

APPENDIX 4. MICROANALYTIC MODEL AGENDA SPECIFICATION

The order in which the object modules of a microanalytic model are invoked is determined by the *agenda* for that model. The agenda specifies the scheduling points at which models are invoked and the order in which they are invoked at those points. Often the computational sequence used to advance the model one period in simulated time requires multiple passes, or iterations, through the subpopulation. The micromodel agenda is then divided into several sub-agendas, one for each pass through the micropopulation.

This appendix contains an example of one micro sub-agenda -- for pass 2 of the Urban Institute model. The micro agenda for pass 2 is contained in Fortran program MAG2 (Micro AGenda for pass 2). Agendas for other passes contain the pass number in the program name. Each micro agenda contains 11 scheduling points at which operating characteristics may be invoked. These control points are described in the chapter on implementation of microanalytic models and in the comment lines of the following program. All program statements through the first executable statement are common to all micro agendas. The variables in the COMMON blocks are global to the MASH system and are used to specify names and addresses of current entities. With embedded comments, MAG2 is largely self explanatory.

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MAG2  FORTRAN SOURCE PROGRAM

C      The 'MAGn' programs are MASH subprograms for passes of
C      MASH over its micro population.  Each simulation pass is
C      controlled by a micro agenda contained in one of these
C      subprograms.  'MAG1' contains the agenda for pass 1,
C      'MAG2' the agenda for pass 2, and 'MAG3' contains the
C      agenda for pass 3.  Since separate passes are not in
C      main memory at the same time during execution of a
C      program, communication between passes must be largely
C      through external system files.
C
C      'MAGn' is called by 'AGENDA', which is in turn called
C      by 'MICSIM'.  It has two arguments which are passed in
C      a labelled COMMON block, the first of which is an integer
C      indicating the part of the simulation cycle it was called
C      from.  The second argument is a logical variable which is
C      set to FALSE immediately within 'MAGn' and is set to true
C      only when the current person or family being processed is
C      eliminated.  This allows MICSIM to adjust its person or
C      family count in such a way that each entity is processed
C      only once.
C
C      'MAGn' is called from various places in MICSIM.
C      Below is a list of the value of the first 'MAGn'
C      argument and its meaning.
C
C      Value          Meaning
C
C      1              The simulation has just begun.  The simulation
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C year has not yet been advanced, and the calendar
C year is still identical to the initial year for
C the population. All initialization for the
C entire simulation should be done here.
C
C 2 A new year of simulation is about to begin.
C The simulation year and the calendar year have
C just been incremented. All initialization for
C the year should be done here.
C
C 3 The pass numbered 'PS' over the micropopulation
C is about to begin. All initialization for this
C pass should be performed here.
C
C 4 A new interview unit has just been pointed to,
C and its name is IN and its address is IA.
C It has NF families contained within it. All
C interview unit preprocessing should be done here.
C
C 5 A new family has just been pointed to, and its
C name is FN and its address is FA. It has
C NP persons contained within it. It is the
C IB'th family within interview unit IN. All
C family preprocessing should be performed here.
C
C 6 A new person has just been pointed to for applying
C operating characteristics. Its name is PN and
C its address is PA. It is the IC'th person
C within family FN. All person processing should
C be performed here.
C
C 7 All persons in family FN living at address
C FA have now been processed. Post-processing
C for this family should occur here.
C
C 8 All families in interview unit IN living at
C address IA have now been processed. Post-
C processing for this interview unit should be
C performed here.
C
C 9 All interview units have been processed during
C this pass, pass PS. Post-processing for
C this pass should occur here.
C
C 10 All passes for this simulated year have been
C completed. This is the IY'th simulated year,
C which corresponds to calendar year CY.
C
C 11 The micro (and macro, if requested) simulation
C has been executed for the number of years
C specified and a TERMINATE SIMULATION command
C has been entered. All post-simulation processing
C should be done at this time.

C George Sadowsky; April 19, 1972.
C
C -----
C

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SUBROUTINE  MAG2

C
IMPLICIT INTEGER (A-W)
IMPLICIT REAL   (X-Z)

C
C           The following variables are used in MICSIM to
C           control the simulation sequence:
C
C           IN      Current INTUNIT name
C           FN      Current FAMILY name
C           PN      Current PERSON name
C
C           IA      Current INTUNIT's address (same as name)
C           FA      Current FAMILY's address
C           PA      Current PERSON's address
C
C           IB      Index sequencing through families in intunit
C           IC      Index sequencing through persons in family
C
C           NF      Number of families within intunit
C           NP      Number of persons within family
C
C           PS      Simulation pass number within year (0,1,2,3)
C                   (Pass 0 is population initialization)
C
C           IY      Simulated year, starting with year 0 as
C                   initial population (1, 2, ...)
C
C           NY      Number of time periods (years) that the
C                   simulation is to proceed
C
C           The names and addresses of the current entities
C           on each level are equivalenced to the simulation
C           pointer array in COMMON block /SIMULP/.
C
COMMON /SIMULP/  SPOINT(3), SPOPID
EQUIVALENCE (IN, SPOINT(1))
EQUIVALENCE (FN, SPOINT(2))
EQUIVALENCE (PN, SPOINT(3))

C
COMMON          /SIMCON/  AD(3), NY,IY,BY,CY, PS, IB, IC, NF, NP
EQUIVALENCE (IA, AD(1)),
1           (FA, AD(2)),
2           (PA, AD(3))

C
COMMON /PROTO1/  BUFFER(81), INSTR(16), OUTSTR(16),
1              QMARK, NFEEDS

C
COMMON /TYPEME/  TYPEON
LOGICAL          TYPEON

C
COMMON /SIMFLW/  STEP, EE

C
C -----
C
C           Initially, set EE to false.
C           EE will be set to true in demographic

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C          subroutines if the operating characteristic
C          results in the dissolution of the entity.
C
C          EE = .FALSE.
C          GO TO (1000, 2000, 3000, 4000, 5000, 6000, 7000,
C          1      8000, 9000, 10000, 11000), STEP
C
C          =====
C          =====
C
C          1      The simulation has just begun.  The simulation
C          year has not yet been advanced, and the calendar
C          year is still identical to the initial year for
C          the population.  All initialization for the
C          entire simulation should be done here.
C
C          1000  CONTINUE
C          CALL SCHOOL (1)
C          CALL MOBILE (1)
C          CALL WELTH2 (1)
C          CALL LABOR1 (1)
C          RETURN
C          =====
C          =====
C
C          2      A new year of simulation is about to begin.
C          The simulation year and the calendar year have
C          just been incremented.  All initialization for
C          the year should be done here.
C
C          2000  CONTINUE
C          CALL LABOR1 (2)
C          RETURN
C          =====
C          =====
C
C          3      The pass numbered 'PS' over the micropopulation
C          is about to begin.  All initialization for this
C          pass should be performed here.
C
C          3000  CONTINUE
C          CALL SCHOOL (3)
C          CALL MOBILE (3)
C          CALL WELTH2 (3)
C          RETURN
C          =====
C          =====
C
C          4      A new interview unit has just been pointed to,
C          and its name is IN and its address is IA.
C          It has NF families contained within it.  All
C          interview unit preprocessing should be done here.
C
C          4000  CONTINUE
C          CALL MOBILE (4)
C          RETURN
C          =====
C          =====

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C
C      5      A new family has just been pointed to, and its
C              name is FN and its address is FA.  It has
C              NP persons contained within it.  It is the
C              IB'th family within interview unit IN.  All
C              family preprocessing should be performed here.
C
5000  CONTINUE
      CALL LABOR1 (5)
      RETURN
C      =====
C      =====
C
C      6      A new person has just been pointed to for applying
C              operating characteristics.  Its name is PN and
C              its address is PA.  It is the IC'th person
C              within family FN.  All person processing should
C              be performed here.
C
6000  CONTINUE
      CALL SCHOOL (6)
      CALL LABOR1 (6)
      RETURN
C      =====
C      =====
C
C      7      All persons in family FN living at address
C              FA have now been processed.  Post-processing
C              for this family should occur here.
C
7000  CONTINUE
      CALL WELTH2 (7)
      RETURN
C      =====
C      =====
C
C      8      All families in interview unit IN living at
C              address IA have now been processed.  Post-
C              processing for this interview unit should be
C              performed here.
C
8000  CONTINUE
      CALL MOBILE (8)
      RETURN
C      =====
C      =====
C
C      9      All interview units have been processed during
C              this pass, pass PS.  Post-processing for
C              this pass should occur here.
C
9000  CONTINUE
      CALL LABOR1 (9)
      CALL WELTH2 (9)
      RETURN
C      =====
C      =====
C

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C      10      All passes for this simulated year have been
C              completed.  This is the IY'th simulated year,
C              which corresponds to calendar year CY.
C
10000 CONTINUE
      CALL SCHOOL (10)
      CALL MOBILE (10)
      CALL LABOR1 (10)
      RETURN
C      =====
C      =====
C
C      11      The micro (and macro, if requested) simulation
C              has been executed for the number of years
C              specified and a TERMINATE SIMULATION command
C              has been entered.  All post-simulation processing
C              should be done at this time.
C
11000 CONTINUE
      CALL SCHOOL (11)
      CALL MOBILE (11)
      RETURN
C      =====
C      END
```