OMSI 2

Praktikum #2

Aufgabe 2 - Einstieg in GPSS

- Gegebenes GPSS-Programm verstehen
- Simulation mit GPSS-IDE durchführen
- Ergebnisse auswerten
- Informales Wort-Bild-Modell ableiten
- Präsentation in nächster PR-Veranstaltung (inkl. GPSS-Programm zeilenweise erklären und Ergebnisse interpretieren)
- Zeit: 1 Woche

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- Zeit: 1 Woche

- Keine elektronische Abgabe
- Erscheinen ist Pflicht
- Bearbeitung in 2er-Gruppen

Aufgabe 2 - Einstieg in GPSS

```
; GPSS World Sample File - MANUFACT.GPS, by Gerard F. Cummings
************************************************************************
*            Manufacturing Company                                     *
************************************************************************
*      Time Unit is one hour                                           *
Sizeorder FUNCTION   RN1,D7                  ;Order size
.10,6/.35,12/.65,18/.80,24/.92,30/.97,36/1.0,48
Transit   TABLE      M1,.015,.015,20         ;Transit time
Number    TABLE      X1,100,100,20           ;No. packed each day
Ptime     VARIABLE   .0028#P1+0.0334         ;Packing time
Amount    EQU        1000                    ;Initial stock amount
Stock     STORAGE    4000                    ;Warehouse holds
                                             ;  4000 units
************************************************************************
          GENERATE   (Exponential(1,0,0.25)) ;Order arrives
          ASSIGN     1,1,Sizeorder           ;P1=order size
          TEST GE    S$Stock,P1,Stockout     ;Is stock sufficient?
          LEAVE      Stock,P1                ;Remove P1 from stock
          QUEUE      Packing
          SEIZE      Machine                 ;Get a machine
          DEPART     Packing
          ADVANCE    V$Ptime                 ;Packing time
          RELEASE    Machine                 ;Free the machine
          SAVEVALUE  1+,P1                   ;Accumulate no. packed
          TABULATE   Transit                 ;Record transit time
          TERMINATE
Stockout  TERMINATE
************************************************************************
          GENERATE   0.75,0.08334,1          ;Xact every 40+/-5 mins
          ENTER      Stock,60                ;Make 60, Stock
*                                               increased by 60
Stockad   TERMINATE
************************************************************************
          GENERATE   8                       ;Xact every day
          TABULATE   Number
          SAVEVALUE  1,0
          TERMINATE  1
************************************************************************
          GENERATE   ,,,1,10                 ;Initial stock xact
          ENTER      Stock,Amount            ;Set initial stock
          TERMINATE
************************************************************************
```

```
; GPSS World Sample File - QCONTROL.GPS, by Gerard F. Cummings
************************************************************************
*                                                                      *
*          Quality Control Program                                     *
*          Time units are in minutes                                   *
************************************************************************
          RMULT        93211
*  Definitions
Transit   TABLE        M1,100,100,20         ;Transit Time
Process   FUNCTION     RN1,D7
0,0/.05,10/.18,14/.34,21/.56,32/.85,38/1.0,45
************************************************************************
          GENERATE     (Exponential(1,0,30))
          ASSIGN       1,FN$Process          ;Process time in P1
Stage1    SEIZE        Machine1
          ADVANCE      P1                    ;Process 1
          RELEASE      Machine1
          ADVANCE      2                     ;Inspection
          TRANSFER     .200,,Rework1         ;20% Need rework
************************************************************************
Stage2    SEIZE        Machine2
          ADVANCE      15,6                  ;Process 2
          RELEASE      Machine2
          ADVANCE      2                     ;Inspection
          TRANSFER     .150,,Rework2         ;15% Need rework
************************************************************************
Stage3    SEIZE        Machine3
          ADVANCE      (Normal(1,24,4))      ;Process 3
          RELEASE      Machine3
          ADVANCE      2                     ;Inspection 3
          TRANSFER     .050,,Rework3         ;5% need rework
          TABULATE     Transit               ;Record transit time
          TERMINATE    1
************************************************************************
Rework1   TRANSFER     .400,,Stage1
          TERMINATE
Rework2   TRANSFER     .400,,Stage2
          TERMINATE
Rework3   TRANSFER     .400,,Stage3
          TERMINATE
```

Aufgabe 2 - Einstieg in GPSS

Verteilungsfunktionen müssen nicht erklärt werden

```
; GPSS World Sample File - MANUFACT.GPS, by Gerard F. Cu
*******************************************************
*             Manufacturing Company
*********************************************************************
*      Time Unit is one hour                                        *
Sizeorder FUNCTION   RN1,D7                  ;Order size
.10,6/.35,12/.65,18/.80,24/.92,30/.97,36/1.0,48
Transit   TABLE      M1,.015,.015,20         ;Transit time
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          GENERATE   (Exponential(1,0,0.25)) ;Order arrives
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          LEAVE      Stock,P1                ;Remove P1 from stock
          QUEUE      Packing
          SEIZE      Machine                 ;Get a machine
          DEPART     Packing
          ADVANCE    V$Ptime                 ;Packing time
          RELEASE    Machine                 ;Free the machine
          SAVEVALUE  1+,P1                   ;Accumulate no. packed
          TABULATE   Transit                 ;Record transit time
          TERMINATE
Stockout  TERMINATE
*********************************************************************
          GENERATE   0.75,0.08334,1          ;Xact every 40+/-5 mins
          ENTER      Stock,60                ;Make 60, Stock
*                                                increased by 60
Stockad   TERMINATE
*********************************************************************
          GENERATE   8                       ;Xact every day
          TABULATE   Number
          SAVEVALUE  1,0
          TERMINATE  1
*********************************************************************
          GENERATE   ,,,1,10                 ;Initial stock xact
          ENTER      Stock,Amount            ;Set initial stock
          TERMINATE
*********************************************************************
```

```
                                   QCONTROL.GPS, by Gerard F. Cummings
                                   ************************************
                                                                     *
*           Quality Control Program                                 *
*           Time units are in minutes                               *
*********************************************************************
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*  Definitions
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Process     FUNCTION     RN1,D7
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            TRANSFER     .200,,Rework1        ;20% Need rework
*********************************************************************
Stage2      SEIZE        Machine2
            ADVANCE      15,6                 ;Process 2
            RELEASE      Machine2
            ADVANCE      2                    ;Inspection
            TRANSFER     .150,,Rework2        ;15% Need rework
*********************************************************************
Stage3      SEIZE        Machine3
            ADVANCE      (Normal(1,24,4))     ;Process 3
            RELEASE      Machine3
            ADVANCE      2                    ;Inspection 3
            TRANSFER     .050,,Rework3        ;5% need rework
            TABULATE     Transit              ;Record transit time
            TERMINATE    1
*********************************************************************
Rework1     TRANSFER     .400,,Stage1
            TERMINATE
Rework2     TRANSFER     .400,,Stage2
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            ADVANCE      15,6                 ;Process 2
            RELEASE      Machine2
            ADVANCE      2                    ;Inspection
            TRANSFER     .150,,Rework2        ;15% Need rework
*******************************************************************
Stage3      SEIZE        Machine3
            ADVANCE      (Normal(1,24,4))     ;Process 3
            RELEASE      Machine3
            ADVANCE      2                    ;Inspection 3
            TRANSFER     .050,,Rework3        ;5% need rework
            TABULATE     Transit              ;Record transit time
                                   ********************************
                                   age1
                                   age2
Rework3     TRANSFER     .400,,Stage3
            TERMINATE
```
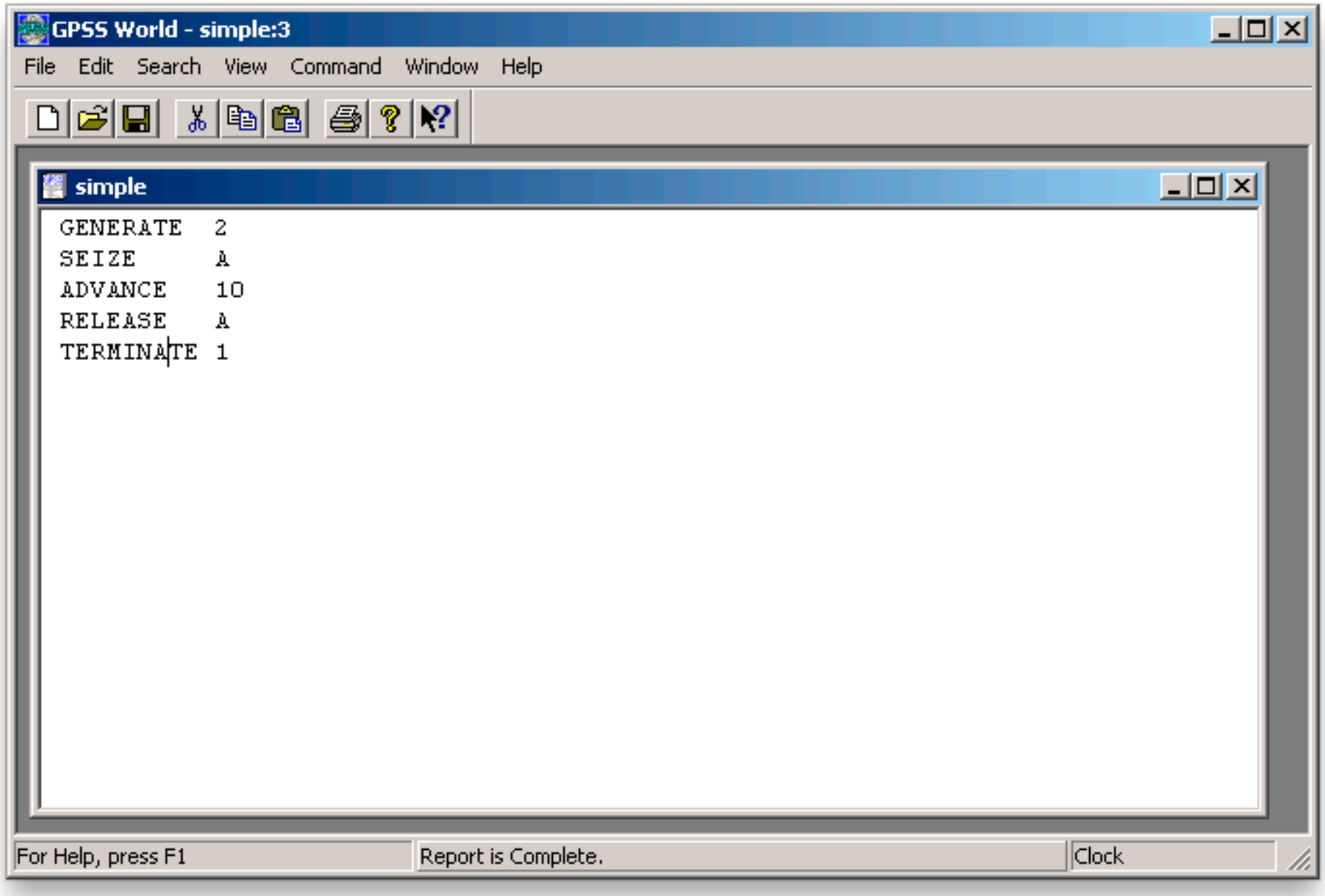

Weitere Informationen auf Praktikumsseite

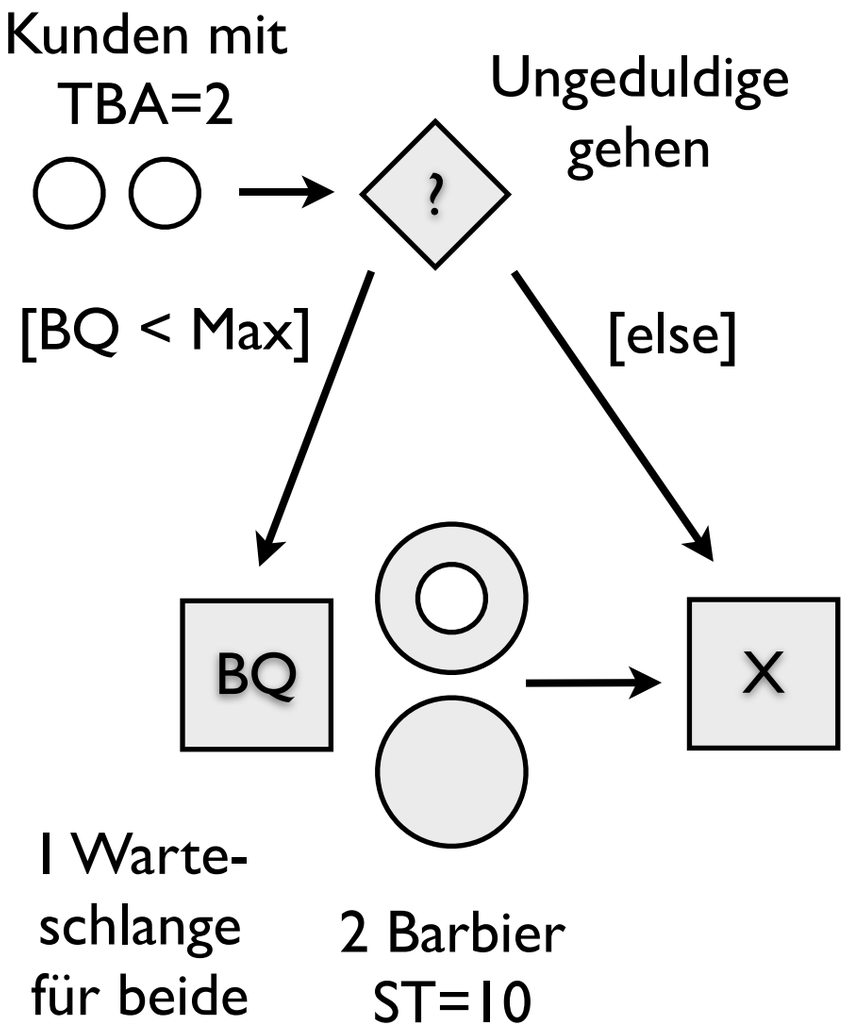
GPSS-Entwicklungsumgebung



Beispiel: Two-Equal-Barbers

Beispiel: Two-Equal-Barbers

Wort-Bild-Modell



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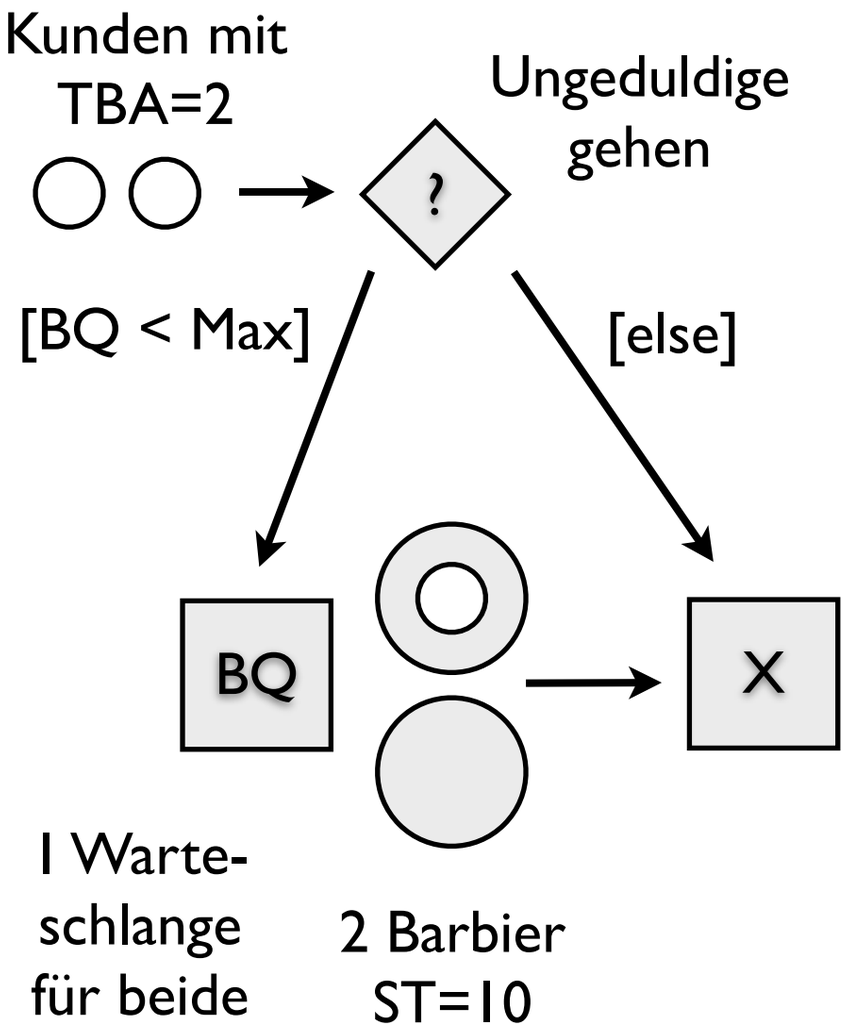
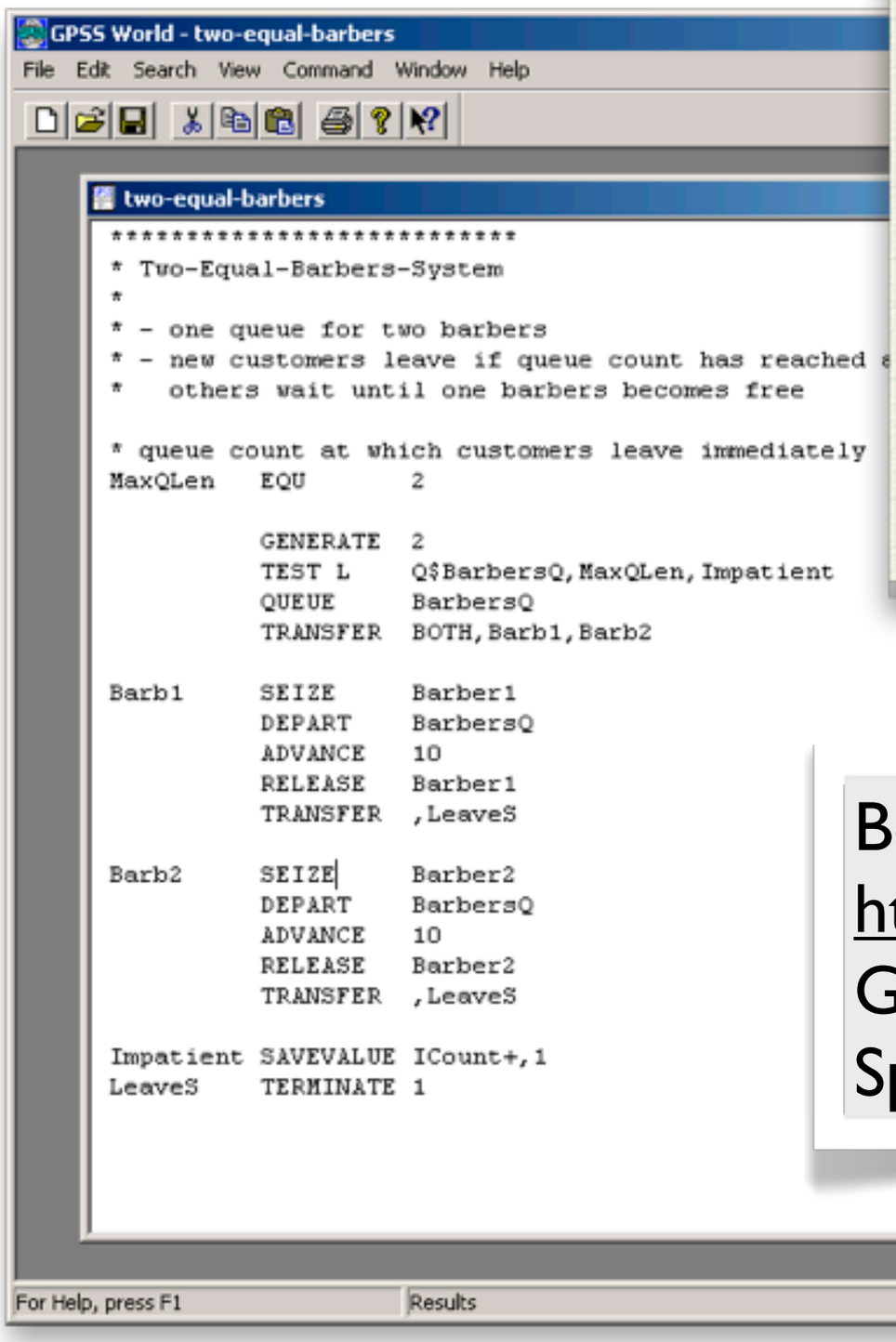
Wort-Bild-Modell

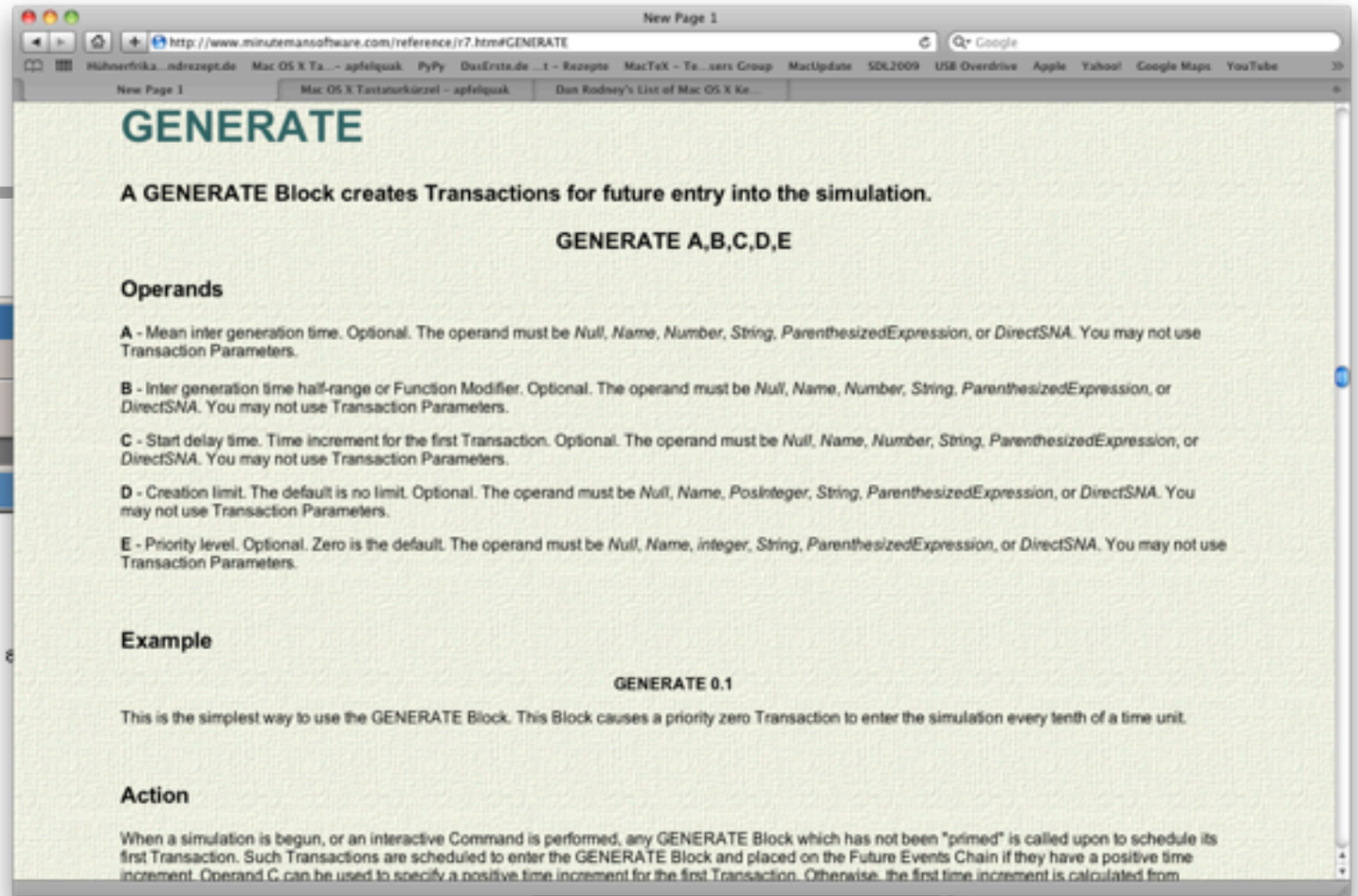


GPSS-Programm

```
[Label]      Block/        Op, Params
             Command

MaxQLen      EQU           2

             GENERATE      2
             TEST L        Q$BarbersQ,MaxQLen,Impatient
             QUEUE         BarbersQ
             TRANSFER      BOTH,Barb1,Barb2

Barb1        SEIZE         Barber1
             DEPART        BarbersQ
             ADVANCE       10
             RELEASE       Barber1
             TRANSFER      ,LeaveS

Barb2        SEIZE         Barber2
             DEPART        BarbersQ
             ADVANCE       10
             RELEASE       Barber2
             TRANSFER      ,LeaveS

Impatient    SAVEVALUE     ICount+,1
LeaveS       TERMINATE     1
```

GPSS





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GPSS

http://www.minutemansoftware.com/tutorial/tutorial_manual.htm

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