0.33156 0.4675	0.99895 0.0001	1.00000 0.0

PROC CORR: DATASET CLMVMISC with some incorrectly-coded, incomplete records 265
 PROC CORR: DATASET CLMVMISC Option NOMISS
 12:01 Tuesday, June 29, 1999

----- SEX=M -----

Correlation Analysis

3 'VAR' Variables: AGE HEIGHT WEIGHT

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
AGE	7	154.285714	372.486561	1080.000000	12.000000	999.000000
HEIGHT	7	56.900000	19.189928	398.300000	15.000000	72.000000
WEIGHT	7	221.000000	343.400641	1547.000000	66.500000	999.000000

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 7

	AGE	HEIGHT	WEIGHT
AGE	1.00000 0.0	-0.96185 0.0005	-0.19541 0.6746
HEIGHT	-0.96185 0.0005	1.00000 0.0	0.38061 0.3996
WEIGHT	-0.19541 0.6746	0.38061 0.3996	1.00000 0.0

PROC CORR: DATASET CLMVOK with some incorrectly-coded, incomplete records 266
12:01 Tuesday, June 29, 1999

----- SEX=' ' -----

Correlation Analysis

3 'VAR' Variables: AGE HEIGHT WEIGHT

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
AGE	2	15.000000	0	30.000000	15.000000	15.000000
HEIGHT	3	63.500000	5.196152	190.500000	57.500000	66.500000
WEIGHT	3	103.000000	15.588457	309.000000	85.000000	112.000000

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / Number of Observations

	AGE	HEIGHT	WEIGHT
AGE	. 2	. 2	. 2
HEIGHT	. 2	1.00000 0.0 3	1.00000 0.0001 3
WEIGHT	. 2	1.00000 0.0001 3	1.00000 0.0 3

PROC CORR: DATASET CLMVOK with some incorrectly-coded, incomplete records 267
12:01 Tuesday, June 29, 1999

----- SEX=F -----

Correlation Analysis

3 'VAR' Variables: AGE HEIGHT WEIGHT

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
AGE	7	13.142857	1.345185	92.000000	11.000000	15.000000
HEIGHT	6	59.700000	5.091562	358.200000	51.300000	65.300000
WEIGHT	6	88.666667	21.644091	532.000000	50.500000	112.500000

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / Number of Observations

	AGE	HEIGHT	WEIGHT
--	-----	--------	--------

AGE	1.00000 0.0 7	0.70550 0.1173 6	0.92782 0.0076 6
HEIGHT	0.70550 0.1173 6	1.00000 0.0 6	0.90198 0.0139 6
WEIGHT	0.92782 0.0076 6	0.90198 0.0139 6	1.00000 0.0 6

PROC CORR: DATASET CLMVOK with some incorrectly-coded, incomplete records 268
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----- SEX=M -----

Correlation Analysis

3 'VAR' Variables: AGE HEIGHT WEIGHT

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
AGE	7	13.285714	1.496026	93.000000	12.000000	16.000000
HEIGHT	6	63.883333	5.679935	383.300000	57.300000	72.000000
WEIGHT	6	102.416667	18.770766	614.500000	83.000000	133.000000

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / Number of Observations

	AGE	HEIGHT	WEIGHT
AGE	1.00000 0.0 7	0.94149 0.0050 6	0.64269 0.2422 5
HEIGHT	0.94149 0.0050 6	1.00000 0.0 6	0.73900 0.1536 5
WEIGHT	0.64269 0.2422 5	0.73900 0.1536 5	1.00000 0.0 6

PROC CORR: DATASET CLMVOK with some incorrectly-coded, incomplete records 269
PROC CORR: DATASET CLMVOK Option NOMISS
12:01 Tuesday, June 29, 1999

----- SEX=' ' -----

Correlation Analysis

3 'VAR' Variables: AGE HEIGHT WEIGHT

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
AGE	2	15.000000	0	30.000000	15.000000	15.000000
HEIGHT	2	66.500000	0	133.000000	66.500000	66.500000
WEIGHT	2	112.000000	0	224.000000	112.000000	112.000000

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 2

	AGE	HEIGHT	WEIGHT
AGE	...	...	...
HEIGHT	...	...	...

WEIGHT

PROC CORR: DATASET CLMVOK with some incorrectly-coded, incomplete records 270
PROC CORR: DATASET CLMVOK Option NOMISS
12:01 Tuesday, June 29, 1999

----- SEX=F -----

Correlation Analysis

3 'VAR' Variables: AGE HEIGHT WEIGHT

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
AGE	6	13.000000	1.414214	78.000000	11.000000	15.000000
HEIGHT	6	59.700000	5.091562	358.200000	51.300000	65.300000
WEIGHT	6	88.666667	21.644091	532.000000	50.500000	112.500000

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 6

	AGE	HEIGHT	WEIGHT
AGE	1.00000 0.0	0.70550 0.1173	0.92782 0.0076
HEIGHT	0.70550 0.1173	1.00000 0.0	0.90198 0.0139
WEIGHT	0.92782 0.0076	0.90198 0.0139	1.00000 0.0

PROC CORR: DATASET CLMVOK with some incorrectly-coded, incomplete records 271
PROC CORR: DATASET CLMVOK Option NOMISS
12:01 Tuesday, June 29, 1999

----- SEX=M -----

Correlation Analysis

3 'VAR' Variables: AGE HEIGHT WEIGHT

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
AGE	5	13.000000	1.000000	65.000000	12.000000	14.000000
HEIGHT	5	62.260000	4.534644	311.300000	57.300000	69.000000
WEIGHT	5	96.300000	12.642191	481.500000	83.000000	112.500000

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 5

	AGE	HEIGHT	WEIGHT
AGE	1.00000 0.0	0.89312 0.0413	0.64269 0.2422
HEIGHT	0.89312 0.0413	1.00000 0.0	0.73900 0.1536
WEIGHT	0.64269 0.2422	0.73900 0.1536	1.00000 0.0

PROC FREQ: DATASET CLOK with complete records only 272
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NAME	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ALFRED	1	5.3	1	5.3
ALICED	1	5.3	2	10.5
BARBARA	1	5.3	3	15.8

CAROL	1	5.3	4	21.1
HENRY	1	5.3	5	26.3
JAMES	1	5.3	6	31.6
JANE	1	5.3	7	36.8
JANET	1	5.3	8	42.1
JEFFREY	1	5.3	9	47.4
JOHN	1	5.3	10	52.6
JOYCE	1	5.3	11	57.9
JUDY	1	5.3	12	63.2
LOUISE	1	5.3	13	68.4
MARY	1	5.3	14	73.7
PHILIP	1	5.3	15	78.9
ROBERT	1	5.3	16	84.2
RONALD	1	5.3	17	89.5
THOMAS	1	5.3	18	94.7
WILLIAM	1	5.3	19	100.0

SEX	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ffffffffff				
F	9	47.4	9	47.4
M	10	52.6	19	100.0

AGE	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ffffffffff				
11	2	10.5	2	10.5
12	5	26.3	7	36.8
13	3	15.8	10	52.6
14	4	21.1	14	73.7
15	4	21.1	18	94.7
16	1	5.3	19	100.0

PROC FREQ: DATASET CLOK with complete records only 273
 12:01 Tuesday, June 29, 1999

HEIGHT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ffffffffff				
51.3	1	5.3	1	5.3
56.3	1	5.3	2	10.5
56.5	1	5.3	3	15.8
57.3	1	5.3	4	21.1
57.5	1	5.3	5	26.3
59	1	5.3	6	31.6
59.8	1	5.3	7	36.8
62.5	2	10.5	9	47.4
62.8	1	5.3	10	52.6
63.5	1	5.3	11	57.9
64.3	1	5.3	12	63.2
64.8	1	5.3	13	68.4
65.3	1	5.3	14	73.7
66.5	2	10.5	16	84.2
67	1	5.3	17	89.5
69	1	5.3	18	94.7
72	1	5.3	19	100.0

WEIGHT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ffffffffff				
50.5	1	5.3	1	5.3
77	1	5.3	2	10.5
83	1	5.3	3	15.8
84	2	10.5	5	26.3
84.5	1	5.3	6	31.6
85	1	5.3	7	36.8

90	1	5.3	8	42.1
98	1	5.3	9	47.4
99.5	1	5.3	10	52.6
102.5	2	10.5	12	63.2
112	2	10.5	14	73.7
112.5	2	10.5	16	84.2
128	1	5.3	17	89.5
133	1	5.3	18	94.7
150	1	5.3	19	100.0

PROC FREQ: DATASET CLMMISC with some incorrectly-coded, incomplete records 274
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NAME	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ALFRED	1	6.3	1	6.3
ALICED	1	6.3	2	12.5
BARBARA	1	6.3	3	18.8
CAROL	1	6.3	4	25.0
HENRY	1	6.3	5	31.3
JAMES	1	6.3	6	37.5
JANE	1	6.3	7	43.8
JANET	1	6.3	8	50.0
JEFFREY	1	6.3	9	56.3
JOHN	1	6.3	10	62.5
JOYCE	1	6.3	11	68.8
JUDY	1	6.3	12	75.0
LOUISE	1	6.3	13	81.3
PHILIP	1	6.3	14	87.5
ROBERT	1	6.3	15	93.8
THOMAS	1	6.3	16	100.0

SEX	Frequency	Percent	Cumulative Frequency	Cumulative Percent
B	1	6.3	1	6.3
F	7	43.8	8	50.0
M	8	50.0	16	100.0

AGE	Frequency	Percent	Cumulative Frequency	Cumulative Percent
11	1	6.3	1	6.3
12	4	25.0	5	31.3
13	3	18.8	8	50.0
14	4	25.0	12	75.0
15	1	6.3	13	81.3
16	1	6.3	14	87.5
57.5	1	6.3	15	93.8
999	1	6.3	16	100.0

PROC FREQ: DATASET CLMMISC with some incorrectly-coded, incomplete records 275
12:01 Tuesday, June 29, 1999

HEIGHT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
15	1	6.3	1	6.3
51.3	1	6.3	2	12.5
56.5	1	6.3	3	18.8
57.3	1	6.3	4	25.0
59	1	6.3	5	31.3
59.8	1	6.3	6	37.5
62.5	2	12.5	8	50.0
62.8	1	6.3	9	56.3

63.5	1	6.3	10	62.5
65.3	1	6.3	11	68.8
69	1	6.3	12	75.0
72	1	6.3	13	81.3
85	1	6.3	14	87.5
999	2	12.5	16	100.0

WEIGHT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
50.5	1	7.1	1	7.1
66.5	1	7.1	2	14.3
83	1	7.1	3	21.4
84	2	14.3	5	35.7
84.5	1	7.1	6	42.9
98	1	7.1	7	50.0
99.5	1	7.1	8	57.1
102.5	2	14.3	10	71.4
112.5	2	14.3	12	85.7
999	2	14.3	14	100.0

Frequency Missing = 2

PROC FREQ: DATASET CLMVOK with some incorrectly-coded, incomplete records 276
12:01 Tuesday, June 29, 1999

NAME	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ALFRED	1	5.3	1	5.3
ALICED	1	5.3	2	10.5
BARBARA	1	5.3	3	15.8
CAROL	1	5.3	4	21.1
HENRY	1	5.3	5	26.3
JAMES	1	5.3	6	31.6
JANE	1	5.3	7	36.8
JANET	1	5.3	8	42.1
JEFFREY	1	5.3	9	47.4
JOHN	1	5.3	10	52.6
JOYCE	1	5.3	11	57.9
JUDY	1	5.3	12	63.2
LOUISE	1	5.3	13	68.4
MARY	1	5.3	14	73.7
PHILIP	1	5.3	15	78.9
ROBERT	1	5.3	16	84.2
RONALD	1	5.3	17	89.5
THOMAS	1	5.3	18	94.7
WILLIAM	1	5.3	19	100.0

SEX	Frequency	Percent	Cumulative Frequency	Cumulative Percent
F	7	46.7	7	46.7
M	8	53.3	15	100.0

Frequency Missing = 4

AGE	Frequency	Percent	Cumulative Frequency	Cumulative Percent
11	1	6.3	1	6.3
12	4	25.0	5	31.3
13	3	18.8	8	50.0
14	4	25.0	12	75.0
15	3	18.8	15	93.8
16	1	6.3	16	100.0

Frequency Missing = 3

PROC FREQ: DATASET CLMVOK with some incorrectly-coded, incomplete records 277
12:01 Tuesday, June 29, 1999

HEIGHT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
51.3	1	6.7	1	6.7
56.5	1	6.7	2	13.3
57.3	1	6.7	3	20.0
57.5	1	6.7	4	26.7
59	1	6.7	5	33.3
59.8	1	6.7	6	40.0
62.5	2	13.3	8	53.3
62.8	1	6.7	9	60.0
63.5	1	6.7	10	66.7
65.3	1	6.7	11	73.3
66.5	2	13.3	13	86.7
69	1	6.7	14	93.3
72	1	6.7	15	100.0

Frequency Missing = 4

WEIGHT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
50.5	1	6.7	1	6.7
83	1	6.7	2	13.3
84	2	13.3	4	26.7
84.5	1	6.7	5	33.3
85	1	6.7	6	40.0
98	1	6.7	7	46.7
99.5	1	6.7	8	53.3
102.5	2	13.3	10	66.7
112	2	13.3	12	80.0
112.5	2	13.3	14	93.3
133	1	6.7	15	100.0

Frequency Missing = 4

PROC GENMOD: DATASET CLOK with complete records only 278
12:01 Tuesday, June 29, 1999

The GENMOD Procedure

Model Information

Description	Value
Data Set	WORK.CLOK
Distribution	NORMAL
Link Function	IDENTITY
Dependent Variable	HEIGHT
Observations Used	19

Criteria For Assessing Goodness Of Fit

Criterion	DF	Value	Value/DF
Deviance	17	161.6207	9.5071
Scaled Deviance	17	19.0000	1.1176
Pearson Chi-Square	17	161.6207	9.5071
Scaled Pearson X2	17	19.0000	1.1176
Log Likelihood	.	-47.2976	.

Analysis Of Parameter Estimates

Parameter	DF	Estimate	Std Err	ChiSquare	Pr>Chi
INTERCEPT	1	25.2239	6.1689	16.7189	0.0001
AGE	1	2.7871	0.4605	36.6248	0.0001
SCALE	1	2.9166	0.4731	.	.

NOTE: The scale parameter was estimated by maximum likelihood.

PROC GENMOD: DATASET CLMVMISC with some incorrectly-coded, incomplete records 279
12:01 Tuesday, June 29, 1999

The GENMOD Procedure

Model Information

Description	Value
Data Set	WORK.CLMVMISC
Distribution	NORMAL
Link Function	IDENTITY
Dependent Variable	HEIGHT
Observations Used	14
Missing Values	2

Criteria For Assessing Goodness Of Fit

Criterion	DF	Value	Value/DF
Deviance	12	811310.4623	67609.2052
Scaled Deviance	12	14.0000	1.1667
Pearson Chi-Square	12	811310.4623	67609.2052
Scaled Pearson X2	12	14.0000	1.1667
Log Likelihood	.	-96.6366	.

Analysis Of Parameter Estimates

Parameter	DF	Estimate	Std Err	ChiSquare	Pr>Chi
INTERCEPT	1	135.4225	67.7457	3.9959	0.0456
AGE	1	-0.1198	0.2534	0.2235	0.6364
SCALE	1	240.7296	45.4936	.	.

NOTE: The scale parameter was estimated by maximum likelihood.

PROC GENMOD: DATASET CLMVOK with complete records only 280
12:01 Tuesday, June 29, 1999

The GENMOD Procedure

Model Information

Description	Value
Data Set	WORK.CLMVOK
Distribution	NORMAL
Link Function	IDENTITY
Dependent Variable	HEIGHT
Observations Used	13
Missing Values	6

Criteria For Assessing Goodness Of Fit

Criterion	DF	Value	Value/DF
Deviance	11	106.2412	9.6583
Scaled Deviance	11	13.0000	1.1818
Pearson Chi-Square	11	106.2412	9.6583
Scaled Pearson X2	11	13.0000	1.1818
Log Likelihood	.	-32.1012	.

Analysis Of Parameter Estimates

Parameter	DF	Estimate	Std Err	ChiSquare	Pr>Chi
INTERCEPT	1	22.8526	8.3853	7.4274	0.0064
AGE	1	2.9215	0.6273	21.6909	0.0001
SCALE	1	2.8587	0.5606	.	.

NOTE: The scale parameter was estimated by maximum likelihood.

PROC GLM: DATASET CLOK with complete records only 281
12:01 Tuesday, June 29, 1999

General Linear Models Procedure
Class Level Information

Class	Levels	Values
AGE	6	11 12 13 14 15 16
WEIGHT	15	77 83 84 85 90 98 112 128 133 150 50.5 84.5 99.5 102.5 112.5

Number of observations in data set = 19

PROC GLM: DATASET CLOK with complete records only 282
12:01 Tuesday, June 29, 1999

General Linear Models Procedure

Dependent Variable: HEIGHT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	15	454.91921053	30.32794737	4.99	0.1056
Error	3	18.24500000	6.08166667		
Corrected Total	18	473.16421053			
	R-Square	C.V.	Root MSE	HEIGHT Mean	
	0.961440	3.956093	2.46610354	62.33684211	

Source	DF	Type I SS	Mean Square	F Value	Pr > F
WEIGHT	14	433.79421053	30.98530075	5.09	0.1028
AGE(WEIGHT)	1	21.12500000	21.12500000	3.47	0.1592
Source	DF	Type III SS	Mean Square	F Value	Pr > F
WEIGHT	14	433.79421053	30.98530075	5.09	0.1028
AGE(WEIGHT)	1	21.12500000	21.12500000	3.47	0.1592

PROC GLM: DATASET CLOK with complete records only 283
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General Linear Models Procedure

Level of WEIGHT	N	-----HEIGHT----- Mean	SD
77	1	56.3000000	.
83	1	57.3000000	.
84	2	59.5000000	4.24264069
85	1	57.5000000	.
90	1	64.3000000	.
98	1	65.3000000	.
112	2	66.5000000	0.00000000
128	1	64.8000000	.
133	1	67.0000000	.

150	1	72.0000000	.
50.5	1	51.3000000	.
84.5	1	59.8000000	.
99.5	1	59.0000000	.
102.5	2	63.1500000	0.49497475
112.5	2	65.7500000	4.59619408

Level of AGE	Level of WEIGHT	N	Mean	SD
12	77	1	56.3000000	.
12	83	1	57.3000000	.
13	84	2	59.5000000	4.24264069
11	85	1	57.5000000	.
14	90	1	64.3000000	.
13	98	1	65.3000000	.
15	112	2	66.5000000	0.00000000
12	128	1	64.8000000	.
15	133	1	67.0000000	.
16	150	1	72.0000000	.
11	50.5	1	51.3000000	.
12	84.5	1	59.8000000	.
12	99.5	1	59.0000000	.
14	102.5	2	63.1500000	0.49497475
14	112.5	1	69.0000000	.
15	112.5	1	62.5000000	.

PROC GLM: DATASET CLOK with complete records only 284
12:01 Tuesday, June 29, 1999

General Linear Models Procedure
Least Squares Means

WEIGHT	HEIGHT LSMEAN
77	56.3000000
83	57.3000000
84	59.5000000
85	57.5000000
90	64.3000000
98	65.3000000
112	66.5000000
128	64.8000000
133	67.0000000
150	72.0000000
50.5	51.3000000
84.5	59.8000000
99.5	59.0000000
102.5	63.1500000
112.5	65.7500000

AGE	WEIGHT	HEIGHT LSMEAN
12	77	56.3000000
12	83	57.3000000
13	84	59.5000000
11	85	57.5000000
14	90	64.3000000
13	98	65.3000000
15	112	66.5000000
12	128	64.8000000
15	133	67.0000000
16	150	72.0000000
11	50.5	51.3000000
12	84.5	59.8000000
12	99.5	59.0000000
14	102.5	63.1500000
14	112.5	69.0000000
15	112.5	62.5000000

PROC GLM: DATASET CLVMISC with some incorrectly-coded, incomplete records 285
12:01 Tuesday, June 29, 1999

General Linear Models Procedure
Class Level Information

Class	Levels	Values
SEX	2	F M
WEIGHT	10	83 84 98 999 50.5 66.5 84.5 99.5 102.5 112.5
AGE	7	11 12 13 14 15 16 999

Number of observations in data set = 16

NOTE: Due to missing values, only 14 observations can be used in this analysis.

PROC GLM: DATASET CLVMISC with some incorrectly-coded, incomplete records 286
12:01 Tuesday, June 29, 1999

General Linear Models Procedure

Dependent Variable: HEIGHT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	13	824260.78928571	63404.67609890	.	.
Error	0	.	.	.	.
Corrected Total	13	824260.78928571			

R-Square	C.V.	Root MSE	HEIGHT Mean
1.000000	0	0	125.39285714

Source	DF	Type I SS	Mean Square	F Value	Pr > F
WEIGHT	9	394556.91928571	43839.65769841	.	.
AGE(WEIGHT)	2	429685.62500000	214842.81250000	.	.
SEX	1	11.22250000	11.22250000	.	.
SEX(WEIGHT)	1	7.02250000	7.02250000	.	.

Source	DF	Type III SS	Mean Square	F Value	Pr > F
WEIGHT	9	409384.40875541	45487.15652838	.	.
AGE(WEIGHT)	0	0.00000000	.	.	.
SEX	1	11.22250000	11.22250000	.	.
SEX(WEIGHT)	1	7.02250000	7.02250000	.	.

PROC GLM: DATASET CLVMISC with some incorrectly-coded, incomplete records 287
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General Linear Models Procedure

Level of WEIGHT	N	Mean	SD
83	1	57.300000	.
84	2	59.500000	4.242641
98	1	65.300000	.
999	2	535.500000	655.487986
50.5	1	51.300000	.
66.5	1	15.000000	.
84.5	1	59.800000	.
99.5	1	59.000000	.
102.5	2	63.150000	0.494975
112.5	2	65.750000	4.596194

Level of AGE	Level of WEIGHT	N	Mean	SD
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12	83	1	57.300000	.
13	84	2	59.500000	4.24264069
13	98	1	65.300000	.
14	999	1	999.000000	.
16	999	1	72.000000	.
11	50.5	1	51.300000	.
999	66.5	1	15.000000	.
12	84.5	1	59.800000	.
12	99.5	1	59.000000	.
14	102.5	2	63.150000	0.49497475
14	112.5	1	69.000000	.
15	112.5	1	62.500000	.

PROC GLM: DATASET CLVMISC with some incorrectly-coded, incomplete records 288
12:01 Tuesday, June 29, 1999

General Linear Models Procedure
Least Squares Means

WEIGHT	HEIGHT LSMEAN
83	Non-est
84	59.500000
98	Non-est
999	535.500000
50.5	Non-est
66.5	Non-est
84.5	Non-est
99.5	Non-est
102.5	63.150000
112.5	65.750000

AGE	WEIGHT	HEIGHT LSMEAN
12	83	Non-est
13	84	59.500000
13	98	Non-est
14	999	Non-est
16	999	Non-est
11	50.5	Non-est
999	66.5	Non-est
12	84.5	Non-est
12	99.5	Non-est
14	102.5	63.150000
14	112.5	Non-est
15	112.5	Non-est

SEX	WEIGHT	HEIGHT LSMEAN
M	83	57.300000
F	84	56.500000
M	84	62.500000
F	98	65.300000
F	999	Non-est
M	999	Non-est
F	50.5	51.300000
M	66.5	15.000000
F	84.5	59.800000
M	99.5	59.000000
F	102.5	62.800000
M	102.5	63.500000
F	112.5	Non-est

PROC GLM: DATASET CLVMISC with some incorrectly-coded, incomplete records 289
12:01 Tuesday, June 29, 1999

General Linear Models Procedure
Least Squares Means

SEX	WEIGHT	HEIGHT LSMEAN
M	112.5	Non-est

PROC GLM: DATASET CLMVOK with some incorrectly-coded, incomplete records 290
12:01 Tuesday, June 29, 1999

General Linear Models Procedure
Class Level Information

Class	Levels	Values
SEX	2	F M
WEIGHT	8	83 84 98 50.5 84.5 99.5 102.5 112.5
AGE	5	11 12 13 14 15

Number of observations in data set = 19

NOTE: Due to missing values, only 11 observations can be used in this analysis.

PROC GLM: DATASET CLMVOK with some incorrectly-coded, incomplete records 291
12:01 Tuesday, June 29, 1999

General Linear Models Procedure

Dependent Variable: HEIGHT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	10	229.74545455	22.97454545	.	.
Error	0	.	.	.	.
Corrected Total	10	229.74545455			

R-Square	C.V.	Root MSE	HEIGHT Mean
1.000000	0	0	60.86363636

Source	DF	Type I SS	Mean Square	F Value	Pr > F
WEIGHT	7	190.37545455	27.19649351	.	.
AGE(WEIGHT)	1	21.12500000	21.12500000	.	.
SEX	1	11.22250000	11.22250000	.	.
SEX(WEIGHT)	1	7.02250000	7.02250000	.	.

Source	DF	Type III SS	Mean Square	F Value	Pr > F
WEIGHT	7	199.02694015	28.43242002	.	.
AGE(WEIGHT)	0	0.00000000	.	.	.
SEX	1	11.22250000	11.22250000	.	.
SEX(WEIGHT)	1	7.02250000	7.02250000	.	.

PROC GLM: DATASET CLMVOK with some incorrectly-coded, incomplete records 292
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General Linear Models Procedure

Level of WEIGHT	N	Mean	SD
83	1	57.3000000	.
84	2	59.5000000	4.24264069
98	1	65.3000000	.
50.5	1	51.3000000	.
84.5	1	59.8000000	.
99.5	1	59.0000000	.

102.5	2	63.1500000	0.49497475
112.5	2	65.7500000	4.59619408

Level of AGE	Level of WEIGHT	N	Mean	SD
12	83	1	57.3000000	.
13	84	2	59.5000000	4.24264069
13	98	1	65.3000000	.
11	50.5	1	51.3000000	.
12	84.5	1	59.8000000	.
12	99.5	1	59.0000000	.
14	102.5	2	63.1500000	0.49497475
14	112.5	1	69.0000000	.
15	112.5	1	62.5000000	.

PROC GLM: DATASET CLMVOK with some incorrectly-coded, incomplete records 293
12:01 Tuesday, June 29, 1999

General Linear Models Procedure
Least Squares Means

WEIGHT	HEIGHT LSMEAN
83	Non-est
84	59.5000000
98	Non-est
50.5	Non-est
84.5	Non-est
99.5	Non-est
102.5	63.1500000
112.5	65.7500000

AGE	WEIGHT	HEIGHT LSMEAN
12	83	Non-est
13	84	59.5000000
13	98	Non-est
11	50.5	Non-est
12	84.5	Non-est
12	99.5	Non-est
14	102.5	63.1500000
14	112.5	Non-est
15	112.5	Non-est

SEX	WEIGHT	HEIGHT LSMEAN
M	83	57.3000000
F	84	56.5000000
M	84	62.5000000
F	98	65.3000000
F	50.5	51.3000000
F	84.5	59.8000000
M	99.5	59.0000000
F	102.5	62.8000000
M	102.5	63.5000000
F	112.5	Non-est
M	112.5	Non-est

PROC LIFEREG: DATASET CLOK with complete records only 294
12:01 Tuesday, June 29, 1999

Lifereg Procedure

Data Set =WORK.CLOK
Dependent Variable=Log(HEIGHT)
Noncensored Values= 19 Right Censored Values= 0
Left Censored Values= 0 Interval Censored Values= 0

Log Likelihood for WEIBULL 29.522723787

PROC LIFEREG: DATASET CLOK with complete records only 295
12:01 Tuesday, June 29, 1999

Lifereg Procedure

Variable	DF	Estimate	Std Err	ChiSquare	Pr>Chi	Label/Value
INTERCPT	1	3.6420546	0.105125	1200.277	0.0001	Intercept
AGE	1	0.03840572	0.007812	24.16734	0.0001	
SCALE	1	0.04596946	0.007882			Extreme value scale parameter

PROC LIFEREG: DATASET CLMMISC with complete records only 296
12:01 Tuesday, June 29, 1999

Lifereg Procedure

Data Set =WORK.CLMMISC
Dependent Variable=Log(HEIGHT)
Noncensored Values= 16 Right Censored Values= 0
Left Censored Values= 0 Interval Censored Values= 0

Log Likelihood for WEIBULL -26.12386787

PROC LIFEREG: DATASET CLMMISC with complete records only 297
12:01 Tuesday, June 29, 1999

Lifereg Procedure

Variable	DF	Estimate	Std Err	ChiSquare	Pr>Chi	Label/Value
INTERCPT	1	5.12600372	0.340659	226.4216	0.0001	Intercept
AGE	1	-0.0024414	0.001263	3.737623	0.0532	
SCALE	1	1.20758543	0.205538			Extreme value scale parameter

PROC LIFEREG: DATASET CLMVOK with complete records only 298
12:01 Tuesday, June 29, 1999

Lifereg Procedure

Data Set =WORK.CLMVOK
Dependent Variable=Log(HEIGHT)
Noncensored Values= 14 Right Censored Values= 0
Left Censored Values= 0 Interval Censored Values= 0
Observations with Missing Values= 5

Log Likelihood for WEIBULL 22.674211717

PROC LIFEREG: DATASET CLMVOK with complete records only 299
12:01 Tuesday, June 29, 1999

Lifereg Procedure

Variable	DF	Estimate	Std Err	ChiSquare	Pr>Chi	Label/Value
INTERCPT	1	3.49423093	0.136931	651.1747	0.0001	Intercept
AGE	1	0.04886087	0.010099	23.40984	0.0001	
SCALE	1	0.04262953	0.008584			Extreme value scale parameter

PROC LIFETEST: DATASET CLOK with complete records only 300
12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Product-Limit Survival Estimates
SEX = F

	Survival	Failure	Survival Standard Error	Number Failed	Number Left
AGE	Survival	Failure			

0.0000	1.0000	0	0	0	9
11.0000	0.8889	0.1111	0.1048	1	8
12.0000	.	.	.	2	7
12.0000	0.6667	0.3333	0.1571	3	6
13.0000	.	.	.	4	5
13.0000	0.4444	0.5556	0.1656	5	4
14.0000	.	.	.	6	3
14.0000	0.2222	0.7778	0.1386	7	2
15.0000	.	.	.	8	1
15.0000	0	1.0000	0	9	0

Summary Statistics for Time Variable AGE

Quantile	Point Estimate	95% Confidence Interval [Lower, Upper)	
75%	14.0000	13.0000	15.0000
50%	13.0000	12.0000	14.0000
25%	12.0000	11.0000	14.0000
Mean	13.2222	Standard Error	0.4648

PROC LIFETEST: DATASET CLOK with complete records only 301
12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Product-Limit Survival Estimates
SEX = M

AGE	Survival	Failure	Survival Standard Error	Number Failed	Number Left
0.0000	1.0000	0	0	0	10
11.0000	0.9000	0.1000	0.0949	1	9
12.0000	.	.	.	2	8
12.0000	.	.	.	3	7
12.0000	0.6000	0.4000	0.1549	4	6
13.0000	0.5000	0.5000	0.1581	5	5
14.0000	.	.	.	6	4
14.0000	0.3000	0.7000	0.1449	7	3
15.0000	.	.	.	8	2
15.0000	0.1000	0.9000	0.0949	9	1
16.0000	0	1.0000	0	10	0

Summary Statistics for Time Variable AGE

Quantile	Point Estimate	95% Confidence Interval [Lower, Upper)	
75%	15.0000	13.0000	16.0000
50%	13.5000	12.0000	15.0000
25%	12.0000	11.0000	14.0000
Mean	13.4000	Standard Error	0.5207

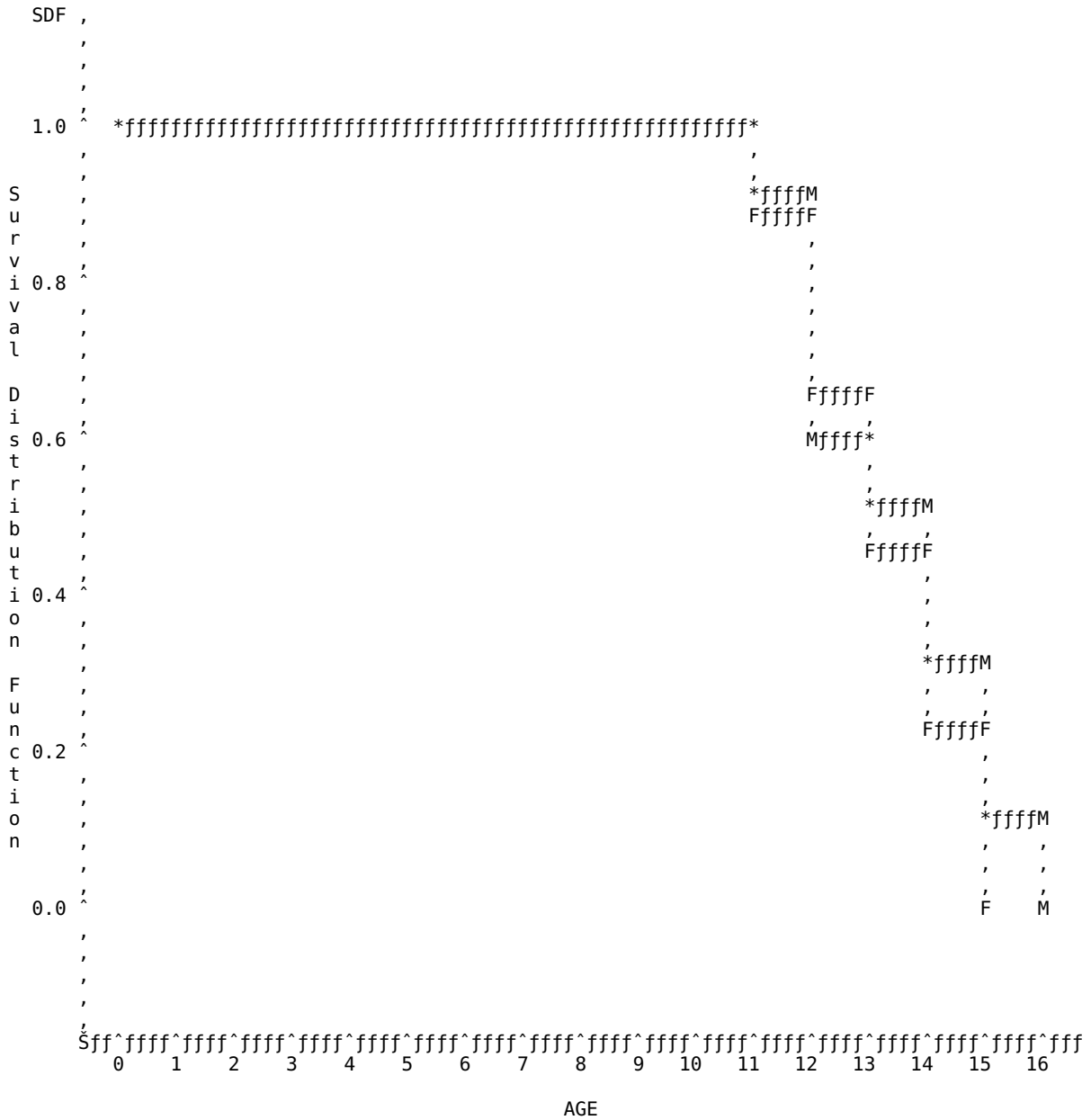
Summary of the Number of Censored and Uncensored Values

SEX	Total	Failed	Censored	%Censored
F	9	9	0	0.0000
M	10	10	0	0.0000
Total	19	19	0	0.0000

PROC LIFETEST: DATASET CLOK with complete records only 302
12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

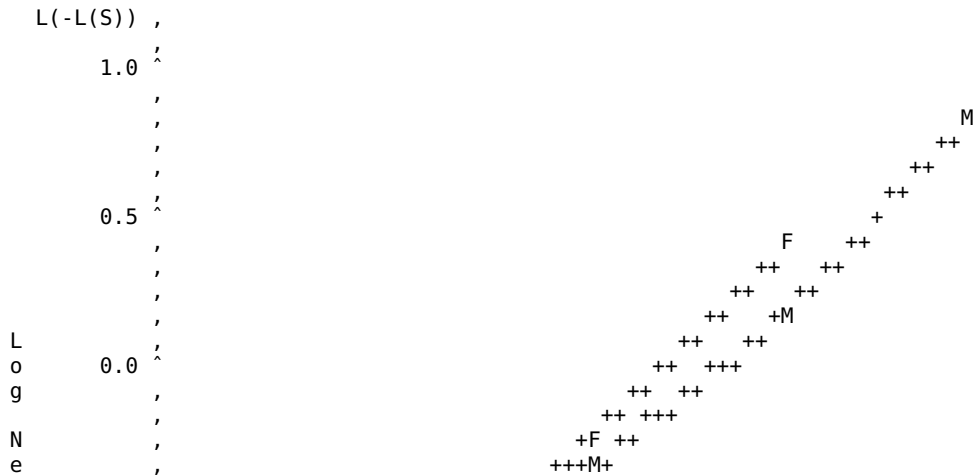
Survival Function Estimates

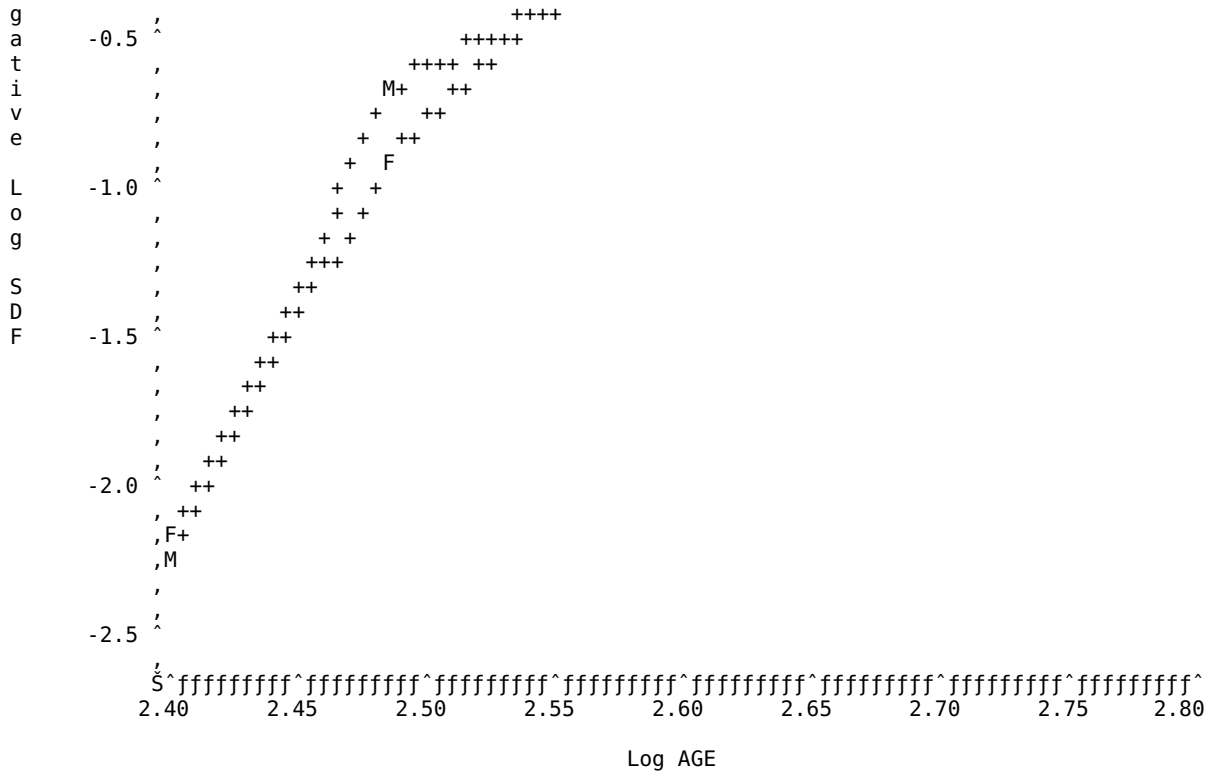


PROC LIFETEST: DATASET CLOK with complete records only 303
 12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Log(-Log(Survival Function)) Estimates





PROC LIFETEST: DATASET CLOK with complete records only 304
 12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Legend for Strata Symbols

F:SEX=F M:SEX=M

PROC LIFETEST: DATASET CLOK with complete records only 305
 12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Testing Homogeneity of Survival Curves over Strata
 Time Variable AGE

Rank Statistics

SEX	Log-Rank	Wilcoxon
F	0.82191	5.0000
M	-0.82191	-5.0000

Covariance Matrix for the Log-Rank Statistics

SEX	F	M
F	2.87609	-2.87609
M	-2.87609	2.87609

Covariance Matrix for the Wilcoxon Statistics

SEX	F	M
F	584.364	-584.364
M	-584.364	584.364

Test of Equality over Strata

Test	Chi-Square	DF	Pr > Chi-Square
Log-Rank	0.2349	1	0.6279
Wilcoxon	0.0428	1	0.8361
-2Log(LR)	0.0008	1	0.9768

PROC LIFETEST: DATASET CLVMISC with some incorrectly, incomplete records 306
12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Product-Limit Survival Estimates
SEX = B

AGE	Survival	Failure	Survival Standard Error	Number Failed	Number Left
0.000	1.0000	0	0	0	1
57.500	0	1.0000	0	1	0

Summary Statistics for Time Variable AGE

Quantile	Point Estimate	95% Confidence Interval [Lower, Upper]	
75%	57.500	.	.
50%	57.500	.	.
25%	57.500	.	.
Mean	57.500	Standard Error	.

PROC LIFETEST: DATASET CLVMISC with some incorrectly, incomplete records 307
12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Product-Limit Survival Estimates
SEX = F

AGE	Survival	Failure	Survival Standard Error	Number Failed	Number Left
0.000	1.0000	0	0	0	7
11.000	0.8571	0.1429	0.1323	1	6
12.000	0.7143	0.2857	0.1707	2	5
13.000	.	.	.	3	4
13.000	0.4286	0.5714	0.1870	4	3
14.000	.	.	.	5	2
14.000	0.1429	0.8571	0.1323	6	1
15.000	0	1.0000	0	7	0

Summary Statistics for Time Variable AGE

Quantile	Point Estimate	95% Confidence Interval [Lower, Upper]	
75%	14.000	13.000	15.000
50%	13.000	12.000	14.000
25%	12.000	11.000	14.000
Mean	13.143	Standard Error	0.508

PROC LIFETEST: DATASET CLVMISC with some incorrectly, incomplete records 308
12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Product-Limit Survival Estimates

SEX = M

AGE	Survival	Failure	Survival Standard Error	Number Failed	Number Left
0.000	1.0000	0	0	0	8
12.000	.	.	.	1	7
12.000	.	.	.	2	6
12.000	0.6250	0.3750	0.1712	3	5
13.000	0.5000	0.5000	0.1768	4	4
14.000	.	.	.	5	3
14.000	0.2500	0.7500	0.1531	6	2
16.000	0.1250	0.8750	0.1169	7	1
999.000	0	1.0000	0	8	0

Summary Statistics for Time Variable AGE

Quantile	Point Estimate	95% Confidence Interval [Lower, Upper)	
75%	15.000	13.000	999.000
50%	13.500	12.000	16.000
25%	12.000	12.000	14.000
Mean	136.500	Standard Error	123.215

Summary of the Number of Censored and Uncensored Values

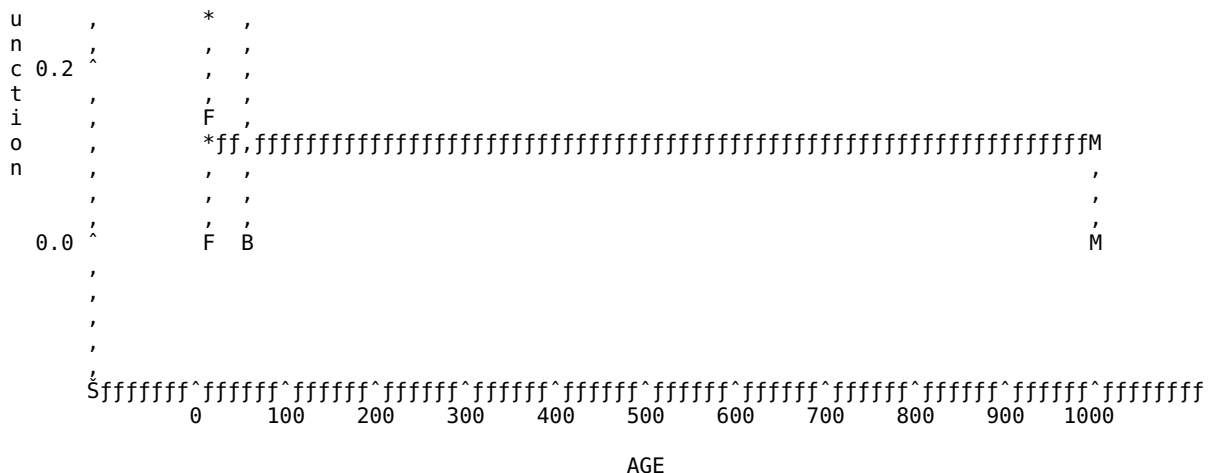
SEX	Total	Failed	Censored	%Censored
B	1	1	0	0.0000
F	7	7	0	0.0000
M	8	8	0	0.0000
Total	16	16	0	0.0000

PROC LIFETEST: DATASET CLVMISC with some incorrectly, incomplete records 309
 12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Survival Function Estimates

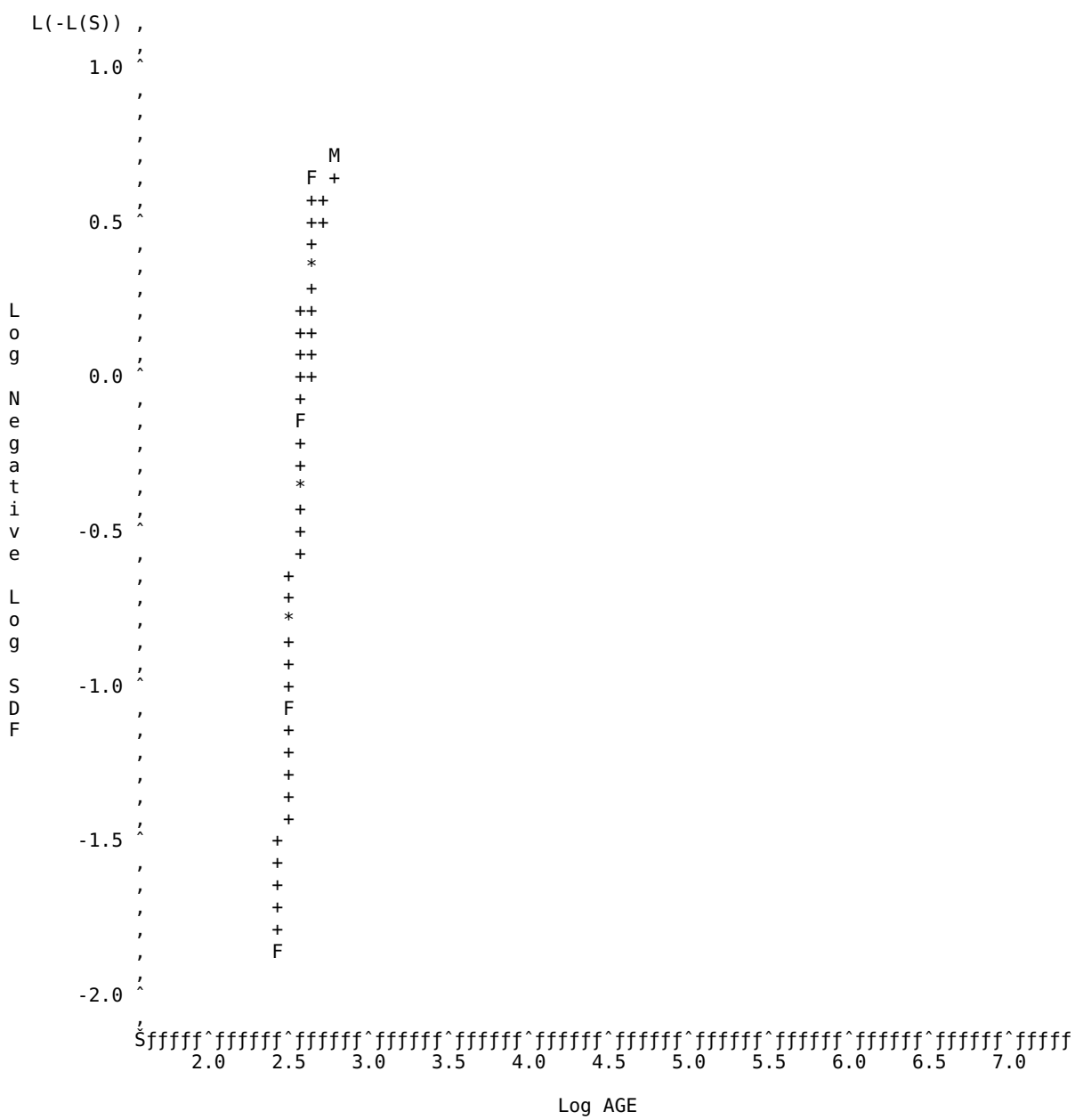
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 r , ,
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 r , ,
 i , * ,
 b , ,
 u , ,
 t , F ,
 i 0.4 ^ , ,
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 n , ,
 F , ,



PROC LIFETEST: DATASET CLMVMISC with some incorrectly, incomplete records 310
 12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Log(-Log(Survival Function)) Estimates



PROC LIFETEST: DATASET CLVMISC with some incorrectly, incomplete records 311
 12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Legend for Strata Symbols

B:SEX=B F:SEX=F M:SEX=M

PROC LIFETEST: DATASET CLVMISC with some incorrectly, incomplete records 312
 12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Testing Homogeneity of Survival Curves over Strata
 Time Variable AGE

Rank Statistics

SEX	Log-Rank	Wilcoxon
B	-1.1852	-13.000
F	1.8489	14.000
M	-0.6636	-1.000

Covariance Matrix for the Log-Rank Statistics

SEX	B	F	M
B	1.36222	-0.37997	-0.98225
F	-0.37997	2.31864	-1.93867
M	-0.98225	-1.93867	2.92091

Covariance Matrix for the Wilcoxon Statistics

SEX	B	F	M
B	105.000	-45.714	-59.286
F	-45.714	342.000	-296.286
M	-59.286	-296.286	355.571

Test of Equality over Strata

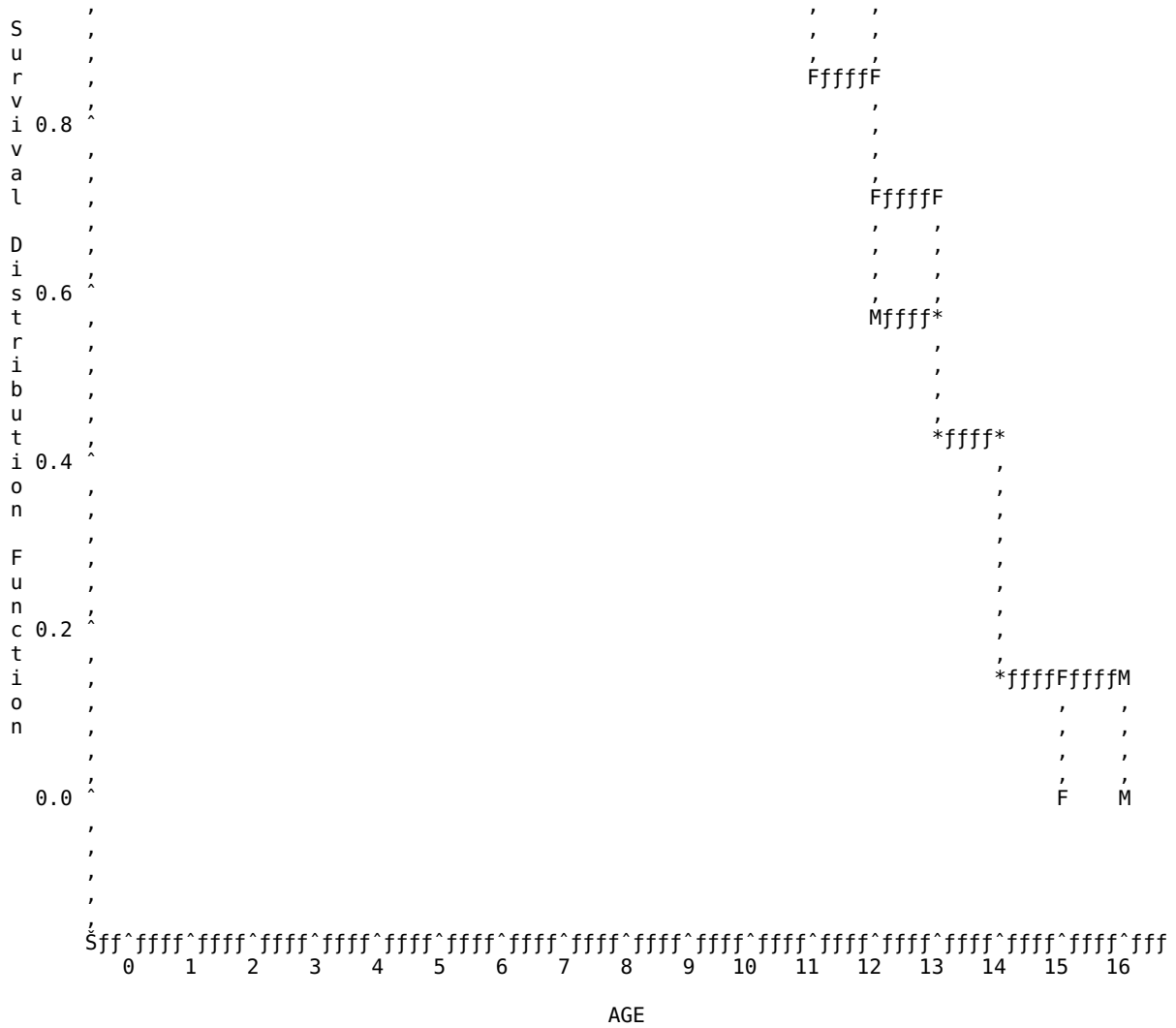
Test	Chi-Square	DF	Pr > Chi-Square
Log-Rank	2.0730	2	0.3547
Wilcoxon	1.8255	2	0.4014
-2Log(LR)	16.4205	2	0.0003

PROC LIFETEST: DATASET CLMVOK with some correctly-coded, incomplete records 313
 12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Product-Limit Survival Estimates
 SEX = F

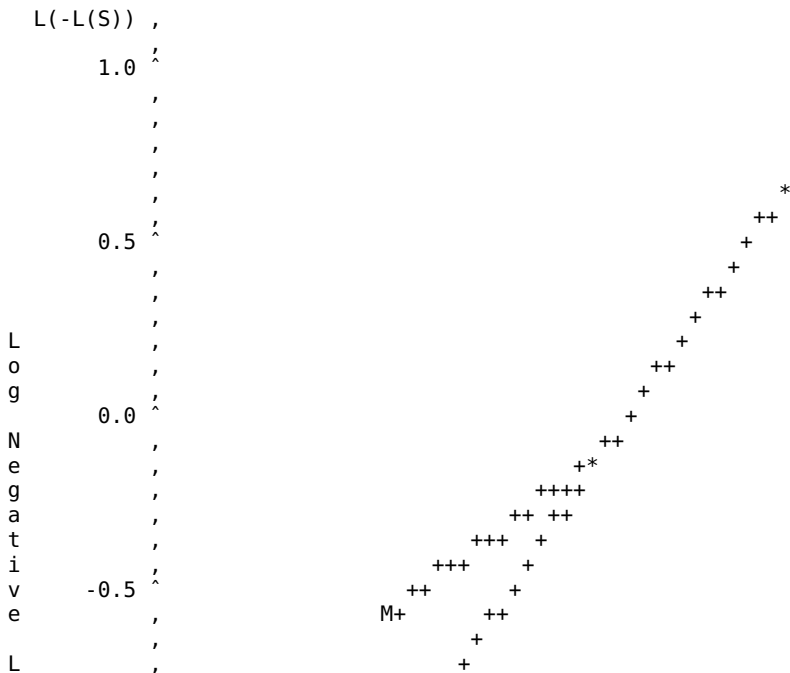
AGE	Survival	Failure	Survival Standard Error	Number Failed	Number Left
0.0000	1.0000	0	0	0	7
11.0000	0.8571	0.1429	0.1323	1	6
12.0000	0.7143	0.2857	0.1707	2	5
13.0000	.	.	.	3	4
13.0000	0.4286	0.5714	0.1870	4	3
14.0000	.	.	.	5	2
14.0000	0.1429	0.8571	0.1323	6	1

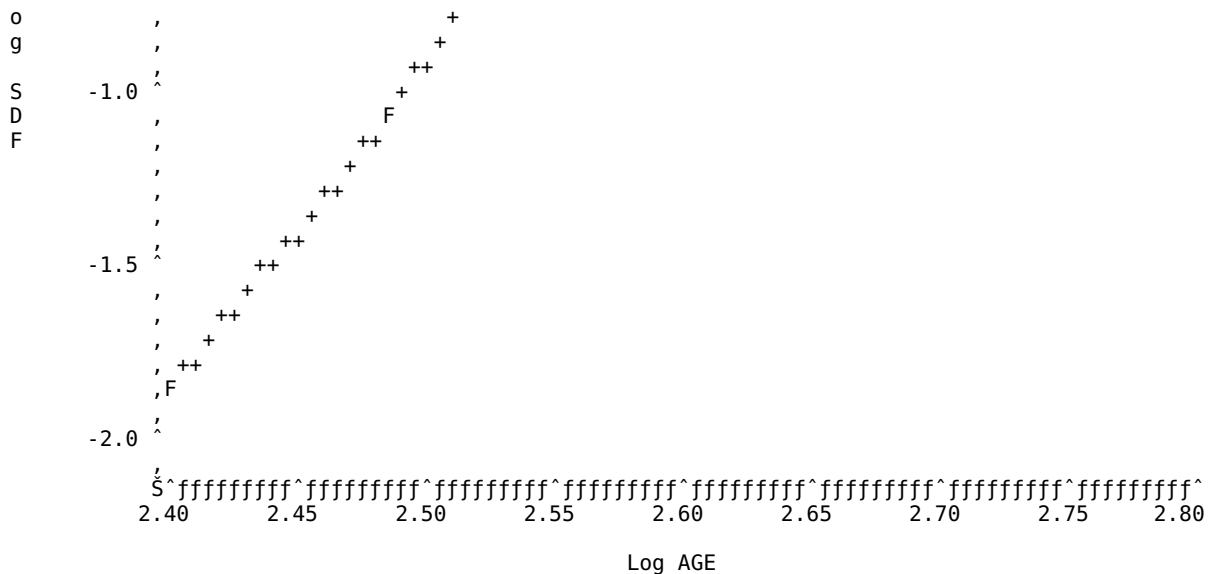


PROC LIFETEST: DATASET CLMVOK with some correctly-coded, incomplete records 316
 12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Log(-Log(Survival Function)) Estimates





PROC LIFETEST: DATASET CLMVOK with some correctly-coded, incomplete records 317
 12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Legend for Strata Symbols

F:SEX=F M:SEX=M

PROC LIFETEST: DATASET CLMVOK with some correctly-coded, incomplete records 318
 12:01 Tuesday, June 29, 1999

The LIFETEST Procedure

Testing Homogeneity of Survival Curves over Strata
 Time Variable AGE

Rank Statistics

SEX	Log-Rank	Wilcoxon
F	0.48718	0
M	-0.48718	0

Covariance Matrix for the Log-Rank Statistics

SEX	F	M
F	2.20112	-2.20112
M	-2.20112	2.20112

Covariance Matrix for the Wilcoxon Statistics

SEX	F	M
F	235.400	-235.400
M	-235.400	235.400

Test of Equality over Strata

Test	Chi-Square	DF	Pr > Chi-Square
Log-Rank	0.1078	1	0.7426
Wilcoxon	0.0000	1	1.0000
-2Log(LR)	0.0004	1	0.9839

The LOGISTIC Procedure

Data Set: WORK.CLOK
 Response Variable: HEIGHT
 Response Levels: 17
 Number of Observations: 19
 Link Function: Logit

Response Profile

Ordered Value	HEIGHT	Count
1	59	1
2	67	1
3	69	1
4	72	1
5	51.3	1
6	56.3	1
7	56.5	1
8	57.3	1
9	57.5	1
10	59.8	1
11	62.5	2
12	62.8	1
13	63.5	1
14	64.3	1
15	64.8	1
16	65.3	1
17	66.5	2

Score Test for the Proportional Odds Assumption

Chi-Square = 58.8821 with 30 DF (p=0.0013)

Model Fitting Information and Testing Global Null Hypothesis BETA=0

Criterion	Intercept Only	Intercept and Covariates	Chi-Square for Covariates
AIC	138.344	141.068	.
SC	153.455	158.068	.
-2 LOG L	106.344	105.068	1.276 with 2 DF (p=0.5284)
Score	.	.	1.077 with 2 DF (p=0.5835)

The LOGISTIC Procedure

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square	Standardized Estimate	Odds Ratio
INTERC1	1	1.7667	4.0036	0.1947	0.6590	.	.
INTERC2	1	2.5379	3.9684	0.4090	0.5225	.	.
INTERC3	1	3.0068	3.9695	0.5738	0.4488	.	.
INTERC4	1	3.3549	3.9780	0.7113	0.3990	.	.
INTERC5	1	3.6415	3.9888	0.8334	0.3613	.	.
INTERC6	1	3.8962	4.0006	0.9485	0.3301	.	.
INTERC7	1	4.1280	4.0126	1.0584	0.3036	.	.
INTERC8	1	4.3472	4.0247	1.1667	0.2801	.	.
INTERC9	1	4.5720	4.0375	1.2823	0.2575	.	.
INTERC10	1	4.8092	4.0513	1.4091	0.2352	.	.
INTERC11	1	5.2869	4.0790	1.6800	0.1949	.	.
INTERC12	1	5.5321	4.0927	1.8271	0.1765	.	.

INTERC13	1	5.7940	4.1069	1.9904	0.1583	.	.
INTERC14	1	6.0796	4.1222	2.1751	0.1403	.	.
INTERC15	1	6.4280	4.1414	2.4092	0.1206	.	.
INTERC16	1	6.9185	4.1717	2.7504	0.0972	.	.
AGE	1	-0.5236	0.4226	1.5351	0.2154	-0.430866	0.592
WEIGHT	1	0.0227	0.0272	0.6989	0.4031	0.285542	1.023

Association of Predicted Probabilities and Observed Responses

Concordant = 61.5%	Somers' D = 0.272
Discordant = 34.3%	Gamma = 0.284
Tied = 4.1%	Tau-a = 0.269
(169 pairs)	c = 0.636

PROC LOGISTIC: DATASET CLMVMISC with some incorrectly-coded, incomplete records 321
12:01 Tuesday, June 29, 1999

The LOGISTIC Procedure

Data Set: WORK.CLMVMISC
Response Variable: HEIGHT
Response Levels: 13
Number of Observations: 14
Link Function: Logit

Response Profile

Ordered Value	HEIGHT	Count
1	15	1
2	59	1
3	69	1
4	72	1
5	999	1
6	51.3	1
7	56.5	1
8	57.3	1
9	59.8	1
10	62.5	2
11	62.8	1
12	63.5	1
13	65.3	1

WARNING: 2 observation(s) were deleted due to missing values for the response or explanatory variables.

Score Test for the Proportional Odds Assumption

Chi-Square = 53.4633 with 22 DF (p=0.0002)

Model Fitting Information and Testing Global Null Hypothesis BETA=0

Criterion	Intercept Only	Intercept and Covariates	Chi-Square for Covariates
AIC	95.121	90.053	.
SC	102.790	99.000	.
-2 LOG L	71.121	62.053	9.068 with 2 DF (p=0.0107)
Score	.	.	4.517 with 2 DF (p=0.1045)

PROC LOGISTIC: DATASET CLMVMISC with some incorrectly-coded, incomplete records 322
12:01 Tuesday, June 29, 1999

The LOGISTIC Procedure

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square	Standardized Estimate	Odds Ratio
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INTERC1	1	-9.3361	18.4867	0.2550	0.6135	.	.
INTERC2	1	-3.4820	1.3468	6.6840	0.0097	.	.
INTERC3	1	-2.7433	1.0967	6.2576	0.0124	.	.
INTERC4	1	-2.2203	0.9649	5.2953	0.0214	.	.
INTERC5	1	-1.7010	0.8625	3.8898	0.0486	.	.
INTERC6	1	-1.2295	0.7945	2.3944	0.1218	.	.
INTERC7	1	-0.8382	0.7577	1.2238	0.2686	.	.
INTERC8	1	-0.4806	0.7402	0.4216	0.5161	.	.
INTERC9	1	-0.1316	0.7385	0.0318	0.8586	.	.
INTERC10	1	0.6444	0.7935	0.6596	0.4167	.	.
INTERC11	1	1.1599	0.8820	1.7295	0.1885	.	.
INTERC12	1	1.9530	1.1226	3.0262	0.0819	.	.
AGE	1	0.0150	0.0262	0.3301	0.5656	2.182221	1.015
WEIGHT	1	0.00197	0.00157	1.5730	0.2098	0.358940	1.002

Association of Predicted Probabilities and Observed Responses

Concordant = 14.4%	Somers' D = 0.144
Discordant = 0.0%	Gamma = 1.000
Tied pairs = 85.6%	Tau-a = 0.143
	c = 0.572

PROC LOGISTIC: DATASET CLMVOK with complete data records only 323
12:01 Tuesday, June 29, 1999

The LOGISTIC Procedure

Data Set: WORK.CLMVOK
Response Variable: HEIGHT
Response Levels: 11
Number of Observations: 13
Link Function: Logit

Response Profile

Ordered Value	HEIGHT	Count
1	59	1
2	69	1
3	51.3	1
4	56.5	1
5	57.3	1
6	59.8	1
7	62.5	2
8	62.8	1
9	63.5	1
10	65.3	1
11	66.5	2

WARNING: 6 observation(s) were deleted due to missing values for the response or explanatory variables.

Score Test for the Proportional Odds Assumption

Chi-Square = 36.4212 with 18 DF (p=0.0062)

Model Fitting Information and Testing Global Null Hypothesis BETA=0

Criterion	Intercept Only	Intercept and Covariates	Chi-Square for Covariates
AIC	81.144	76.481	.
SC	86.793	83.260	.
-2 LOG L Score	61.144	52.481	8.663 with 2 DF (p=0.0132)
	.	.	6.182 with 2 DF (p=0.0455)

PROC LOGISTIC: DATASET CLMVOK with complete data records only 324
12:01 Tuesday, June 29, 1999

The LOGISTIC Procedure

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square	Standardized Estimate	Odds Ratio
INTERC1	1	18.5820	7.7544	5.7423	0.0166	.	.
INTERC2	1	19.6539	7.8709	6.2352	0.0125	.	.
INTERC3	1	20.2740	7.9668	6.4760	0.0109	.	.
INTERC4	1	20.7538	8.0516	6.6441	0.0099	.	.
INTERC5	1	21.1956	8.1351	6.7883	0.0092	.	.
INTERC6	1	21.7687	8.2469	6.9676	0.0083	.	.
INTERC7	1	22.8628	8.4590	7.3049	0.0069	.	.
INTERC8	1	23.3166	8.5389	7.4563	0.0063	.	.
INTERC9	1	23.8030	8.6198	7.6255	0.0058	.	.
INTERC10	1	24.5082	8.7224	7.8949	0.0050	.	.
AGE	1	-2.2515	0.9462	5.6618	0.0173	-1.633029	0.105
WEIGHT	1	0.0829	0.0601	1.8990	0.1682	0.814094	1.086

Association of Predicted Probabilities and Observed Responses

Concordant = 73.7% Somers' D = 0.526
 Discordant = 21.1% Gamma = 0.556
 Tied = 5.3% Tau-a = 0.513
 (76 pairs) c = 0.763

PROC MEANS: DATASET CLOK with complete records only 325
 12:01 Tuesday, June 29, 1999

----- SEX=F -----

Variable	N	Nmiss	Skewness	Kurtosis	Mean	Std Dev	Minimum
AGE	9	0	-0.1463545	-1.0600583	13.2222222	1.3944334	11.0000000
HEIGHT	9	0	-0.7238643	-0.3464949	60.5888889	5.0183275	51.3000000
WEIGHT	9	0	-0.8982645	1.1244295	90.1111111	19.3839137	50.5000000

Variable	Maximum	Range	Sum	Variance	USS	CSS
AGE	15.0000000	4.0000000	119.0000000	1.9444444	1589.00	15.5555556
HEIGHT	66.5000000	15.2000000	545.3000000	25.1836111	33240.59	201.4688889
WEIGHT	112.5000000	62.0000000	811.0000000	375.7361111	76086.00	3005.89

Variable	CV	Std Error	T	Prob>|T|
AGE	10.5461348	0.4648111	28.4464409	0.0001
HEIGHT	8.2825871	1.6727758	36.2205667	0.0001
WEIGHT	21.5111250	6.4613046	13.9462720	0.0001

----- SEX=M -----

Variable	N	Nmiss	Skewness	Kurtosis	Mean	Std Dev	Minimum
AGE	10	0	0.1269424	-1.2572945	13.4000000	1.6465452	11.0000000
HEIGHT	10	0	0.0409592	-0.9348760	63.9100000	4.9379370	57.3000000
WEIGHT	10	0	0.4994464	-0.6697055	108.9500000	22.7271864	83.0000000

Variable	Maximum	Range	Sum	Variance	USS	CSS
AGE	16.0000000	5.0000000	134.0000000	2.7111111	1820.00	24.4000000
HEIGHT	72.0000000	14.7000000	639.1000000	24.3832222	41064.33	219.4490000
WEIGHT	150.0000000	67.0000000	1089.50	516.5250000	123349.75	4648.73

Variable	CV	Std Error	T	Prob>|T|
AGE	12.2876508	0.5206833	25.7354129	0.0001
HEIGHT	7.7263919	1.5615128	40.9282588	0.0001
WEIGHT	20.8601986	7.1869674	15.1593843	0.0001

----- SEX=B -----

Variable	N	Nmiss	Skewness	Kurtosis	Mean	Std Dev	Minimum
AGE	1	0	.	.	57.5000000	.	57.5000000
HEIGHT	1	0	.	.	85.0000000	.	85.0000000
WEIGHT	0	1	.	.	.	.	.

Variable	Maximum	Range	Sum	Variance	USS	CSS
AGE	57.5000000	0	57.5000000	.	3306.25	0
HEIGHT	85.0000000	0	85.0000000	.	7225.00	0
WEIGHT	.	.	.	.	.	.

Variable	CV	Std Error	T	Prob>|T|
AGE
HEIGHT
WEIGHT

----- SEX=F -----

Variable	N	Nmiss	Skewness	Kurtosis	Mean	Std Dev	Minimum
AGE	7	0	-0.3521330	-0.3024931	13.1428571	1.3451854	11.0000000
HEIGHT	7	0	2.6447971	6.9961681	193.8857143	355.0524535	51.3000000
WEIGHT	7	0	2.6272882	6.9272347	218.7142857	344.6404959	50.5000000

Variable	Maximum	Range	Sum	Variance	USS	CSS
AGE	15.0000000	4.0000000	92.0000000	1.8095238	1220.00	10.8571429
HEIGHT	999.0000000	947.7000000	1357.20	126062.24	1019515.16	756373.47
WEIGHT	999.0000000	948.5000000	1531.00	118777.07	1047514.00	712662.43

Variable	CV	Std Error	T	Prob>|T|
AGE	10.2351064	0.5084323	25.8497684	0.0001
HEIGHT	183.1246076	134.1972135	1.4447820	0.1986
WEIGHT	157.5756676	130.2618634	1.6790354	0.1442

----- SEX=M -----

Variable	N	Nmiss	Skewness	Kurtosis	Mean	Std Dev	Minimum
AGE	8	0	2.8283378	7.9996208	136.5000000	348.5053802	12.0000000
HEIGHT	8	0	2.8120444	7.9329739	174.6625000	333.5561377	15.0000000
WEIGHT	7	1	2.6348987	6.9564751	221.0000000	343.4006407	66.5000000

Variable	Maximum	Range	Sum	Variance	USS	CSS
AGE	999.0000000	987.0000000	1092.00	121456.00	999250.00	850192.00
HEIGHT	999.0000000	984.0000000	1397.30	111259.70	1022873.79	778817.88
WEIGHT	999.0000000	932.5000000	1547.00	117924.00	1049431.00	707544.00

Variable	CV	Std Error	T	Prob>|T|
AGE	255.3152968	123.2152588	1.1078173	0.3045
HEIGHT	190.9718100	117.9299034	1.4810705	0.1821
WEIGHT	155.3849053	129.7932422	1.7027081	0.1395

----- SEX=' ' -----

Variable	N	Nmiss	Skewness	Kurtosis	Mean	Std Dev	Minimum
AGE	2	2	.	.	15.0000000	0	15.0000000
HEIGHT	3	1	-1.7320508	.	63.5000000	5.1961524	57.5000000
WEIGHT	3	1	-1.7320508	.	103.0000000	15.5884573	85.0000000

Variable	Maximum	Range	Sum	Variance	USS	CSS
AGE	15.0000000	0	30.0000000	0	450.0000000	0
HEIGHT	66.5000000	9.0000000	190.5000000	27.0000000	12150.75	54.0000000
WEIGHT	112.0000000	27.0000000	309.0000000	243.0000000	32313.00	486.0000000

Variable	CV	Std Error	T	Prob>|T|
AGE	0	0	.	.
HEIGHT	8.1829172	3.0000000	21.1666667	0.0022
WEIGHT	15.1344245	9.0000000	11.4444444	0.0075

----- SEX=F -----

Variable	N	Nmiss	Skewness	Kurtosis	Mean	Std Dev	Minimum
AGE	7	0	-0.3521330	-0.3024931	13.1428571	1.3451854	11.0000000
HEIGHT	6	1	-0.9048436	0.2295217	59.7000000	5.0915616	51.3000000
WEIGHT	6	1	-1.1471811	1.6909007	88.6666667	21.6440908	50.5000000

Variable	Maximum	Range	Sum	Variance	USS	CSS
AGE	15.0000000	4.0000000	92.0000000	1.8095238	1220.00	10.8571429
HEIGHT	65.3000000	14.0000000	358.2000000	25.9240000	21514.16	129.6200000
WEIGHT	112.5000000	62.0000000	532.0000000	468.4666667	49513.00	2342.33

Variable	CV	Std Error	T	Prob>|T|
AGE	10.2351064	0.5084323	25.8497684	0.0001
HEIGHT	8.5285790	2.0786213	28.7209599	0.0001
WEIGHT	24.4106287	8.8361631	10.0345213	0.0002

----- SEX=M -----

Variable	N	Nmiss	Skewness	Kurtosis	Mean	Std Dev	Minimum
AGE	7	1	0.9983894	0.4696243	13.2857143	1.4960265	12.0000000
HEIGHT	6	2	0.4325449	-1.2217771	63.8833333	5.6799354	57.3000000
WEIGHT	6	2	0.7275579	0.1917678	102.4166667	18.7707663	83.0000000

Variable	Maximum	Range	Sum	Variance	USS	CSS
AGE	16.0000000	4.0000000	93.0000000	2.2380952	1249.00	13.4285714
HEIGHT	72.0000000	14.7000000	383.3000000	32.2616667	24647.79	161.3083333
WEIGHT	133.0000000	50.0000000	614.5000000	352.3416667	64696.75	1761.71

Variable	CV	Std Error	T	Prob>|T|
AGE	11.2604144	0.5654449	23.4960386	0.0001
HEIGHT	8.8911069	2.3188239	27.5498852	0.0001
WEIGHT	18.3278434	7.6631332	13.3648553	0.0001

PROC NESTED: DATASET CLOK with complete records only 330
 12:01 Tuesday, June 29, 1999

Coefficients of Expected Mean Squares

Source	SEX	ERROR
SEX	9.473684211	1.000000000
ERROR	0.000000000	1.000000000

PROC NESTED: DATASET CLOK with complete records only 331
 12:01 Tuesday, June 29, 1999

Nested Random Effects Analysis of Variance for Variable AGE

Variance Source	Degrees of Freedom	Sum of Squares	F Value	Pr > F	Error Term
TOTAL	18	40.105263			
SEX	1	0.149708			
ERROR	17	39.955556			
Variance Source	Mean Square	Variance Component	Percent of Total		
TOTAL	2.228070	2.350327	100.0000		
SEX	0.149708	-0.232288	0.0000		
ERROR	2.350327	2.350327	100.0000		
Mean			13.31578947		
Standard error of mean			0.08506404		

PROC NESTED: DATASET CLOK with complete records only 332
 12:01 Tuesday, June 29, 1999

Nested Random Effects Analysis of Variance for Variable HEIGHT

Variance Source	Degrees of Freedom	Sum of Squares	F Value	Pr > F	Error Term
TOTAL	18	473.164211			
SEX	1	52.246322			
ERROR	17	420.917889			
Variance Source	Mean Square	Variance Component	Percent of Total		
TOTAL	26.286901	27.661223	100.0000		
SEX	52.246322	2.901347	10.4889		
ERROR	24.759876	24.759876	89.5111		
Mean			62.33684211		
Standard error of mean			1.66067558		

PROC NESTED: DATASET CLOK with complete records only 333
 12:01 Tuesday, June 29, 1999

Nested Random Effects Analysis of Variance for Variable WEIGHT

Variance Source	Degrees of Freedom	Sum of Squares	F Value	Pr > F	Error Term
TOTAL	18	9335.736842			
SEX	1	1681.122953			
ERROR	17	7654.613889			
Variance Source	Mean Square	Variance Component	Percent of Total		
TOTAL	518.652047	580.194624	100.0000		
SEX	1681.122953	129.923219	22.3930		
ERROR	450.271405	450.271405	77.6070		

Mean 100.02631579
 Standard error of mean 9.42550017

PROC NESTED: DATASET CLOK with complete records only 334
 12:01 Tuesday, June 29, 1999

Covariance of Variable AGE with HEIGHT

Covariance Source	Degrees of Freedom	Sum of Products	Mean Products	Covariance Component	Variance Component Correlation	Mean Square Correlation
TOTAL	18	111.778947	6.209942	6.029242	0.7877	0.8114
SEX	1	2.796725	2.796725	-0.381477	0.0000	1.0000
ERROR	17	108.982222	6.410719	6.410719	0.8404	0.8404

PROC NESTED: DATASET CLOK with complete records only 335
 12:01 Tuesday, June 29, 1999

Covariance of Variable AGE with WEIGHT

Covariance Source	Degrees of Freedom	Sum of Products	Mean Products	Covariance Component	Variance Component Correlation	Mean Square Correlation
TOTAL	18	453.342105	25.185673	24.692190	0.7044	0.7409
SEX	1	15.864327	15.864327	-1.041797	0.0000	1.0000
ERROR	17	437.477778	25.733987	25.733987	0.7911	0.7911

PROC NESTED: DATASET CLOK with complete records only 336
 12:01 Tuesday, June 29, 1999

Covariance of Variable HEIGHT with WEIGHT

Covariance Source	Degrees of Freedom	Sum of Products	Mean Products	Covariance Component	Variance Component Correlation	Mean Square Correlation
TOTAL	18	1844.881579	102.493421	112.757235	0.8901	0.8778
SEX	1	296.365468	296.365468	21.668052	1.1160	1.0000
ERROR	17	1548.516111	91.089183	91.089183	0.8627	0.8627

PROC NESTED: DATASET CLVMISC with some wrongly-coded, incomplete records 337
 12:01 Tuesday, June 29, 1999

Coefficients of Expected Mean Squares

Source	SEX	ERROR
SEX	7	1
ERROR	0	1

PROC NESTED: DATASET CLVMISC with some wrongly-coded, incomplete records 338
 12:01 Tuesday, June 29, 1999

Nested Random Effects Analysis of Variance for Variable AGE

Variance Source	Degrees of Freedom	Sum of Squares	F Value	Pr > F	Error Term
TOTAL	13	902213			
SEX	1	69725	1.005	0.3359	ERROR
ERROR	12	832488			

Variance Source	Mean Square	Variance Component	Percent of Total
TOTAL	69401	69424	100.0000
SEX	69725	50.078231	0.0721
ERROR	69374	69374	99.9279

Mean 83.71428571

Standard error of mean 70.57142857

PROC NESTED: DATASET CLMMISC with some wrongly-coded, incomplete records 339
12:01 Tuesday, June 29, 1999

Nested Random Effects Analysis of Variance for Variable HEIGHT

Variance Source	Degrees of Freedom	Sum of Squares	F Value	Pr > F	Error Term
TOTAL	13	824261			
SEX	1	65678	1.039	0.3282	ERROR
ERROR	12	758583			
Variance Source	Mean Square	Variance Component	Percent of Total		
TOTAL	63405	63567	100.0000		
SEX	65678	351.793095	0.5534		
ERROR	63215	63215	99.4466		
Mean			125.39285714		
Standard error of mean			68.49285714		

PROC NESTED: DATASET CLMMISC with some wrongly-coded, incomplete records 340
12:01 Tuesday, June 29, 1999

Nested Random Effects Analysis of Variance for Variable WEIGHT

Variance Source	Degrees of Freedom	Sum of Squares	F Value	Pr > F	Error Term
TOTAL	13	1420225			
SEX	1	18.285714	0.00015	0.9903	ERROR
ERROR	12	1420206			
Variance Source	Mean Square	Variance Component	Percent of Total		
TOTAL	109248	118351	100.0000		
SEX	18.285714	-16905	0.0000		
ERROR	118351	118351	100.0000		
Mean			219.85714286		
Standard error of mean			1.14285714		

PROC NESTED: DATASET CLMMISC with some wrongly-coded, incomplete records 341
12:01 Tuesday, June 29, 1999

Covariance of Variable AGE with HEIGHT

Covariance Source	Degrees of Freedom	Sum of Products	Mean Products	Covariance Component	Variance Component Correlation	Mean Square Correlation
TOTAL	13	-108092	-8314.794505	-12555	-0.1890	-0.1253
SEX	1	-67671	-67671	-9186.070578	-69.2088	-1.0000
ERROR	12	-40421	-3368.448810	-3368.448810	-0.0509	-0.0509

PROC NESTED: DATASET CLMMISC with some wrongly-coded, incomplete records 342
12:01 Tuesday, June 29, 1999

Covariance of Variable AGE with WEIGHT

Covariance Source	Degrees of Freedom	Sum of Products	Mean Products	Covariance Component	Variance Component Correlation	Mean Square Correlation
TOTAL	13	-147919	-11378	-10485	-0.1249	-0.1307
SEX	1	1129.142857	1129.142857	1935.689626	0.0000	1.0000
ERROR	12	-149048	-12421	-12421	-0.1371	-0.1371

PROC NESTED: DATASET CLMMISC with some wrongly-coded, incomplete records 343
 12:01 Tuesday, June 29, 1999

Covariance of Variable HEIGHT with WEIGHT

Covariance Source	Degrees of Freedom	Sum of Products	Mean Products	Covariance Component	Variance Component Correlation	Mean Square Correlation
TOTAL	13	747372	57490	53305	0.6638	0.6908
SEX	1	-1095.885714	-1095.885714	-9066.891071	0.0000	-1.0000
ERROR	12	748468	62372	62372	0.7211	0.7211

PROC NESTED: DATASET CLMVOK with some correctly-coded, incomplete records 344
 12:01 Tuesday, June 29, 1999

Coefficients of Expected Mean Squares

Source	SEX	ERROR
SEX	4.000000000	1.000000000
ERROR	0.000000000	1.000000000

PROC NESTED: DATASET CLMVOK with some correctly-coded, incomplete records 345
 12:01 Tuesday, June 29, 1999

Nested Random Effects Analysis of Variance for Variable AGE

Variance Source	Degrees of Freedom	Sum of Squares	F Value	Pr > F	Error Term
TOTAL	12	20.769231			
SEX	2	6.769231			
ERROR	10	14.000000			

Variance Source	Mean Square	Variance Component	Percent of Total
TOTAL	1.730769	1.896154	100.0000
SEX	3.384615	0.496154	26.1663
ERROR	1.400000	1.400000	73.8337

Mean 13.30769231
 Standard error of mean 0.54637049

PROC NESTED: DATASET CLMVOK with some correctly-coded, incomplete records 346
 12:01 Tuesday, June 29, 1999

Nested Random Effects Analysis of Variance for Variable HEIGHT

Variance Source	Degrees of Freedom	Sum of Squares	F Value	Pr > F	Error Term
TOTAL	12	283.507692			
SEX	2	71.635692			
ERROR	10	211.872000			

Variance Source	Mean Square	Variance Component	Percent of Total
TOTAL	23.625641	24.844862	100.0000
SEX	35.817846	3.657662	14.7220
ERROR	21.187200	21.187200	85.2780

Mean 61.73076923
 Standard error of mean 1.74257784

PROC NESTED: DATASET CLMVOK with some correctly-coded, incomplete records 347
 12:01 Tuesday, June 29, 1999

Nested Random Effects Analysis of Variance for Variable WEIGHT

Variance Source	Degrees of Freedom	Sum of Squares	F Value	Pr > F	Error Term
TOTAL	12	3808.269231			
SEX	2	826.635897			
ERROR	10	2981.633333			

Variance Source	Mean Square	Variance Component	Percent of Total
TOTAL	317.355769	326.951987	100.0000
SEX	413.317949	28.788654	8.8052
ERROR	298.163333	298.163333	91.1948

Mean 95.19230769
Standard error of mean 5.83165501

PROC NESTED: DATASET CLMVOK with some correctly-coded, incomplete records 348
12:01 Tuesday, June 29, 1999

Covariance of Variable AGE with HEIGHT

Covariance Source	Degrees of Freedom	Sum of Products	Mean Products	Covariance Component	Variance Component Correlation	Mean Square Correlation
TOTAL	12	60.676923	5.056410	5.504615	0.8020	0.7907
SEX	2	19.076923	9.538462	1.344615	0.9981	0.8663
ERROR	10	41.600000	4.160000	4.160000	0.7638	0.7638

PROC NESTED: DATASET CLMVOK with some correctly-coded, incomplete records 349
12:01 Tuesday, June 29, 1999

Covariance of Variable AGE with WEIGHT

Covariance Source	Degrees of Freedom	Sum of Products	Mean Products	Covariance Component	Variance Component Correlation	Mean Square Correlation
TOTAL	12	241.730769	20.144231	21.491346	0.8631	0.8595
SEX	2	67.230769	33.615385	4.041346	1.0693	0.8988
ERROR	10	174.500000	17.450000	17.450000	0.8541	0.8541

PROC NESTED: DATASET CLMVOK with some correctly-coded, incomplete records 350
12:01 Tuesday, June 29, 1999

Covariance of Variable HEIGHT with WEIGHT

Covariance Source	Degrees of Freedom	Sum of Products	Mean Products	Covariance Component	Variance Component Correlation	Mean Square Correlation
TOTAL	12	909.223077	75.768590	80.329885	0.8913	0.8750
SEX	2	242.763077	121.381538	13.683885	1.3335	0.9976
ERROR	10	666.460000	66.646000	66.646000	0.8385	0.8385

PROC NPAR1WAY: DATASET CLOK with complete records only 351
12:01 Tuesday, June 29, 1999

N P A R 1 W A Y P R O C E D U R E

Analysis of Variance for Variable AGE
Classified by Variable SEX

SEX	N	Mean	Among MS	Within MS
F	9	13.222222	0.149707602	2.35032680
M	10	13.4000000	F Value	Prob > F
			0.064	0.8038

Average Scores Were Used for Ties

PROC NPAR1WAY: DATASET CLOK with complete records only 352
12:01 Tuesday, June 29, 1999

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable AGE
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	9	87.500000	90.0	12.0032890	9.7222222
M	10	102.500000	100.0	12.0032890	10.2500000
Average Scores Were Used for Ties					

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S = 87.5000 Z = -.166621 Prob > |Z| = 0.8677

T-Test Approx. Significance = 0.8695

Kruskal-Wallis Test (Chi-Square Approximation)

CHISQ = 0.04338 DF = 1 Prob > CHISQ = 0.8350

PROC NPAR1WAY: DATASET CLOK with complete records only 353
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N P A R 1 W A Y P R O C E D U R E

Median Scores (Number of Points Above Median)
for Variable AGE
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	9	4.0	4.26315789	1.11648439	0.444444444
M	10	5.0	4.73684211	1.11648439	0.500000000
Average Scores Were Used for Ties					

Median 2-Sample Test (Normal Approximation)

S = 4.00000 Z = -.235702 Prob > |Z| = 0.8137

Median 1-Way Analysis (Chi-Square Approximation)

CHISQ = 0.05556 DF = 1 Prob > CHISQ = 0.8137

PROC NPAR1WAY: DATASET CLOK with complete records only 354
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N P A R 1 W A Y P R O C E D U R E

Van der Waerden Scores (Normal) for Variable AGE
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	9	-.539368353	0.0	1.88645342	-.059929817
M	10	0.539368353	0.0	1.88645342	0.053936835
Average Scores Were Used for Ties					

Van der Waerden 2-Sample Test (Normal Approximation)

S = -.539368 Z = -.285917 Prob > |Z| = 0.7749

Van der Waerden 1-Way Analysis (Chi-Square Approximation)

CHISQ = 0.08175 DF = 1 Prob > CHISQ = 0.7749

PROC NPAR1WAY: DATASET CLOK with complete records only 355
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N P A R 1 W A Y P R O C E D U R E

Savage Scores (Exponential) for Variable AGE
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	9	-1.11345233	0.0	1.96155997	-.123716925
M	10	1.11345233	0.0	1.96155997	0.111345233

Average Scores Were Used for Ties

Savage 2-Sample Test (Normal Approximation)
S = -1.11345 Z = -.567636 Prob > |Z| = 0.5703

Savage 1-Way Analysis (Chi-Square Approximation)
CHISQ = 0.32221 DF = 1 Prob > CHISQ = 0.5703

PROC NPAR1WAY: DATASET CLOK with complete records only 356
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N P A R 1 W A Y P R O C E D U R E

Kolmogorov-Smirnov Test for Variable AGE
Classified by Variable SEX

SEX	N	EDF at Maximum	Deviation from Mean at Maximum
F	9	1.00000000	0.157894737
M	10	0.90000000	-.149792100
	-----	-----	
	19	0.94736842	

Maximum Deviation Occurred at Observation 9
Value of AGE at Maximum 15.0000000

Kolmogorov-Smirnov 2-Sample Test (Asymptotic)
KS = 0.049931 D = 0.100000
KSa = 0.217643 Prob > KSa = 1.0000

PROC NPAR1WAY: DATASET CLOK with complete records only 357
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N P A R 1 W A Y P R O C E D U R E

Cramer-von Mises Test for Variable AGE
Classified by Variable SEX

SEX	N	Summed Deviation from Mean
F	9	0.012586869
M	10	0.011328182

Cramer-von Mises Statistic (Asymptotic)
CM = 0.001259 CMa = 0.023915

PROC NPAR1WAY: DATASET CLOK with complete records only 358
12:01 Tuesday, June 29, 1999

N P A R 1 W A Y P R O C E D U R E

Kuiper Test for Variable AGE
Classified by Variable SEX

SEX	N	Deviation from Mean
F	9	0.100000000
M	10	0.066666667

Kuiper 2-Sample Test (Asymptotic)
 K = 0.166667 Ka = 0.362738 Prob > Ka = 1.0000

PROC NPAR1WAY: DATASET CLOK with complete records only 359
 12:01 Tuesday, June 29, 1999

N P A R 1 W A Y P R O C E D U R E

Analysis of Variance for Variable HEIGHT
 Classified by Variable SEX

SEX	N	Mean	Among MS	Within MS
F	9	60.5888889	52.2463216	24.7598758
M	10	63.9100000	F Value	Prob > F
			2.110	0.1645

Average Scores Were Used for Ties

PROC NPAR1WAY: DATASET CLOK with complete records only 360
 12:01 Tuesday, June 29, 1999

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable HEIGHT
 Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	9	73.0	90.0	12.2367006	8.1111111
M	10	117.0	100.0	12.2367006	11.7000000

Average Scores Were Used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
 (with Continuity Correction of .5)

S = 73.0000 Z = -1.34840 Prob > |Z| = 0.1775

T-Test Approx. Significance = 0.1943

Kruskal-Wallis Test (Chi-Square Approximation)

CHISQ = 1.9301 DF = 1 Prob > CHISQ = 0.1648

PROC NPAR1WAY: DATASET CLOK with complete records only 361
 12:01 Tuesday, June 29, 1999

N P A R 1 W A Y P R O C E D U R E

Median Scores (Number of Points Above Median)
 for Variable HEIGHT
 Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	9	3.0	4.26315789	1.11648439	0.333333333
M	10	6.0	4.73684211	1.11648439	0.600000000

Average Scores Were Used for Ties

Median 2-Sample Test (Normal Approximation)

S = 3.00000 Z = -1.13137 Prob > |Z| = 0.2579

Median 1-Way Analysis (Chi-Square Approximation)

CHISQ = 1.2800 DF = 1 Prob > CHISQ = 0.2579

PROC NPAR1WAY: DATASET CLOK with complete records only 362
 12:01 Tuesday, June 29, 1999

N P A R 1 W A Y P R O C E D U R E

Van der Waerden Scores (Normal) for Variable HEIGHT
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	9	-3.00186017	0.0	1.93006121	-.333540018
M	10	3.00186017	0.0	1.93006121	0.300186017

Average Scores Were Used for Ties

Van der Waerden 2-Sample Test (Normal Approximation)
S = -3.00186 Z = -1.55532 Prob > |Z| = 0.1199

Van der Waerden 1-Way Analysis (Chi-Square Approximation)
CHISQ = 2.4190 DF = 1 Prob > CHISQ = 0.1199

PROC NPAR1WAY: DATASET CLOK with complete records only 363
12:01 Tuesday, June 29, 1999

N P A R 1 W A Y P R O C E D U R E

Savage Scores (Exponential) for Variable HEIGHT
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	9	-3.12685822	0.0	2.01421776	-.347428691
M	10	3.12685822	0.0	2.01421776	0.312685822

Average Scores Were Used for Ties

Savage 2-Sample Test (Normal Approximation)
S = -3.12686 Z = -1.55239 Prob > |Z| = 0.1206

Savage 1-Way Analysis (Chi-Square Approximation)
CHISQ = 2.4099 DF = 1 Prob > CHISQ = 0.1206

PROC NPAR1WAY: DATASET CLOK with complete records only 364
12:01 Tuesday, June 29, 1999

N P A R 1 W A Y P R O C E D U R E

Kolmogorov-Smirnov Test for Variable HEIGHT
Classified by Variable SEX

SEX	N	EDF at Maximum	Deviation from Mean at Maximum
F	9	0.333333333	0.526315789
M	10	0.000000000	-.499306999
	19	0.157894737	

Maximum Deviation Occurred at Observation 1
Value of HEIGHT at Maximum 56.5000000

Kolmogorov-Smirnov 2-Sample Test (Asymptotic)
KS = 0.166436 D = 0.333333
KSa = 0.725476 Prob > KSa = 0.6685

PROC NPAR1WAY: DATASET CLOK with complete records only 365
12:01 Tuesday, June 29, 1999

N P A R 1 W A Y P R O C E D U R E

Cramer-von Mises Test for Variable HEIGHT
Classified by Variable SEX

SEX	N	Summed Deviation from Mean

F	9	0.109766568
M	10	0.098789911

Cramer-von Mises Statistic (Asymptotic)
 CM = 0.010977 CMa = 0.208556

PROC NPAR1WAY: DATASET CLOK with complete records only 366
 12:01 Tuesday, June 29, 1999

N P A R 1 W A Y P R O C E D U R E

Kuiper Test for Variable HEIGHT
 Classified by Variable SEX

SEX	N	Deviation from Mean
F	9	0.333333333
M	10	0.000000000

Kuiper 2-Sample Test (Asymptotic)
 K = 0.333333 Ka = 0.725476 Prob > Ka = 0.9945

PROC NPAR1WAY: DATASET CLOK with complete records only 367
 12:01 Tuesday, June 29, 1999

N P A R 1 W A Y P R O C E D U R E

Analysis of Variance for Variable WEIGHT
 Classified by Variable SEX

SEX	N	Mean	Among MS 1681.12295	Within MS 450.271405
F	9	90.111111		
M	10	108.950000	F Value 3.734	Prob > F 0.0702

Average Scores Were Used for Ties

PROC NPAR1WAY: DATASET CLOK with complete records only 368
 12:01 Tuesday, June 29, 1999

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable WEIGHT
 Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	9	71.0	90.0	12.2259431	7.8888889
M	10	119.0	100.0	12.2259431	11.9000000

Average Scores Were Used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
 (with Continuity Correction of .5)

S = 71.0000 Z = -1.51318 Prob > |Z| = 0.1302

T-Test Approx. Significance = 0.1476

Kruskal-Wallis Test (Chi-Square Approximation)

CHISQ = 2.4151 DF = 1 Prob > CHISQ = 0.1202

PROC NPAR1WAY: DATASET CLOK with complete records only 369
 12:01 Tuesday, June 29, 1999

N P A R 1 W A Y P R O C E D U R E

Median Scores (Number of Points Above Median)
 for Variable WEIGHT
 Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	9	3.0	4.26315789	1.11648439	0.333333333
M	10	6.0	4.73684211	1.11648439	0.600000000

Average Scores Were Used for Ties

Median 2-Sample Test (Normal Approximation)
 S = 3.00000 Z = -1.13137 Prob > |Z| = 0.2579

Median 1-Way Analysis (Chi-Square Approximation)
 CHISQ = 1.2800 DF = 1 Prob > CHISQ = 0.2579

PROC NPAR1WAY: DATASET CLOK with complete records only 370
 12:01 Tuesday, June 29, 1999

N P A R 1 W A Y P R O C E D U R E

Van der Waerden Scores (Normal) for Variable WEIGHT
 Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	9	-3.18544944	0.0	1.92844904	-.353938827
M	10	3.18544944	0.0	1.92844904	0.318544944

Average Scores Were Used for Ties

Van der Waerden 2-Sample Test (Normal Approximation)
 S = -3.18545 Z = -1.65182 Prob > |Z| = 0.0986

Van der Waerden 1-Way Analysis (Chi-Square Approximation)
 CHISQ = 2.7285 DF = 1 Prob > CHISQ = 0.0986

PROC NPAR1WAY: DATASET CLOK with complete records only 371
 12:01 Tuesday, June 29, 1999

N P A R 1 W A Y P R O C E D U R E

Savage Scores (Exponential) for Variable WEIGHT
 Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	9	-3.39923584	0.0	2.01292447	-.377692871
M	10	3.39923584	0.0	2.01292447	0.339923584

Average Scores Were Used for Ties

Savage 2-Sample Test (Normal Approximation)
 S = -3.39924 Z = -1.68871 Prob > |Z| = 0.0913

Savage 1-Way Analysis (Chi-Square Approximation)
 CHISQ = 2.8517 DF = 1 Prob > CHISQ = 0.0913

PROC NPAR1WAY: DATASET CLOK with complete records only 372
 12:01 Tuesday, June 29, 1999

N P A R 1 W A Y P R O C E D U R E

Kolmogorov-Smirnov Test for Variable WEIGHT
 Classified by Variable SEX

SEX	N	EDF at Maximum	Deviation from Mean at Maximum
F	9	0.666666667	0.578947368

M	10	0.300000000	-.549237699

	19	0.473684211	

Maximum Deviation Occurred at Observation 2
Value of WEIGHT at Maximum 98.0000000

Kolmogorov-Smirnov 2-Sample Test (Asymptotic)
KS = 0.183079 D = 0.366667
KSa = 0.798024 Prob > KSa = 0.5474

PROC NPAR1WAY: DATASET CLOK with complete records only 373
12:01 Tuesday, June 29, 1999

N P A R 1 W A Y P R O C E D U R E

Cramer-von Mises Test for Variable WEIGHT
Classified by Variable SEX

SEX	N	Summed Deviation from Mean
F	9	0.133174580
M	10	0.119857122

Cramer-von Mises Statistic (Asymptotic)
CM = 0.013317 CMa = 0.253032

PROC NPAR1WAY: DATASET CLOK with complete records only 374
12:01 Tuesday, June 29, 1999

N P A R 1 W A Y P R O C E D U R E

Kuiper Test for Variable WEIGHT
Classified by Variable SEX

SEX	N	Deviation from Mean
F	9	0.366666667
M	10	0.000000000

Kuiper 2-Sample Test (Asymptotic)
K = 0.366667 Ka = 0.798024 Prob > Ka = 0.9790

PROC NPAR1WAY: DATASET CLMVMISC with some wrongly-coded, incomplete records 375
12:01 Tuesday, June 29, 1999

N P A R 1 W A Y P R O C E D U R E

Analysis of Variance for Variable AGE
Classified by Variable SEX

SEX	N	Mean	Among MS 28620.3761	Within MS 65400.2198
B	1	57.500000		
F	7	13.142857	F Value	Prob > F
M	8	136.500000	0.438	0.6547

Average Scores Were Used for Ties

PROC NPAR1WAY: DATASET CLMVMISC with some wrongly-coded, incomplete records 376
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N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable AGE
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
B	1	15.0000000	8.5000000	4.52769257	15.0000000
F	7	52.5000000	59.5000000	9.27900857	7.5000000

M 8 68.5000000 68.0000000 9.35236156 8.5625000
Average Scores Were Used for Ties

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ = 2.2537 DF = 2 Prob > CHISQ = 0.3240

PROC NPARIWAY: DATASET CLVMISC with some wrongly-coded, incomplete records 377
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Median Scores (Number of Points Above Median)
for Variable AGE
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
B	1	1.0	0.50000000	0.50000000	1.00000000
F	7	3.0	3.50000000	1.02469508	0.42857143
M	8	4.0	4.00000000	1.03279556	0.50000000

Average Scores Were Used for Ties

Median 1-Way Analysis (Chi-Square Approximation)
CHISQ = 1.0714 DF = 2 Prob > CHISQ = 0.5853

PROC NPARIWAY: DATASET CLVMISC with some wrongly-coded, incomplete records 378
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Van der Waerden Scores (Normal) for Variable AGE
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
B	1	1.18683143	0.0	0.83154581	1.18683143
F	7	-1.52953389	0.0	1.70416180	-0.21850484
M	8	0.34270246	0.0	1.71763365	0.04283781

Average Scores Were Used for Ties

Van der Waerden 1-Way Analysis (Chi-Square Approximation)
CHISQ = 2.3828 DF = 2 Prob > CHISQ = 0.3038

PROC NPARIWAY: DATASET CLVMISC with some wrongly-coded, incomplete records 379
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Savage Scores (Exponential) for Variable AGE
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
B	1	1.38072899	0.0	0.88114347	1.38072899
F	7	-1.98044641	0.0	1.80580675	-0.28292092
M	8	0.59971741	0.0	1.82008213	0.07496468

Average Scores Were Used for Ties

Savage 1-Way Analysis (Chi-Square Approximation)
CHISQ = 3.0328 DF = 2 Prob > CHISQ = 0.2195

PROC NPARIWAY: DATASET CLVMISC with some wrongly-coded, incomplete records 380
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Kolmogorov-Smirnov Test for Variable AGE
Classified by Variable SEX

SEX	N	EDF at Maximum	Deviation from Mean at Maximum
B	1	0.00000000	-.812500000
F	7	1.00000000	0.496078371
M	8	0.75000000	-.176776695
	-----	-----	
	16	0.81250000	

Maximum Deviation Occurred at Observation 6
Value of AGE at Maximum 15.0000000

Kolmogorov-Smirnov Statistic (Asymptotic)
KS = 0.242061 KSa = 0.968246

PROC NPARIWAY: DATASET CLMVMISC with some wrongly-coded, incomplete records 381
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Cramer-von Mises Test for Variable AGE
Classified by Variable SEX

SEX	N	Summed Deviation from Mean
B	1	0.301513672
F	7	0.054792132
M	8	0.013671875

Cramer-von Mises Statistic (Asymptotic)
CM = 0.023124 CMA = 0.369978

PROC NPARIWAY: DATASET CLMVMISC with some wrongly-coded, incomplete records 382
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Analysis of Variance for Variable HEIGHT
Classified by Variable SEX

SEX	N	Mean	Among MS 5250.04353	Within MS 118091.642
B	1	85.000000		
F	7	193.885714	F Value	Prob > F
M	8	174.662500	0.044	0.9567

Average Scores Were Used for Ties

PROC NPARIWAY: DATASET CLMVMISC with some wrongly-coded, incomplete records 383
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N P A R I W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable HEIGHT
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
B	1	14.0	8.5000000	4.60298816	14.0000000
F	7	54.0	59.5000000	9.43331861	7.7142857
M	8	68.0	68.0000000	9.50789146	8.5000000

Average Scores Were Used for Ties

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ = 1.5297 DF = 2 Prob > CHISQ = 0.4654

PROC NPARIWAY: DATASET CLVMVISC with some wrongly-coded, incomplete records 384
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N P A R I W A Y P R O C E D U R E

Median Scores (Number of Points Above Median)
 for Variable HEIGHT
 Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
B	1	1.0	0.50000000	0.50000000	1.00000000
F	7	3.0	3.50000000	1.02469508	0.42857143
M	8	4.0	4.00000000	1.03279556	0.50000000

Average Scores Were Used for Ties

Median 1-Way Analysis (Chi-Square Approximation)
 CHISQ = 1.0714 DF = 2 Prob > CHISQ = 0.5853

PROC NPARIWAY: DATASET CLVMVISC with some wrongly-coded, incomplete records 385
 12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Van der Waerden Scores (Normal) for Variable HEIGHT
 Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
B	1	0.928899492	0.0	0.84334378	0.928899492
F	7	-.814560251	0.0	1.72834044	-.116365750
M	8	-.114339241	0.0	1.74200342	-.014292405

Average Scores Were Used for Ties

Van der Waerden 1-Way Analysis (Chi-Square Approximation)
 CHISQ = 1.2645 DF = 2 Prob > CHISQ = 0.5314

PROC NPARIWAY: DATASET CLVMVISC with some wrongly-coded, incomplete records 386
 12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Savage Scores (Exponential) for Variable HEIGHT
 Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
B	1	0.880728993	0.0	0.87009691	0.880728993
F	7	-.845164558	0.0	1.78316804	-.120737794
M	8	-.035564436	0.0	1.79726445	-.004445554

Average Scores Were Used for Ties

Savage 1-Way Analysis (Chi-Square Approximation)
 CHISQ = 1.0871 DF = 2 Prob > CHISQ = 0.5807

PROC NPARIWAY: DATASET CLVMVISC with some wrongly-coded, incomplete records 387
 12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Kolmogorov-Smirnov Test for Variable HEIGHT
 Classified by Variable SEX

EDF Deviation from Mean

SEX	N	at Maximum	at Maximum
B	1	0.000000000	-.687500000
F	7	0.857142857	0.448832812
M	8	0.625000000	-.176776695
	----	-----	
	16	0.687500000	

Maximum Deviation Occurred at Observation 3
Value of HEIGHT at Maximum 65.3000000

Kolmogorov-Smirnov Statistic (Asymptotic)
KS = 0.209964 KSa = 0.839855

PROC NPARIWAY: DATASET CLVMISC with some wrongly-coded, incomplete records 388
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Cramer-von Mises Test for Variable HEIGHT
Classified by Variable SEX

SEX	N	Summed Deviation from Mean
B	1	0.204589844
F	7	0.044852121
M	8	0.011718750

Cramer-von Mises Statistic (Asymptotic)
CM = 0.016323 CMa = 0.261161

PROC NPARIWAY: DATASET CLVMISC with some wrongly-coded, incomplete records 389
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Analysis of Variance for Variable WEIGHT
Classified by Variable SEX

SEX	N	Mean	Among MS	Within MS
F	7	218.714286	18.2857143	118350.536
M	7	221.000000	F Value	Prob > F
			0.000	0.9903

Average Scores Were Used for Ties

PROC NPARIWAY: DATASET CLVMISC with some wrongly-coded, incomplete records 390
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable WEIGHT
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	7	53.0	52.5000000	7.79176093	7.57142857
M	7	52.0	52.5000000	7.79176093	7.42857143

Average Scores Were Used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S = 53.0000 Z = 0 Prob > |Z| = 1.0000

T-Test Approx. Significance = 1.0000

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ = 0.00412 DF = 1 Prob > CHISQ = 0.9488

PROC NPARIWAY: DATASET CLMVMISC with some wrongly-coded, incomplete records 391
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Median Scores (Number of Points Above Median)
for Variable WEIGHT
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	7	3.0	3.50000000	0.970725343	0.428571429
M	7	4.0	3.50000000	0.970725343	0.571428571

Average Scores Were Used for Ties

Median 2-Sample Test (Normal Approximation)
S = 3.00000 Z = -.515079 Prob > |Z| = 0.6065

Median 1-Way Analysis (Chi-Square Approximation)
CHISQ = 0.26531 DF = 1 Prob > CHISQ = 0.6065

PROC NPARIWAY: DATASET CLMVMISC with some wrongly-coded, incomplete records 392
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Van der Waerden Scores (Normal) for Variable WEIGHT
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	7	0.015328167	0.0	1.60314586	0.002189738
M	7	-.015328167	0.0	1.60314586	-.002189738

Average Scores Were Used for Ties

Van der Waerden 2-Sample Test (Normal Approximation)
S = 0.015328 Z = 0.009561 Prob > |Z| = 0.9924

Van der Waerden 1-Way Analysis (Chi-Square Approximation)
CHISQ = 0.00009 DF = 1 Prob > CHISQ = 0.9924

PROC NPARIWAY: DATASET CLMVMISC with some wrongly-coded, incomplete records 393
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Savage Scores (Exponential) for Variable WEIGHT
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	7	0.041119991	0.0	1.65454124	0.005874284
M	7	-.041119991	0.0	1.65454124	-.005874284

Average Scores Were Used for Ties

Savage 2-Sample Test (Normal Approximation)
S = 0.041120 Z = 0.024853 Prob > |Z| = 0.9802

Savage 1-Way Analysis (Chi-Square Approximation)
CHISQ = 0.00062 DF = 1 Prob > CHISQ = 0.9802

PROC NPARIWAY: DATASET CLMVMISC with some wrongly-coded, incomplete records 394
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Kolmogorov-Smirnov Test for Variable WEIGHT
Classified by Variable SEX

SEX	N	EDF at Maximum	Deviation from Mean at Maximum
F	7	0.142857143	0.188982237
M	7	0.000000000	-.188982237
	----- 14	----- 0.071428571	

Maximum Deviation Occurred at Observation 6
Value of WEIGHT at Maximum 50.5000000

Kolmogorov-Smirnov 2-Sample Test (Asymptotic)
KS = 0.071429 D = 0.142857
KSa = 0.267261 Prob > KSa = 1.0000

PROC NPARIWAY: DATASET CLVMISC with some wrongly-coded, incomplete records 395
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Cramer-von Mises Test for Variable WEIGHT
Classified by Variable SEX

SEX	N	Summed Deviation from Mean
F	7	0.012755102
M	7	0.012755102

Cramer-von Mises Statistic (Asymptotic)
CM = 0.001822 CMa = 0.025510

PROC NPARIWAY: DATASET CLVMISC with some wrongly-coded, incomplete records 396
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Kuiper Test for Variable WEIGHT
Classified by Variable SEX

SEX	N	Deviation from Mean
F	7	0.142857143
M	7	0.142857143

Kuiper 2-Sample Test (Asymptotic)
K = 0.285714 Ka = 0.534522 Prob > Ka = 1.0000

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 397
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Analysis of Variance for Variable AGE
Classified by Variable SEX

SEX	N	Mean	Among MS	Within MS
F	7	13.1428571	0.071428571	2.02380952
M	7	13.2857143		
			F Value	Prob > F
			0.035	0.8541

Average Scores Were Used for Ties

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 398
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable AGE

Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	7	52.5000000	52.5000000	7.61703556	7.50000000
M	7	52.5000000	52.5000000	7.61703556	7.50000000

Average Scores Were Used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S = 52.5000 Z = 0 Prob > |Z| = 1.0000

T-Test Approx. Significance = 1.0000

Kruskal-Wallis Test (Chi-Square Approximation)

CHISQ = 0 DF = 1 Prob > CHISQ = 1.0000

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 399
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Median Scores (Number of Points Above Median)
for Variable AGE
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	7	3.66666667	3.50000000	0.873395966	0.523809524
M	7	3.33333333	3.50000000	0.873395966	0.476190476

Average Scores Were Used for Ties

Median 2-Sample Test (Normal Approximation)

S = 3.66667 Z = 0.190826 Prob > |Z| = 0.8487

Median 1-Way Analysis (Chi-Square Approximation)

CHISQ = 0.03641 DF = 1 Prob > CHISQ = 0.8487

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 400
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Van der Waerden Scores (Normal) for Variable AGE
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	7	-.236413187	0.0	1.57168008	-.033773312
M	7	0.236413187	0.0	1.57168008	0.033773312

Average Scores Were Used for Ties

Van der Waerden 2-Sample Test (Normal Approximation)

S = -.236413 Z = -.150421 Prob > |Z| = 0.8804

Van der Waerden 1-Way Analysis (Chi-Square Approximation)

CHISQ = 0.02263 DF = 1 Prob > CHISQ = 0.8804

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 401
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Savage Scores (Exponential) for Variable AGE
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	7	-.413263126	0.0	1.66753425	-.059037589
M	7	0.413263126	0.0	1.66753425	0.059037589

Average Scores Were Used for Ties

Savage 2-Sample Test (Normal Approximation)
 $S = -.413263$ $Z = -.247829$ $\text{Prob} > |Z| = 0.8043$

Savage 1-Way Analysis (Chi-Square Approximation)
 $\text{CHISQ} = 0.06142$ $\text{DF} = 1$ $\text{Prob} > \text{CHISQ} = 0.8043$

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 402
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Kolmogorov-Smirnov Test for Variable AGE
Classified by Variable SEX

SEX	N	EDF at Maximum	Deviation from Mean at Maximum
F	7	0.142857143	0.188982237
M	7	0.000000000	-.188982237
	-----	-----	
	14	0.071428571	

Maximum Deviation Occurred at Observation 6
Value of AGE at Maximum 11.0000000

Kolmogorov-Smirnov 2-Sample Test (Asymptotic)
 $\text{KS} = 0.071429$ $\text{D} = 0.142857$
 $\text{KSa} = 0.267261$ $\text{Prob} > \text{KSa} = 1.0000$

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 403
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Cramer-von Mises Test for Variable AGE
Classified by Variable SEX

SEX	N	Summed Deviation from Mean
F	7	0.015306122
M	7	0.015306122

Cramer-von Mises Statistic (Asymptotic)
 $\text{CM} = 0.002187$ $\text{CMa} = 0.030612$

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 404
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Kuiper Test for Variable AGE
Classified by Variable SEX

SEX	N	Deviation from Mean
F	7	0.142857143
M	7	0.142857143

Kuiper 2-Sample Test (Asymptotic)
 $\text{K} = 0.285714$ $\text{Ka} = 0.534522$ $\text{Prob} > \text{Ka} = 1.0000$

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 405
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Analysis of Variance for Variable HEIGHT
Classified by Variable SEX

SEX	N	Mean	Among MS	Within MS
F	6	59.7000000	52.5008333	29.0928333
M	6	63.8833333	F Value	Prob > F
			1.805	0.2088

Average Scores Were Used for Ties

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 406
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable HEIGHT
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	6	32.5000000	39.0	6.23407061	5.41666667
M	6	45.5000000	39.0	6.23407061	7.58333333

Average Scores Were Used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S = 32.5000 Z = -.962453 Prob > |Z| = 0.3358

T-Test Approx. Significance = 0.3565

Kruskal-Wallis Test (Chi-Square Approximation)

CHISQ = 1.0871 DF = 1 Prob > CHISQ = 0.2971

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 407
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Median Scores (Number of Points Above Median)
for Variable HEIGHT
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	6	2.50000000	3.0	0.825722824	0.416666667
M	6	3.50000000	3.0	0.825722824	0.583333333

Average Scores Were Used for Ties

Median 2-Sample Test (Normal Approximation)

S = 2.50000 Z = -.605530 Prob > |Z| = 0.5448

Median 1-Way Analysis (Chi-Square Approximation)

CHISQ = 0.36667 DF = 1 Prob > CHISQ = 0.5448

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 408
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Van der Waerden Scores (Normal) for Variable HEIGHT
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	6	-1.70983719	0.0	1.46874574	-.284972865
M	6	1.70983719	0.0	1.46874574	0.284972865

Average Scores Were Used for Ties

Van der Waerden 2-Sample Test (Normal Approximation)
 S = -1.70984 Z = -1.16415 Prob > |Z| = 0.2444

Van der Waerden 1-Way Analysis (Chi-Square Approximation)
 CHISQ = 1.3552 DF = 1 Prob > CHISQ = 0.2444

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 409
 12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Savage Scores (Exponential) for Variable HEIGHT
 Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	6	-1.87243867	0.0	1.55647332	-.312073112
M	6	1.87243867	0.0	1.55647332	0.312073112

Average Scores Were Used for Ties

Savage 2-Sample Test (Normal Approximation)
 S = -1.87244 Z = -1.20300 Prob > |Z| = 0.2290

Savage 1-Way Analysis (Chi-Square Approximation)
 CHISQ = 1.4472 DF = 1 Prob > CHISQ = 0.2290

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 410
 12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Kolmogorov-Smirnov Test for Variable HEIGHT
 Classified by Variable SEX

SEX	N	EDF at Maximum	Deviation from Mean at Maximum
F	6	0.333333333	0.408248290
M	6	0.000000000	-.408248290
	-----	-----	
	12	0.166666667	

Maximum Deviation Occurred at Observation 1
 Value of HEIGHT at Maximum 56.5000000

Kolmogorov-Smirnov 2-Sample Test (Asymptotic)
 KS = 0.166667 D = 0.333333
 KSa = 0.577350 Prob > KSa = 0.8928

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 411
 12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Cramer-von Mises Test for Variable HEIGHT
 Classified by Variable SEX

SEX	N	Summed Deviation from Mean
F	6	0.065972222
M	6	0.065972222

Cramer-von Mises Statistic (Asymptotic)
CM = 0.010995 CMa = 0.131944

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 412
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Kuiper Test for Variable HEIGHT
Classified by Variable SEX

SEX	N	Deviation from Mean
F	6	0.333333333
M	6	0.000000000

Kuiper 2-Sample Test (Asymptotic)
K = 0.333333 Ka = 0.577350 Prob > Ka = 1.0000

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 413
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Analysis of Variance for Variable WEIGHT
Classified by Variable SEX

SEX	N	Mean	Among MS 567.187500	Within MS 410.404167
F	6	88.666667		
M	6	102.416667	F Value 1.382	Prob > F 0.2670

Average Scores Were Used for Ties

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 414
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable WEIGHT
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	6	34.5000000	39.0	6.21215817	5.75000000
M	6	43.5000000	39.0	6.21215817	7.25000000

Average Scores Were Used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S = 34.5000 Z = -.643899 Prob > |Z| = 0.5196

T-Test Approx. Significance = 0.5328

Kruskal-Wallis Test (Chi-Square Approximation)

CHISQ = 0.52473 DF = 1 Prob > CHISQ = 0.4688

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 415
12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Median Scores (Number of Points Above Median)
for Variable WEIGHT
Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
-----	---	------------------	----------------------	---------------------	---------------

F	6	2.0	3.0	0.904534034	0.333333333
M	6	4.0	3.0	0.904534034	0.666666667

Average Scores Were Used for Ties

Median 2-Sample Test (Normal Approximation)
 S = 2.00000 Z = -1.10554 Prob > |Z| = 0.2689

Median 1-Way Analysis (Chi-Square Approximation)
 CHISQ = 1.2222 DF = 1 Prob > CHISQ = 0.2689

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 416
 12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Van der Waerden Scores (Normal) for Variable WEIGHT
 Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	6	-1.15928799	0.0	1.46215619	-.193214665
M	6	1.15928799	0.0	1.46215619	0.193214665

Average Scores Were Used for Ties

Van der Waerden 2-Sample Test (Normal Approximation)
 S = -1.15929 Z = -.792862 Prob > |Z| = 0.4279

Van der Waerden 1-Way Analysis (Chi-Square Approximation)
 CHISQ = 0.62863 DF = 1 Prob > CHISQ = 0.4279

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 417
 12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Savage Scores (Exponential) for Variable WEIGHT
 Classified by Variable SEX

SEX	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
F	6	-1.42521645	0.0	1.54340531	-.237536075
M	6	1.42521645	0.0	1.54340531	0.237536075

Average Scores Were Used for Ties

Savage 2-Sample Test (Normal Approximation)
 S = -1.42522 Z = -.923423 Prob > |Z| = 0.3558

Savage 1-Way Analysis (Chi-Square Approximation)
 CHISQ = 0.85271 DF = 1 Prob > CHISQ = 0.3558

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 418
 12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Kolmogorov-Smirnov Test for Variable WEIGHT
 Classified by Variable SEX

SEX	N	EDF at Maximum	Deviation from Mean at Maximum
F	6	0.666666667	0.408248290
M	6	0.333333333	-.408248290
	-----	-----	
	12	0.500000000	

Maximum Deviation Occurred at Observation 2
 Value of WEIGHT at Maximum 98.0000000

Kolmogorov-Smirnov 2-Sample Test (Asymptotic)
 KS = 0.166667 D = 0.333333
 KSa = 0.577350 Prob > KSa = 0.8928

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 419
 12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Cramer-von Mises Test for Variable WEIGHT
 Classified by Variable SEX

SEX	N	Summed Deviation from Mean
F	6	0.038194444
M	6	0.038194444

Cramer-von Mises Statistic (Asymptotic)
 CM = 0.006366 CMa = 0.076389

PROC NPARIWAY: DATASET CLMVOK with some correctly-coded, incomplete records 420
 12:01 Tuesday, June 29, 1999

N P A R I W A Y P R O C E D U R E

Kuiper Test for Variable WEIGHT
 Classified by Variable SEX

SEX	N	Deviation from Mean
F	6	0.333333333
M	6	0.000000000

Kuiper 2-Sample Test (Asymptotic)
 K = 0.333333 Ka = 0.577350 Prob > Ka = 1.0000

PROC PHREG: DATASET CLOK with complete records only 421
 12:01 Tuesday, June 29, 1999

The PHREG Procedure

Data Set: WORK.CLOK
 Dependent Variable: AGE
 Censoring Variable: WEIGHT
 Censoring Value(s): 1
 Ties Handling: BRESLOW

Summary of the Number of
 Event and Censored Values

Total	Event	Censored	Percent Censored
19	19	0	0.00

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L Score	85.473	73.246	12.226 with 1 DF (p=0.0005)
Wald	.	.	11.825 with 1 DF (p=0.0006)
	.	.	10.811 with 1 DF (p=0.0010)

Analysis of Maximum Likelihood Estimates

Parameter	Standard	Wald	Pr >	Risk
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Variable	DF	Estimate	Error	Chi-Square	Chi-Square	Ratio
HEIGHT	1	-0.231488	0.07040	10.81121	0.0010	0.793

PROC PHREG: DATASET CLMVMISC with some wrongly-coded, incomplete records 422
12:01 Tuesday, June 29, 1999

The PHREG Procedure

Data Set: WORK.CLMVMISC
Dependent Variable: AGE
Censoring Variable: WEIGHT
Censoring Value(s): 1
Ties Handling: BRESLOW

Summary of the Number of
Event and Censored Values

Total	Event	Censored	Percent Censored
14	14	0	0.00

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L Score	53.634	53.623	0.011 with 1 DF (p=0.9179)
Wald	.	.	0.010 with 1 DF (p=0.9189)
	.	.	0.010 with 1 DF (p=0.9190)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square	Risk Ratio
HEIGHT	1	-0.000110	0.00108	0.01035	0.9190	1.000

PROC PHREG: DATASET CLMVOK with some correctly-coded, incomplete records 423
12:01 Tuesday, June 29, 1999

The PHREG Procedure

Data Set: WORK.CLMVOK
Dependent Variable: AGE
Censoring Variable: WEIGHT
Censoring Value(s): 1
Ties Handling: BRESLOW

Summary of the Number of
Event and Censored Values

Total	Event	Censored	Percent Censored
13	13	0	0.00

Testing Global Null Hypothesis: BETA=0

Criterion	Without Covariates	With Covariates	Model Chi-Square
-2 LOG L Score	50.565	43.856	6.708 with 1 DF (p=0.0096)
Wald	.	.	7.047 with 1 DF (p=0.0079)
	.	.	6.323 with 1 DF (p=0.0119)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square	Risk Ratio
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HEIGHT 1 -0.226537 0.09009 6.32263 0.0119 0.797

PROC PRINT: DATASET CLOK with complete records only 424
12:01 Tuesday, June 29, 1999

OBS	NAME	SEX	AGE	HEIGHT	WEIGHT
1	ALICED	F	13	56.5	84.0
2	BARBARA	F	13	65.3	98.0
3	CAROL	F	14	62.8	102.5
4	JANE	F	12	59.8	84.5
5	JANET	F	15	62.5	112.5
6	JOYCE	F	11	51.3	50.5
7	JUDY	F	14	64.3	90.0
8	LOUISE	F	12	56.3	77.0
9	MARY	F	15	66.5	112.0
10	ALFRED	M	14	69.0	112.5
11	HENRY	M	14	63.5	102.5
12	JAMES	M	12	57.3	83.0
13	JEFFREY	M	13	62.5	84.0
14	JOHN	M	12	59.0	99.5
15	PHILIP	M	16	72.0	150.0
16	ROBERT	M	12	64.8	128.0
17	RONALD	M	15	67.0	133.0
18	THOMAS	M	11	57.5	85.0
19	WILLIAM	M	15	66.5	112.0

N = 19

PROC PRINT: DATASET CLVMISC with some wrongly-coded, incomplete records 425
12:01 Tuesday, June 29, 1999

OBS	NAME	SEX	AGE	HEIGHT	WEIGHT
1	THOMAS	B	57.5	85.0	.
2	ALICED	F	13.0	56.5	84.0
3	BARBARA	F	13.0	65.3	98.0
4	CAROL	F	14.0	62.8	102.5
5	JANE	F	12.0	59.8	84.5
6	JANET	F	15.0	62.5	112.5
7	JOYCE	F	11.0	51.3	50.5
8	JUDY	F	14.0	999.0	999.0
9	ALFRED	M	14.0	69.0	112.5
10	HENRY	M	14.0	63.5	102.5
11	JAMES	M	12.0	57.3	83.0
12	JEFFREY	M	13.0	62.5	84.0
13	JOHN	M	12.0	59.0	99.5
14	LOUISE	M	999.0	15.0	66.5
15	PHILIP	M	16.0	72.0	999.0
16	ROBERT	M	12.0	999.0	.

N = 16

PROC PRINT: DATASET CLMVOK with some correctly-coded, incomplete records 426
12:01 Tuesday, June 29, 1999

OBS	NAME	SEX	AGE	HEIGHT	WEIGHT
1	LOUISE	.	.	.	.
2	MARY	.	15	66.5	112.0
3	THOMAS	.	.	57.5	85.0
4	WILLIAM	.	15	66.5	112.0
5	ALICED	F	13	56.5	84.0
6	BARBARA	F	13	65.3	98.0
7	CAROL	F	14	62.8	102.5
8	JANE	F	12	59.8	84.5
9	JANET	F	15	62.5	112.5
10	JOYCE	F	11	51.3	50.5
11	JUDY	F	14	.	.
12	ALFRED	M	14	69.0	112.5
13	HENRY	M	14	63.5	102.5
14	JAMES	M	12	57.3	83.0
15	JEFFREY	M	13	62.5	84.0
16	JOHN	M	12	59.0	99.5
17	PHILIP	M	16	72.0	.
18	ROBERT	M	12	.	.
19	RONALD	M	.	.	133.0

N = 19

PROC PROBIT: DATASET CLOK with complete records only 427
12:01 Tuesday, June 29, 1999

----- SEX=F -----

Probit Procedure
Class Level Information

Class	Levels	Values
HEIGHT	9	51.3 56.3 56.5 59.8 62.5 62.8 64.3 65.3 66.5

Number of observations used = 9

PROC PROBIT: DATASET CLOK with complete records only 428
12:01 Tuesday, June 29, 1999

----- SEX=F -----

Probit Procedure

Data Set =WORK.CLOK
Dependent Variable=HEIGHT

Weighted Frequency Counts for the Ordered Response Categories

Level	Count
51.3	1
56.3	1
56.5	1
59.8	1
62.5	1
62.8	1
64.3	1
65.3	1
66.5	1

Log Likelihood for NORMAL -13.79440666

PROC PROBIT: DATASET CLOK with complete records only 429
12:01 Tuesday, June 29, 1999

----- SEX=F -----

Probit Procedure

Variable	DF	Estimate	Std Err	ChiSquare	Pr>Chi	Label/Value
INTERCPT	1	5.65745308	5.555048	1.037209	0.3085	Intercept
AGE	1	0.10657019	0.705833	0.022796	0.8800	
WEIGHT	1	-0.1120987	0.062139	3.25442	0.0712	
INTER.2	1	1.59089901	1.380078			56.3
INTER.3	1	2.43110416	1.489528			56.5
INTER.4	1	3.25230209	1.637999			59.8
INTER.5	1	3.80807249	1.685613			62.5
INTER.6	1	4.14175423	1.679658			62.8
INTER.7	1	4.55380108	1.699772			64.3
INTER.8	1	5.32730869	1.847959			65.3

PROC PROBIT: DATASET CLOK with complete records only 430
12:01 Tuesday, June 29, 1999

----- SEX=M -----

Probit Procedure
Class Level Information

Class	Levels	Values
HEIGHT	10	59 67 69 72 57.3 57.5 62.5 63.5 64.8 66.5

Number of observations used = 10

PROC PROBIT: DATASET CLOK with complete records only 431
12:01 Tuesday, June 29, 1999

----- SEX=M -----

Probit Procedure

Data Set =WORK.CLOK
Dependent Variable=HEIGHT

Weighted Frequency Counts for the Ordered Response Categories

Level	Count
59	1
67	1
69	1
72	1
57.3	1
57.5	1
62.5	1
63.5	1
64.8	1
66.5	1

Log Likelihood for NORMAL -22.8828599

PROC PROBIT: DATASET CLOK with complete records only 432
12:01 Tuesday, June 29, 1999

----- SEX=M -----

Probit Procedure

Variable	DF	Estimate	Std Err	ChiSquare	Pr>Chi	Label/Value
INTERCPT	1	-0.566952	2.932264	0.037384	0.8467	Intercept
AGE	1	-0.142763	0.29707	0.230948	0.6308	
WEIGHT	1	0.01079771	0.021421	0.254088	0.6142	
INTER.2	1	0.45392405	0.426146			67
INTER.3	1	0.77683799	0.498784			69
INTER.4	1	1.05254565	0.538676			72
INTER.5	1	1.30993879	0.570231			57.3
INTER.6	1	1.5678908	0.597279			57.5
INTER.7	1	1.83995835	0.622339			62.5
INTER.8	1	2.14167918	0.651928			63.5
INTER.9	1	2.58191598	0.729703			64.8

PROC PROBIT: DATASET CLVMISC with some wrongly-coded, incomplete records 433
12:01 Tuesday, June 29, 1999

----- SEX=B -----

Probit Procedure

WARNING: There is only one value for the response variable, HEIGHT, in the data set.

PROC PROBIT: DATASET CLVMISC with some wrongly-coded, incomplete records 434
12:01 Tuesday, June 29, 1999

----- SEX=B -----

Probit Procedure
Class Level Information

Class	Levels	Values
HEIGHT	0	

Number of observations used = 0

PROC PROBIT: DATASET CLVMISC with some wrongly-coded, incomplete records 435
12:01 Tuesday, June 29, 1999

----- SEX=F -----

Probit Procedure
Class Level Information

Class Levels Values
HEIGHT 7 999 51.3 56.5 59.8 62.5 62.8 65.3

Number of observations used = 7

PROC PROBIT: DATASET CLMVMISC with some wrongly-coded, incomplete records 436
12:01 Tuesday, June 29, 1999

----- SEX=F -----

Probit Procedure

Data Set =WORK.CLMVMISC
Dependent Variable=HEIGHT

Weighted Frequency Counts for the Ordered Response Categories

Level	Count
999	1
51.3	1
56.5	1
59.8	1
62.5	1
62.8	1
65.3	1

Log Likelihood for NORMAL -9.734813215

PROC PROBIT: DATASET CLMVMISC with some wrongly-coded, incomplete records 437
12:01 Tuesday, June 29, 1999

----- SEX=F -----

Probit Procedure

Variable	DF	Estimate	Std Err	ChiSquare	Pr>Chi	Label/Value
INTERCPT	1	4.78560931	5.45529	0.769553	0.3804	Intercept
AGE	1	-0.6936902	0.414552	2.800102	0.0943	
WEIGHT	1	0.0070731	0.005129	1.901743	0.1679	
INTER.2	1	2.35294945	3.131763			51.3
INTER.3	1	3.09567156	3.149893			56.5
INTER.4	1	3.72668395	3.183572			59.8
INTER.5	1	4.30587163	3.212145			62.5
INTER.6	1	4.81528432	3.213941			62.8

PROC PROBIT: DATASET CLMVMISC with some wrongly-coded, incomplete records 438
12:01 Tuesday, June 29, 1999

----- SEX=M -----

Probit Procedure
Class Level Information

Class Levels Values
HEIGHT 7 15 59 69 72 57.3 62.5 63.5

Number of observations used = 7

PROC PROBIT: DATASET CLMVMISC with some wrongly-coded, incomplete records 439
12:01 Tuesday, June 29, 1999

----- SEX=M -----

Probit Procedure

Data Set =WORK.CLMVMISC
Dependent Variable=HEIGHT

Weighted Frequency Counts for the Ordered Response Categories

Level	Count
15	1
59	1
69	1
72	1
57.3	1
62.5	1
63.5	1

Observations with Missing Values= 1

Log Likelihood for NORMAL -10.73200484

PROC PROBIT: DATASET CLMVMISC with some wrongly-coded, incomplete records 440
12:01 Tuesday, June 29, 1999

----- SEX=M -----

Probit Procedure

Variable	DF	Estimate	Std Err	ChiSquare	Pr>Chi	Label/Value
INTERCPT	1	-3.8750446	11.04311	0.123132	0.7257	Intercept
AGE	1	0.00708164	0.016268	0.189507	0.6633	
WEIGHT	1	0.00031294	0.001272	0.060562	0.8056	
INTER.2	1	2.7337406	10.90504			59
INTER.3	1	3.25158786	10.90714			69
INTER.4	1	3.68560576	10.90923			72
INTER.5	1	4.13545147	10.91028			57.3
INTER.6	1	4.68421696	10.91312			62.5

PROC PROBIT: DATASET CLMVOK with some correctly-coded, incomplete records 441
12:01 Tuesday, June 29, 1999

----- SEX=' ' -----

Probit Procedure

WARNING: There is only one value for the response variable, HEIGHT, in the data set.

PROC PROBIT: DATASET CLMVOK with some correctly-coded, incomplete records 442
12:01 Tuesday, June 29, 1999

----- SEX=' ' -----

Probit Procedure
Class Level Information

Class	Levels	Values
HEIGHT	1	66.5

Number of observations used = 2

WARNING: The procedure is continuing but the validity of the model fit is questionable.

PROC PROBIT: DATASET CLMVOK with some correctly-coded, incomplete records 443
12:01 Tuesday, June 29, 1999

----- SEX=' ' -----

Probit Procedure

Data Set =WORK.CLMVOK
Dependent Variable=HEIGHT

Weighted Frequency Counts for the Ordered Response Categories

Level	Count
-------	-------

66.5 2

Observations with Missing Values= 2

Log Likelihood for NORMAL 0

PROC PROBIT: DATASET CLMVOK with some correctly-coded, incomplete records 444
12:01 Tuesday, June 29, 1999

----- SEX=' ' -----

Probit Procedure

Variable	DF	Estimate	Std Err	ChiSquare	Pr>Chi	Label/Value
INTERCPT	0	0	0	.	.	Intercept
AGE	0	0	0	.	.	
WEIGHT	0	0	0	.	.	

PROC PROBIT: DATASET CLMVOK with some correctly-coded, incomplete records 445
12:01 Tuesday, June 29, 1999

----- SEX=F -----

Probit Procedure
Class Level Information

Class	Levels	Values
HEIGHT	6	51.3 56.5 59.8 62.5 62.8 65.3

Number of observations used = 6

PROC PROBIT: DATASET CLMVOK with some correctly-coded, incomplete records 446
12:01 Tuesday, June 29, 1999

----- SEX=F -----

Probit Procedure

Data Set =WORK.CLMVOK
Dependent Variable=HEIGHT

Weighted Frequency Counts for the Ordered Response Categories

Level	Count
51.3	1
56.5	1
59.8	1
62.5	1
62.8	1
65.3	1

Observations with Missing Values= 1

Log Likelihood for NORMAL -3.423476101

PROC PROBIT: DATASET CLMVOK with some correctly-coded, incomplete records 447
12:01 Tuesday, June 29, 1999

----- SEX=F -----

Probit Procedure

Variable	DF	Estimate	Std Err	ChiSquare	Pr>Chi	Label/Value
INTERCPT	1	-29.714665	48638.09	3.732E-7	0.9995	Intercept
AGE	1	7.16568272	4.772166	2.254676	0.1332	
WEIGHT	1	-0.8358733	0.522649	2.557766	0.1098	
INTER.2	1	10.5132952	48638.09			56.5
INTER.3	1	14.799792	48638.09			59.8
INTER.4	1	15.8090424	48638.09			62.5
INTER.5	1	17.1964258	48638.09			62.8

PROC PROBIT: DATASET CLMVOK with some correctly-coded, incomplete records 448
12:01 Tuesday, June 29, 1999

----- SEX=M -----

Probit Procedure
Class Level Information

Class	Levels	Values
HEIGHT	5	59 69 57.3 62.5 63.5

Number of observations used = 5

PROC PROBIT: DATASET CLMVOK with some correctly-coded, incomplete records 449
12:01 Tuesday, June 29, 1999

----- SEX=M -----

Probit Procedure

Data Set =WORK.CLMVOK
Dependent Variable=HEIGHT

Weighted Frequency Counts for the Ordered Response Categories

Level	Count
59	1
69	1
57.3	1
62.5	1
63.5	1

Observations with Missing Values= 3

Log Likelihood for NORMAL -3.934973461

PROC PROBIT: DATASET CLMVOK with some correctly-coded, incomplete records 450
12:01 Tuesday, June 29, 1999

----- SEX=M -----

Probit Procedure

Variable	DF	Estimate	Std Err	ChiSquare	Pr>Chi	Label/Value
INTERCPT	1	20.5306957	12.79965	2.572832	0.1087	Intercept
AGE	1	-3.6611183	1.889452	3.754534	0.0527	
WEIGHT	1	0.25375906	0.132269	3.680686	0.0550	
INTER.2	1	2.20750353	2.183824			69
INTER.3	1	3.89757507	2.794577			57.3
INTER.4	1	5.31146971	3.060899			62.5

PROC SUMMARY: DATASET CLOK with complete records only 451
12:01 Tuesday, June 29, 1999

N Obs

19

PROC SUMMARY: DATASET CLVMISC with some wrongly-coded, incomplete records 452
12:01 Tuesday, June 29, 1999

N Obs

16

PROC SUMMARY: DATASET CLMVOK with some correctly-coded, incomplete records 453
12:01 Tuesday, June 29, 1999

N Obs

PROC TABULATE: DATASET CLOK with complete records only 454
12:01 Tuesday, June 29, 1999

```

,,ffffffffffff...ffffffffffff...fffffffffffff+
,   AGE           ,   HEIGHT       ,   WEIGHT      ,
+fffffffffffff^fffffffffffff^fffffffffffff%
,   SUM           ,   SUM           ,   SUM         ,
+fffffffffffff^fffffffffffff^fffffffffffff%
,   253.00,      ,   1184.40,      ,   1900.50,
$fffffffffffff<fffffffffffff<fffffffffffff@
    
```

PROC TABULATE: DATASET CLVMISC with some wrongly-coded, incomplete records 455
12:01 Tuesday, June 29, 1999

```

,,fffffffffffff...fffffffffffff...fffffffffffff+
,   AGE           ,   HEIGHT       ,   WEIGHT      ,
+fffffffffffff^fffffffffffff^fffffffffffff%
,   SUM           ,   SUM           ,   SUM         ,
+fffffffffffff^fffffffffffff^fffffffffffff%
,   1241.50,     ,   2839.50,     ,   3078.00,
$fffffffffffff<fffffffffffff<fffffffffffff@
    
```

PROC TABULATE: DATASET CLMVOK with some correctly-coded, incomplete records 456
12:01 Tuesday, June 29, 1999

```

,,fffffffffffff...fffffffffffff...fffffffffffff+
,   AGE           ,   HEIGHT       ,   WEIGHT      ,
+fffffffffffff^fffffffffffff^fffffffffffff%
,   SUM           ,   SUM           ,   SUM         ,
+fffffffffffff^fffffffffffff^fffffffffffff%
,   185.00,      ,   741.50,      ,   1146.50,
$fffffffffffff<fffffffffffff<fffffffffffff@
    
```

PROC TTEST: DATASET CLOK with complete records only 457
12:01 Tuesday, June 29, 1999

TTEST PROCEDURE

Variable: AGE

SEX	N	Mean	Std Dev	Std Error	Variances	T	DF	Prob>|T|
F	9	13.22222222	1.39443338	0.46481113	Unequal	-0.2547	17.0	0.8020
M	10	13.40000000	1.64654520	0.52068331	Equal	-0.2524	17.0	0.8038

For H0: Variances are equal, F' = 1.39 DF = (9,8) Prob>F' = 0.6502

Variable: HEIGHT

SEX	N	Mean	Std Dev	Std Error	Variances	T	DF	Prob>|T|
F	9	60.58888889	5.01832752	1.67277584	Unequal	-1.4513	16.7	0.1652
M	10	63.91000000	4.93793704	1.56151280	Equal	-1.4526	17.0	0.1645

For H0: Variances are equal, F' = 1.03 DF = (8,9) Prob>F' = 0.9527

Variable: WEIGHT

SEX	N	Mean	Std Dev	Std Error	Variances	T	DF	Prob>|T|
F	9	90.11111111	19.38391372	6.46130457	Unequal	-1.9493	17.0	0.0680
M	10	108.95000000	22.72718636	7.18696737	Equal	-1.9322	17.0	0.0702

For H0: Variances are equal, F' = 1.37 DF = (9,8) Prob>F' = 0.6645

PROC TTEST: DATASET CLMVOK with some correctly-coded, incomplete records 458
12:01 Tuesday, June 29, 1999

TTEST PROCEDURE

Variable: AGE

SEX	N	Mean	Std Dev	Std Error	Variances	T	DF	Prob>|T|
F	7	13.14285714	1.34518542	0.50843230	Unequal	-0.1879	11.9	0.8542
M	7	13.28571429	1.49602648	0.56544486	Equal	-0.1879	12.0	0.8541

For H0: Variances are equal, F' = 1.24 DF = (6,6) Prob>F' = 0.8029

Variable: HEIGHT

SEX	N	Mean	Std Dev	Std Error	Variances	T	DF	Prob>|T|
F	6	59.70000000	5.09156165	2.07862134	Unequal	-1.3434	9.9	0.2092
M	6	63.88333333	5.67993545	2.31882394	Equal	-1.3434	10.0	0.2088

For H0: Variances are equal, F' = 1.24 DF = (5,5) Prob>F' = 0.8162

Variable: WEIGHT

SEX	N	Mean	Std Dev	Std Error	Variances	T	DF	Prob>|T|
F	6	88.6666667	21.64409080	8.83616307	Unequal	-1.1756	9.8	0.2676
M	6	102.4166667	18.77076628	7.66313324	Equal	-1.1756	10.0	0.2670

For H0: Variances are equal, F' = 1.33 DF = (5,5) Prob>F' = 0.7622

PROC UNIVARIATE: DATASET CLOK with complete records only 459
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Univariate Procedure

Variable=AGE

Moments				Quantiles(Def=5)			
N	19	Sum Wgts	19	100% Max	16	99%	16
Mean	13.31579	Sum	253	75% Q3	15	95%	16
Std Dev	1.492672	Variance	2.22807	50% Med	13	90%	15
Skewness	0.063612	Kurtosis	-1.11093	25% Q1	12	10%	11
USS	3409	CSS	40.10526	0% Min	11	5%	11
CV	11.20979	Std Mean	0.342442			1%	11
T:Mean=0	38.88475	Pr>|T|	0.0001	Range	5		
Num ^= 0	19	Num > 0	19	Q3-Q1	3		
M(Sign)	9.5	Pr>=|M|	0.0001	Mode	12		
Sgn Rank	95	Pr>=|S|	0.0001				

Extremes

Lowest	Obs	Highest	Obs
11(	18)	15(	5)
11(	6)	15(	9)
12(	16)	15(	17)
12(	14)	15(	19)
12(	12)	16(	15)

PROC UNIVARIATE: DATASET CLOK with complete records only 460
12:01 Tuesday, June 29, 1999

Univariate Procedure

Variable=HEIGHT

Moments				Quantiles(Def=5)			
N	19	Sum Wgts	19	100% Max	72	99%	72
Mean	62.33684	Sum	1184.4	75% Q3	66.5	95%	72
Std Dev	5.127075	Variance	26.2869	50% Med	62.8	90%	69

Skewness	-0.25967	Kurtosis	-0.13897	25% Q1	57.5	10%	56.3
USS	74304.92	CSS	473.1642	0% Min	51.3	5%	51.3
CV	8.224791	Std Mean	1.176232			1%	51.3
T:Mean=0	52.99708	Pr>|T|	0.0001	Range	20.7		
Num ^= 0	19	Num > 0	19	Q3-Q1	9		
M(Sign)	9.5	Pr>=|M|	0.0001	Mode	62.5		
Sgn Rank	95	Pr>=|S|	0.0001				

Extremes

Lowest	Obs	Highest	Obs
51.3(	6)	66.5(	9)
56.3(	8)	66.5(	19)
56.5(	1)	67(	17)
57.3(	12)	69(	10)
57.5(	18)	72(	15)

PROC UNIVARIATE: DATASET CLOK with complete records only 461
12:01 Tuesday, June 29, 1999

Univariate Procedure

Variable=WEIGHT

Moments				Quantiles(Def=5)			
N	19	Sum Wgts	19	100% Max	150	99%	150
Mean	100.0263	Sum	1900.5	75% Q3	112.5	95%	150
Std Dev	22.77393	Variance	518.652	50% Med	99.5	90%	133
Skewness	0.183351	Kurtosis	0.683365	25% Q1	84	10%	77
USS	199435.8	CSS	9335.737	0% Min	50.5	5%	50.5
CV	22.76794	Std Mean	5.224699			1%	50.5
T:Mean=0	19.1449	Pr>|T|	0.0001	Range	99.5		
Num ^= 0	19	Num > 0	19	Q3-Q1	28.5		
M(Sign)	9.5	Pr>=|M|	0.0001	Mode	84		
Sgn Rank	95	Pr>=|S|	0.0001				

Extremes

Lowest	Obs	Highest	Obs
50.5(	6)	112.5(	5)
77(	8)	112.5(	10)
83(	12)	128(	16)
84(	13)	133(	17)
84(	1)	150(	15)

PROC UNIVARIATE: DATASET CLVMISC with some wrongly-coded, incomplete records 462
12:01 Tuesday, June 29, 1999

Univariate Procedure

Variable=AGE

Moments				Quantiles(Def=5)			
N	16	Sum Wgts	16	100% Max	999	99%	999
Mean	77.59375	Sum	1241.5	75% Q3	14.5	95%	999
Std Dev	245.9598	Variance	60496.24	50% Med	13.5	90%	57.5
Skewness	3.986351	Kurtosis	15.92027	25% Q1	12	10%	12
USS	1003776	CSS	907443.6	0% Min	11	5%	11
CV	316.9841	Std Mean	61.48996			1%	11
T:Mean=0	1.261893	Pr>|T|	0.2263	Range	988		
Num ^= 0	16	Num > 0	16	Q3-Q1	2.5		
M(Sign)	8	Pr>=|M|	0.0001	Mode	12		
Sgn Rank	68	Pr>=|S|	0.0001				

Extremes

Lowest	Obs	Highest	Obs
11(	7)	14(	10)
12(	16)	15(	6)

12(13) 16(15)
 12(11) 57.5(1)
 12(5) 999(14)

PROC UNIVARIATE: DATASET CLVMISC with some wrongly-coded, incomplete records 463
 12:01 Tuesday, June 29, 1999

Univariate Procedure

Variable=HEIGHT

Moments				Quantiles(Def=5)			
N	16	Sum Wgts	16	100% Max	999	99%	999
Mean	177.4688	Sum	2839.5	75% Q3	70.5	95%	999
Std Dev	321.0079	Variance	103046.1	50% Med	62.65	90%	999
Skewness	2.499447	Kurtosis	4.866951	25% Q1	58.15	10%	51.3
USS	2049614	CSS	1545691	0% Min	15	5%	15
CV	180.8814	Std Mean	80.25198			1%	15
T:Mean=0	2.211394	Pr>|T|	0.0430	Range	984		
Num ^= 0	16	Num > 0	16	Q3-Q1	12.35		
M(Sign)	8	Pr>=|M|	0.0001	Mode	62.5		
Sgn Rank	68	Pr>=|S|	0.0001				

Extremes

Lowest	Obs	Highest	Obs
15(	14)	69(	9)
51.3(	7)	72(	15)
56.5(	2)	85(	1)
57.3(	11)	999(	8)
59(	13)	999(	16)

PROC UNIVARIATE: DATASET CLVMISC with some wrongly-coded, incomplete records 464
 12:01 Tuesday, June 29, 1999

Univariate Procedure

Variable=WEIGHT

Moments				Quantiles(Def=5)			
N	14	Sum Wgts	14	100% Max	999	99%	999
Mean	219.8571	Sum	3078	75% Q3	112.5	95%	999
Std Dev	330.5269	Variance	109248.1	50% Med	98.75	90%	999
Skewness	2.282013	Kurtosis	3.755658	25% Q1	84	10%	66.5
USS	2096945	CSS	1420225	0% Min	50.5	5%	50.5
CV	150.3371	Std Mean	88.33704			1%	50.5
T:Mean=0	2.488844	Pr>|T|	0.0272	Range	948.5		
Num ^= 0	14	Num > 0	14	Q3-Q1	28.5		
M(Sign)	7	Pr>=|M|	0.0001	Mode	84		
Sgn Rank	52.5	Pr>=|S|	0.0001				

Extremes

Lowest	Obs	Highest	Obs
50.5(	7)	102.5(	10)
66.5(	14)	112.5(	6)
83(	11)	112.5(	9)
84(	12)	999(	8)
84(	2)	999(	15)

Missing Value .
 Count 2
 % Count/Nobs 12.50

PROC UNIVARIATE: DATASET CLMVOK with some correctly-coded, incomplete records 465
 12:01 Tuesday, June 29, 1999

Univariate Procedure

Variable=AGE

Moments				Quantiles(Def=5)			
N	16	Sum Wgts	16	100% Max	16	99%	16
Mean	13.4375	Sum	215	75% Q3	14.5	95%	16
Std Dev	1.41274	Variance	1.995833	50% Med	13.5	90%	15
Skewness	0.063966	Kurtosis	-0.86012	25% Q1	12	10%	12
USS	2919	CSS	29.9375	0% Min	11	5%	11
CV	10.51341	Std Mean	0.353185			1%	11
T:Mean=0	38.04664	Pr>|T|	0.0001	Range	5		
Num ^= 0	16	Num > 0	16	Q3-Q1	2.5		
M(Sign)	8	Pr>=|M|	0.0001	Mode	12		
Sgn Rank	68	Pr>=|S|	0.0001				

Extremes

Lowest	Obs	Highest	Obs
11(	10)	14(	13)
12(	18)	15(	2)
12(	16)	15(	4)
12(	14)	15(	9)
12(	8)	16(	17)

Missing Value .
 Count 3
 % Count/Nobs 15.79

PROC UNIVARIATE: DATASET CLMVOK with some correctly-coded, incomplete records 466
 12:01 Tuesday, June 29, 1999

Univariate Procedure

Variable=HEIGHT

Moments				Quantiles(Def=5)			
N	15	Sum Wgts	15	100% Max	72	99%	72
Mean	62.13333	Sum	932	75% Q3	66.5	95%	72
Std Dev	5.374765	Variance	28.8881	50% Med	62.5	90%	69
Skewness	-0.11704	Kurtosis	-0.02355	25% Q1	57.5	10%	56.5
USS	58312.7	CSS	404.4333	0% Min	51.3	5%	51.3
CV	8.650372	Std Mean	1.387758			1%	51.3
T:Mean=0	44.77245	Pr>|T|	0.0001	Range	20.7		
Num ^= 0	15	Num > 0	15	Q3-Q1	9		
M(Sign)	7.5	Pr>=|M|	0.0001	Mode	62.5		
Sgn Rank	60	Pr>=|S|	0.0001				

Extremes

Lowest	Obs	Highest	Obs
51.3(	10)	65.3(	6)
56.5(	5)	66.5(	2)
57.3(	14)	66.5(	4)
57.5(	3)	69(	12)
59(	16)	72(	17)

Missing Value .
 Count 4
 % Count/Nobs 21.05

PROC UNIVARIATE: DATASET CLMVOK with some correctly-coded, incomplete records 467
 12:01 Tuesday, June 29, 1999

Univariate Procedure

Variable=WEIGHT

Moments				Quantiles (Def=5)			
N	15	Sum Wgts	15	100% Max	133	99%	133
Mean	97.03333	Sum	1455.5	75% Q3	112	95%	133
Std Dev	19.4399	Variance	377.9095	50% Med	99.5	90%	112.5
Skewness	-0.56867	Kurtosis	1.402206	25% Q1	84	10%	83
USS	146522.8	CSS	5290.733	0% Min	50.5	5%	50.5
CV	20.03424	Std Mean	5.019359			1%	50.5
T:Mean=0	19.33182	Pr>|T|	0.0001	Range	82.5		
Num ^= 0	15	Num > 0	15	Q3-Q1	28		
M(Sign)	7.5	Pr>=|M|	0.0001	Mode	84		
Sgn Rank	60	Pr>=|S|	0.0001				

Extremes

Lowest	Obs	Highest	Obs
50.5(	10)	112(	2)
83(	14)	112(	4)
84(	15)	112.5(	9)
84(	5)	112.5(	12)
84.5(	8)	133(	19)

Missing Value .
Count 4
% Count/Nobs 21.05