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Melody Plus Rhythm Drill: A Computerized Melodic Dictation Drill Program

Pamela Ann Covert

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MELODY PLUS RHYTHM DRILL: A COMPUTERIZED
MELODIC DICTATION DRILL PROGRAM

by

Pamela Ann Covert

A Thesis
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Master of Music
Department of Music

Western Michigan University
Kalamazoo, Michigan
December 1983

MELODY PLUS RHYTHM DRILL: A COMPUTERIZED
MELODIC DICTATION DRILL PROGRAM

Pamela Ann Covert, M.M.

Western Michigan University, 1983

The Melody Plus Rhythm Drill is a melodic dictation drill program written for the Apple II microcomputer. It is designed to be used in conjunction with college-level aural comprehension courses. This program is unique in that students must enter both pitch names and rhythm values for all melody notes.

Included in this paper are a discussion on the pedagogical aspects of this type of drill, a user's manual for the program, a breakdown of the actual program into its component subroutines, and a complete listing of the program.

ACKNOWLEDGEMENTS

I would like to thank Dr. James McCarthy for his invaluable assistance and Dr. Joan Boucher and Dr. Donald Para for serving on my committee.

I would also like to thank my husband, Arthur, for his patience and for the encouragement he has given me through the long months of programming.

Pamela Ann Covert, M.M.

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WESTERN MICHIGAN UNIVERSITY

M.M. 1983

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CHAPTER I

INTRODUCTION AND PURPOSE

The basic ideas used in computer-assisted instruction began to be formalized, according to B. F. Skinner, when Sidney Pressey first introduced teaching machines in the 1920's at Ohio State University. At first, these devices were nothing more than mechanized test-givers on which students simply pressed buttons in response to multiple choice questions.

Others, most notably B. F. Skinner, further refined the teaching machine. Skinner felt that they could teach more quickly and effectively than teachers in traditional classrooms. He also saw the potential for machines to shape behavior. His famous experiments in shaping animal behavior utilized basic teaching machines which simply rewarded a desired response. If teaching machines could teach pigeons to peck at a particular color surely the machines could be of some use in teaching human students.

Skinner worked on several machines for teaching students. One of these was a rhythm teaching device. When students tapped out a rhythm on the machine, a light came on to reinforce a correct tap, and a correct sequence of taps was rewarded with the ringing of a bell.

Once computers became available the relatively crude teaching machines became obsolete. A computer used for instruction is, of course, a teaching machine, and it is not surprising that the principles developed for programmed learning also applied to computer-assisted instruction (CAI).

One of the most important of these concepts was the belief that students should not be "taught," rather, they should "discover" a hypothesis

for themselves. Some of the other educational concepts carried over from teaching machines included allowing students to move at their own pace, giving immediate feedback on responses, and "branching" students to a level compatible with their demonstrated capabilities.

The first computers used in education were "main-frames." (A main-frame computer consists of a large, centrally-located computer which services many terminals.) Despite their power and flexibility, their high per-student costs prevented their widespread use.

It was the advent of economical, stand-alone microcomputers which first brought CAI to many public schools. Their primary attraction to school boards was and is their affordability. Prices for microcomputers have dropped significantly in recent years and prices continue to drop as industry develops new, less expensive components and methods of production.

Microcomputers do have other advantages. They do not crash or "go down" nearly as often as main-frame computers. (A crash occurs when a failure in one part of the system causes the entire system to cease functioning. When it occurs, all users must wait until the cause is found and fixed.) Occasionally a microcomputer will fail but this is generally easier and less expensive to repair than in a main-frame computer. In any event, since each student is working with a stand-alone micro, a failure in one will not prevent other students from continuing to work.

If a large number of students is using a main-frame computer the response time (time between a student's entry and the computer's response) will lengthen considerably. Sometimes response time becomes so delayed that it causes frustration and affects student performance. Because a microcomputer interacts with only one student, response time is both fast

and consistent. Delays are entirely the programmer's fault, not that of the computer.

While microcomputers are useful in many areas of music education, currently their greatest use is as a tool for drill in aural comprehension. Until recently many aural comprehension classes were supplemented by taped exercises for students to practice. Taped drills in melodic dictation, for example, commonly imitate the type of drill done in the classroom. An announcer tells the students which exercise is to be done and then plays the exercise several times. Usually the tape will give students enough time between playings to write down their answers, although students can stop the tape if they need more time. Generally, students complete an entire exercise before checking their answers against a teacher's book or correction sheet.

Computerized drills have many advantages over taped drills. It is far easier for students to access a particular exercise on a computer than on tape. Anyone who has tried to find a particular spot on a tape either by using a tape counter or by listening for the announcement of the exercise number can attest to this.

Unlike taped drills, where students wait until they have completed an entire exercise before checking their answers, a computer can give immediate feedback on any particular student entry. The computer can tell students if they made an improper entry (something that does not match what the computer expects as an answer). If students make an incorrect entry (a wrong note, for example) they can receive hints as to the nature of their error. They may also hear their version played along with the correct version. This is the ideal kind of drill that teachers have always

wished they had time to do on an individual basis with their pupils.

Another advantage of the computer over taped drill is the ability of the computer to store data on individual and class performance. Teachers can use these data to see which students need more help, and the type of assistance required. An interval dictation drill, for example, may show that some students are confusing octaves with perfect fifths 60 percent of the time. The teacher would then know that more class time should be spent reviewing how to distinguish the two intervals. On an individual level teachers can see how much time an individual student has spent practicing a particular drill. Some teachers may wish to take this into consideration when giving grades.

From a student's view computerized drill has yet another advantage. If the computer keeps data on student performance it can branch students to different levels depending on their percentage of errors. If students are achieving a high percentage of correct answers it is not necessary to waste their time and risk losing their interest by forcing them to do exercises that are too easy. Conversely, if students are not doing well they may need to be branched back to an easier level for review. A computer can do this automatically by following any set of criteria for performance the programmer imposes.

While there are separate programs for tone row dictation and rhythmic dictation there is a need for a program which combines tonal and rhythmic dictation. These two elements of music can not and should not be divorced; although early classes in aural comprehension often practice tonal and rhythmic dictation separately for a time, the goal is always to combine these elements. Students have to be able to write down melodies as they

occur in actual music.

Melodic dictation has always been a particularly difficult skill for students to acquire. That is why beginning classes often have to practice tonal and rhythmic dictation separately. A great deal of class time is necessarily spent practicing melodic dictation since it is hard for students to practice alone. If students could practice melodic dictation on a computer teachers would have more class time to help with individual problems.

The purpose of this project is to develop a program which will simulate classroom melodic dictation by having students first enter melody notes, then rhythm values, and finally place the first barline. This structured method of entering melody and rhythm is beneficial for students because it trains them to concentrate on one element (melody or rhythm) at a time. Instead of writing haphazardly bits and pieces of what they remember, the students must memorize and organize the entire melody. Although teachers can admonish students to follow such a procedure, students do not always listen to their teachers. In this program they will quickly learn the value of memorization and structure when taking melodic dictation.

This melodic dictation program has several advantages over classroom and taped drills. First, students work at their own pace and at a level of difficulty compatible with their abilities. In addition, the program gives students much more feedback than taped drills and even classroom drill. After each entry students are told if their answer is unacceptable (due to a typing error). Students are given feedback on their answers after they have filled in all the melody notes or rhythm values. Many clues are provided

along the way to help the students. The students even hear their version of the melody followed by the correct melody if they make a mistake.

This drill should be an effective teaching aid. It should allow teachers to spend less class time drilling, and should help students pinpoint and try to correct their individual weaknesses.

Limitations

The main limitation encountered in writing this program was the use of a prepackaged program as a basis. The Music Experimenter's Package (MEP) provides routines for displaying and playing music on the Apple II+ microcomputer. Without the MEP program it would have been extremely difficult for this novice programmer to write a melodic dictation drill program.

The MEP program does have limitations of its own which affected the Melody Plus Rhythm Drill. 1) The MEP program cannot notate or play triplets. 2) No routine is provided to use key signatures. 3) Accidentals must be entered each time they occur. 4) Numbers are assigned to each octave. Notes must be entered with the appropriate octave number. The programmer added the octave numbers to the right of the staff to aid students while they are entering notes. 5) Successive identical notes are difficult to distinguish aurally as separate notes.

These limitations are not particularly serious but they do complicate the methods of pitch and rhythm entry. At Western Michigan University students were introduced to this notation system in a tonal dictation program already in use when this melodic dictation program was written.

For the sake of standardization this notation system was left unchanged.

Another major limiting factor was the amount of RAM (random access memory) space a program may occupy in the computer's memory. In its current form the Melody Plus Rhythm Drill is so long that it cannot be expanded further without major revision. Due to this lack of space several subroutines had to be left out of the program. These included a subroutine to use rests in the exercises and a subroutine to allow students to chose whether to do melody or rhythm first.

CHAPTER II

PEDAGOGICAL PRINCIPLES OF MELODIC DICTATION

In order to write an effective melodic dictation program it was necessary to analyze the various methods used to practice melodic dictation. Assessing the strengths and weaknesses of these methods provided valuable insights useful in creating a new method for drill in melodic dictation.

There are five basic procedures common to most forms of dictation. They are:

- 1) Establish key
- 2) Establish tempo
- 3) Play exercise
- 4) Allow time for students to write exercise
- 5) Provide feedback and/or correction

Although the order of presentation of these procedures may vary these steps are found in all forms of melodic dictation drill as they are the essential elements of melodic dictation.

Before expecting students to write a melody from memory students need some sort of tonal and rhythmic basis from which to begin. Students should hear a scale or chord progression in the key of the exercise in order to fix the key firmly in their minds. More advanced students may be able to distinguish the tonic note ("do") just by hearing the melody but traditional practice has been to firmly establish the key before playing a melody for dictation drill.

In the same way students need to have a tempo for the exercise

established. Various methods may be used but students do need help in determining the tempo of a melody in order to assign correct rhythm values to the pitches of the melody. They may also need some clues in order to perceive the occurrence of an anacrusis. Verbal counting of beats or a particular emphasis on the anacrusis may be necessary.

Methods of playing the exercise and allowing students to write the exercise are very similar. In order to write the exercise correctly students require an accurate performance of the melody. Students also require sufficient repetitions of the melody and adequate time in which to write the exercise.

Feedback and correction are the most important factors in dictation drills. For a melodic dictation drill to be effective students must be made aware of their mistakes and learn from them.

The most common forms of melodic dictation drill are classroom, tape, and computerized. Comparing the strengths and weaknesses of these methods of drill in each of the areas previously outlined will provide further help in creating a better form of drill.

The first step in presenting a melody is to establish the key. Some advanced classes may omit this step but generally students need to have the key established, particularly when the exercises are too short to firmly establish the tonic note of the scale. In the classroom and in taped drills the key is usually played once or it may be played before each repetition of the exercise. On the computer students may hear the key as often as they wish. After the key is played the tempo must be established. In the classroom the teacher's ability affects the accuracy of the tempo preparation and the evenness of the exercise. Taped exercises are usually

more accurate in tempo since they can be re-recorded when inaccuracies occur. The computer, of course, plays the exercise in a very precise tempo, which does not vary between repetitions.

The actual playing of the exercise varies little between classroom, taped, and computerized methods of presentation except, as previously mentioned, for the highly precise tempo of the the computer presentation. It is in the number of repetitions of each exercise and the time allowed between repetitions that the methods vary. A teacher in the classroom can get a fair idea of whether students need to hear the melody again by observing the number of students writing, by glancing at the students' papers or by asking the students themselves if more repetitions of the exercise are necessary. This method works best for those pupils of average abilities since the teacher is gauging the number of repetitions by the length of time the average student needs to complete the exercise. Students who are having difficulties fall behind, become confused, and quite often end up totally frustrated while students of above-average abilities become bored and equally frustrated by the wasting of their time with needless repetitions. The same problem occurs in the time allowed between repetitions for writing. Less capable students feel rushed while more advanced students draw elaborate designs in the margins of their paper.

Taped drills are better suited to individual needs. While a good program will be paced so that the average student can finish the exercise in the time and number of repetitions allotted, for students of lesser and greater capabilities using a taped drill becomes an exercise in tape manipulation. A student who needs extra repetitions and more time to write must rewind the tape to hear the exercise again and stop the tape to allow

extra time to write. Unnecessary repetitions may be skipped by the faster student by "fastforwarding" the tape. All this tape manipulation is distracting, time consuming, and a source of frustration even for those used to working with tape machines.

A computerized drill program is even more suited to fit the needs of the individual. The student can have complete control over the number of repetitions and the length of time between repetitions. Students can also be reminded to complete the exercise in as few playings as possible either with messages to remind them or by limiting the number of repetitions.

After playing the exercise the next step is to have the students write the melody. Classroom and taped drills use similar methods where the exercise is played once or twice, then students are allowed to write. This process of playing then writing is repeated several times. Although students are encouraged to memorize the melody before writing students tend to frantically write down what they remember after each playing of the exercise. Long melodies are very difficult to complete this way.

In the computerized drill students may be required to fill in the entire exercise at one time before the exercise is corrected or the exercise can be played again. The combination of unlimited repetitions of the exercises and the necessity of completing the entire exercise at one time not only encourages but requires the students to memorize the exercise before attempting to write.

Various methods of correction are used in the forms of dictation previously described. In the classroom the method of correction varies from teacher to teacher. Some simply read off the correct notes and rhythms while others write the melody on the blackboard. Some sing the exercise

using numbers or solfège syllables. They may ask what errors were made and play the exercise with the mistakes. The amount of feedback the student receives depends on the size of the class and the methods of correction used by the teacher.

Taped drills usually provide a correction sheet with which students compare their answers after completing an exercise or even an entire unit. The disadvantage of this method is that there is no immediate feedback to the student. Although the computer and the tape recorder are both impersonal machines, the computer can provide a great deal more individual feedback. The computer drill can have various "layers" of correction. Students should be informed when a non-existent note has been entered (J-Flat for example) so that they may re-enter the note and not have typographical errors counted against them as incorrect notes. Clues may be given to the location of the first error and two versions of the melody can be played: the incorrect student version and the correct version.

One final advantage of the computer drill is that once the program itself is written an unlimited number of exercises can be created and "plugged into" the program. An endless variety of new exercises can be created and put into the computer by anyone, even the students themselves.

When all factors are considered it is obvious that the computerized drill in melodic dictation has numerous advantages over the other methods of dictation. It is certainly the next best thing to having a private tutor of unlimited patience who works incredibly cheaply.

CHAPTER III

DESCRIPTION OF MODULES

This chapter will describe in some detail the modules and routines found in the Melody Plus Rhythm Drill. The chapter is broken into major sections, one for each program in the drill. All other designations indicate modules within the program.

Title (Greeting Program)

In this short program the title of the drill program is displayed while the Music Experimenter's Package is loaded into memory (lines 120 to 390). The credits are displayed on the screen in lines 400 to 410. In lines 420 to 440 the user is asked if he or she wants a more detailed description of the program and some helpful tips. The user is then branched to either the INTRO program or the M-R DRILL (the main program).

Intro (Introductory Program)

The introduction program (INTRO) consists of a series of text screens describing the program and giving tips on how to use the drill most effectively. The user presses the "RETURN" key to move from one screen to the next and to move from the final screen to the main program.

M-R Drill (Main Program)

Preparation for the Drill

In lines 150 to 240 the user is instructed to insert the text file disk, enter the slot number of the music board, and verify the correct slot number by responding to a test sound.

Choosing the Exercise

The main loop for the drill occurs in lines 260 to 370. Here the user selects levels of difficulty for melody and rhythm then chooses an exercise number. Various GOSUBS are used to display menus for choosing melodic and rhythmic difficulty levels. After the selection of a particular unit and exercise is made the program goes to a subroutine at lines 620 to 690 which loads the text file for that exercise.

Main Loop - Melody

The main loop for the melodic section of the program occurs between lines 410 and 480. This loop evaluates the user's choice on the melody menu and branches the user to the subroutine of his or her choice. Following are detailed descriptions of these subroutines.

Establish Key

When the user wishes to have the key established the program branches to lines 950 to 1040. The exercise text file which was previously loaded contained a variable for the key name. Using this variable the program locates and loads the text file for the necessary key. The key can then be played as often as the user wishes.

Play the Exercise

Lines 1050 to 1140 contain the subroutine which plays the exercise. The exercise file is manipulated so that only the first note of the exercise is displayed. The user may play the exercise as often as necessary. Each time the exercise is played the user is informed as to how many times the exercise has been played.

Change Tempo

Tempo may be changed by the user in a subroutine occurring in lines 850 to 930. The scale used by the computer for tempo and the current tempo are displayed before the user makes a choice of a new tempo. If the time signature indicates that an eighth note gets the beat the tempo must be slowed by half because the MEP program still gives the quarter note the beat.

Enter the Melody Pitches

Lines 1150 to 1410 contain the main loop of the routine for entering pitches. The first note of the exercise is displayed along with a prompt (PITCH 1) for the first pitch entry. A loop allows the user to enter a character for pitch, accidental, and octave.

When the "RETURN" key is pressed the program goes to a subroutine in lines 1600 to 1840 which evaluates the entry to make sure it is an acceptable answer. It need not be the correct answer. This subroutine only checks to make sure the entry describes a pitch within two octaves of the correct pitch.

After the entry is evaluated for acceptability, the program returns to the main loop (line 1350) and displays the entered pitch. The program goes back to the beginning of the loop to allow the user to enter the next pitch. When the final pitch of the melody has been entered the user's version of the melody is stored in a special file.

The program then falls through to a correction routine in lines 1390 to 1590. The user's version of the exercise is compared to the correct exercise. Counters keep track of the total number of wrong notes and the first wrong note. If all the pitches are correct the user is sent to the rhythm menu. If any of the pitches are incorrect the user is shown how many pitches are incorrect and the location of the first incorrect pitch. The user's version is played followed by the correct version then the user is given the opportunity to try entering the pitches again.

Melody Help

If the user gets into the pitch entry screen then realizes he or she needs further instructions on making an entry the user can type "HELP" to receive detailed instructions. When "HELP" is typed the program leaves the main melody entry loop and is sent to a subroutine at lines 2200 to 2240. This subroutine loads a text file called MEL HELP which contains instructions for making a pitch entry. Once the user reads these instructions the user may return to the melody entry screen by pressing the "RETURN" key.

Main Loop - Rhythm

The main loop for the rhythm section of the program is found in lines 2350 to 2410. A rhythm menu is displayed which allows the user to change the tempo, hear the exercise again, enter the rhythm values, or quit the program. The routines to change tempo and hear the exercise played are the same as those found in the melody menu.

Rhythm Entry

The rhythm entry portion of the program is set up like the pitch entry section. The main loop for rhythm entry goes from line 2430 to line 2660. As in the melody entry section, when the user presses the "RETURN" key the answer is evaluated for acceptability. This subroutine runs from line 3170 to line 3270.

When all the rhythm values have been entered the program branches to a subroutine in lines 2680 to 2770 where the user's answers are checked against the correct answers. If all the answers are correct the program goes to the routine for entering barlines. If any of the rhythm values were incorrect the program falls through to lines 2790 to 2860 where the user is told how many errors were made and where the first error occurred. The user's version is played followed by the correct version, and then the user must try to enter the rhythm values correctly.

Rhythm Help

If the user requires instructions on making a rhythm entry he or she types "HELP" just as in the melody entry section. The program jumps to lines 3490 to 3570 where a text file called RHY HELP is loaded and displayed. As in the melody help subroutine, the user is returned to the entry screen when he or she has finished reading the instructions.

Enter the First Barline

Once all the rhythm values are entered correctly the user is asked to enter the location of the first barline. Lines 3010 to 3060 contain this routine. The user has three tries to enter the correct location.

Display Completed Exercise and Choose Next Exercise

Lines 3080 to 3150 display the completed exercise with correct

pitches, rhythm values, barlines, and stem directions. The user is then given three options: to continue with the next exercise of the unit, to choose another exercise, or to end the drill. If the user opts to continue with the next exercise the program goes to a routine at lines 3290 to 3340 which checks to see if the exercise just completed was the final exercise of the unit. If so, the user is asked to select another exercise and/or unit.

APPENDIX A

MELODY PLUS RHYTHM DRILL

USER'S MANUAL

This manual shows the various screens presented to the user along with further information on these screens and how to use this drill program most effectively.

PAMELA COVERT
WESTERN MICHIGAN UNIVERSITY
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DO YOU WANT A MORE DETAILED DESCRIPTION
OF THIS PROGRAM AND SOME HELPFUL
TIPS? (Y/N)

If you have not used this program before it is recommended you press
"Y". When you do so you will see the following.

MELODY PLUS RHYTHM DRILL

THE PURPOSE OF THIS PROGRAM IS TO ALLOW
YOU TO PRACTICE TAKING DICTATION AS
YOU WOULD IN 'REAL LIFE'.

EACH EXERCISE HAS THREE PARTS
FIRST YOU WILL ENTER THE MELODY NOTES.
NEXT YOU WILL ENTER THE RHYTHM VALUES.
FINALLY, YOU WILL PLACE THE BARLINES.

PRESS RETURN

HERE ARE SOME TIPS TO HELP YOU.

1) THE FIRST NOTE OF EACH EXERCISE WILL BE GIVEN. REMEMBER THAT YOU MUST ENTER ALL GIVEN NOTES - EVEN THE FIRST.

2) MEMORIZE EACH MELODY BEFORE TRYING TO ENTER IT. TRY TO MEMORIZE THE MELODY IN AS FEW PLAYINGS AS YOU CAN.

PRESS RETURN

3) READ ALL INSTRUCTIONS CAREFULLY!

IF YOU READ AND FOLLOW ALL INSTRUCTIONS YOU SHOULD NOT HAVE ANY PROBLEMS.

YOU WILL SEE MESSAGES AT THE BOTTOM OF THE SCREEN TELLING YOU WHEN HELP IS AVAILABLE AND WHAT OPTIONS ARE AVAILABLE.

4) HAVE FUN!

PRESS RETURN TO BEGIN THE DRILL.

This concludes the introductory remarks. You are now ready to begin the drill. When you press "RETURN" you will see the following message for about a minute.

ONE MOMENT PLEASE - PROGRAM LOADING

PLEASE INSERT DISK LABELED 'TEXT FILES'.

PRESS RETURN WHEN YOU HAVE DONE THIS.

IS YOUR MUSIC BOARD IN SLOT 2 OR 4?

DID YOU HEAR A SOUND (Y/N)?

Answer the above messages as they appear. If you don't know which slot your music board is in take a guess. If you are wrong you will not hear a sound and will be asked to re-enter the slot number.

MELODY PLUS RHYTHM DRILL

MELODY

- 1) EASY (SHORT MELODIES--MOSTLY STEPWISE)
- 2) MODERATE (LONGER MEL.-LARGER LEAPS)
- 3) DIFFICULT (LONG MELODIES--HARD LEAPS)

CHOOSE A LEVEL OF DIFFICULTY FOR
MELODY. (1,2, OR 3)

This is your first menu. Choose a difficulty level and enter the number beside it (either 1, 2, or 3). If you change your mind later you will have the opportunity to change your choice.

RHYTHM

- A) NO DIVISION OF BEAT
- B) SIMPLE AND COMPOUND DIVISION OF BEAT
- C) DOTTED NOTE VALUES
- D) ALL POSSIBLE VALUES

CHOOSE A RHYTHMIC DIFFICULTY
LEVEL. (A,B,C,OR D)

WHICH EXERCISE? (1-5)

Use the same procedure to choose a rhythmic difficulty level. Enter either A, B, C, or D. Then enter the exercise number. Each combination of melodic and rhythmic difficulty forms a unit. Each unit contains five exercises. It is recommended that you begin with exercise one and work your way through all five exercises of each unit.

YOU HAVE CHOSEN UNIT 1A, EX.#1:

EASY MELODIES -

NO DIV. OF BEAT

OK (Y/N)?

Here is a double check to make sure you have chosen the right exercise. If you don't want this exercise press "N" and you will be returned to the melodic difficulty level menu.

UNIT 1A, EX. #1: EASY MELODIES -

NO DIV. OF BEAT

PRESS K TO HEAR KEY

PRESS P TO PLAY THE MELODY

PRESS T TO CHANGE TEMPO OF MELODY

PRESS M TO ENTER MELODY PITCHES

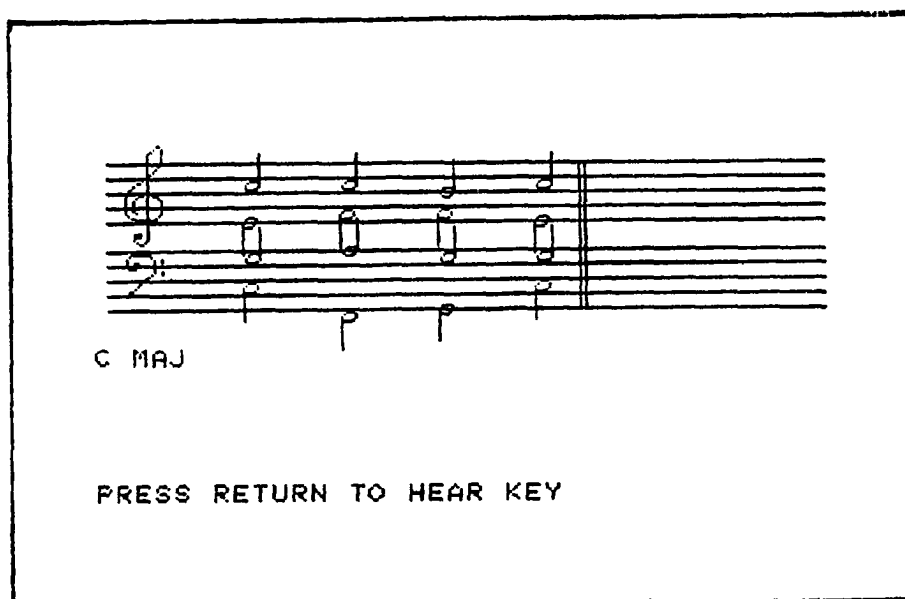
PRESS E TO CHOOSE ANOTHER EXERCISE

PRESS Q TO QUIT

WHICH ONE?

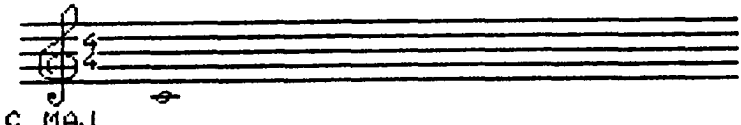
If you pressed "Y" in response to the previous screen you are now ready to begin the exercise you have chosen. The above melody menu shows your choices at this point. Below are the screens you will see when you choose the various options. If you press "E" you will return to the melodic difficulty level menu. Pressing "Q" takes you out of the program entirely.

If you press "K" the key preparation is displayed and played as often as you wish.



When you press "P" you will see the clef, time signature, key, and first note (without a rhythm value) displayed. You may play the exercise as often as you wish. The computer will remind you how many times you have heard the exercise.

UNIT 1A 1 EASY MELODIES-
NO DIV. OF BEAT



C MAJ

PRESS RETURN TO HEAR MELODY

Pressing "T" on your main melody menu will allow you to change the tempo of the exercise. You will see a screen like the one below.

THE COMPUTER USES THE NUMBERS 40 TO 200
AS A CODE FOR TEMPO.

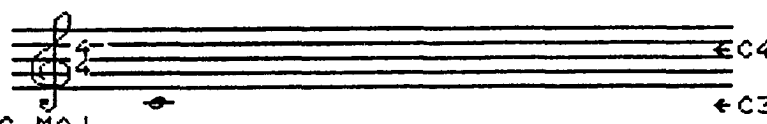
40 ————— 200
FASTEST SLOWEST

YOU ARE NOW AT 70.

WHAT SETTING WOULD YOU LIKE?

Pressing "M" allows you to enter the melody. Note your two options at the bottom of the screen below. If you are not ready to enter the melody press the escape ("ESC") key.

UNIT 1A 1 EASY MELODIES-
NO DIV. OF BEAT



C MAJ

ENTER THE PITCHES

PITCH 1

FOR HELP TYPE HELP
TO RETURN TO MENU PRESS 'ESC' KEY

If you need help type "HELP" and you will see the following screens.

ONE MOMENT PLEASE - FILE LOADING

This message will remain on your screen for less than a minute.
Please be patient.

HELP - MELODY ENTRY

THERE ARE 3 STEPS IN ENTERING A NOTE.

- 1) FIRST TYPE THE LETTER NAME OF THE NOTE.
- 2) TYPE THE INITIAL OF ANY ACCIDENTAL.

S FOR SHARP
F FOR FLAT
DON'T TYPE ANYTHING FOR A NATURAL.

**** NOTE ****

YOU MUST TYPE IN EVERY ACCIDENTAL
EVEN IF IT IS IN THE KEY SIGNATURE.

PRESS RETURN

MELODY HELP - PAGE 2

- 3) ENTER THE OCTAVE NUMBER.

OCTAVE NUMBERS ARE NOTED
TO THE RIGHT OF THE STAFF.

— EXAMPLE —

MIDDLE C-SHARP WOULD BE ENTERED AS

CS3

THE F ABOVE IT WOULD BE

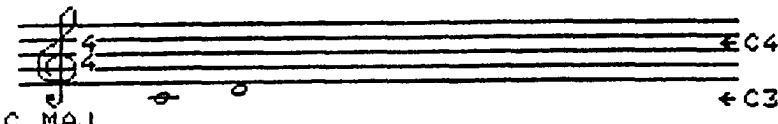
F3

PRESS RETURN TO GO BACK TO THE EXERCISE.

Read the above instructions carefully. You may return to them by

typing "HELP" anytime the help message appears at the bottom of the screen.

UNIT 1A 1 EASY MELODIES-
NO DIV. OF BEAT



C MAJ

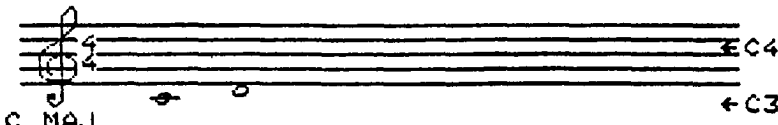
ENTER THE PITCHES

PITCH 1	C3
PITCH 2	D3
PITCH 3	

FOR HELP TYPE HELP
TO RETURN TO MENU PRESS 'ESC' KEY

Here we have returned to the melody entry screen and begun to enter the pitches. All entries will appear on the staff as whole notes for the time being.

UNIT 1A 1 EASY MELODIES-
NO DIV. OF BEAT



C MAJ

ENTER THE PITCHES

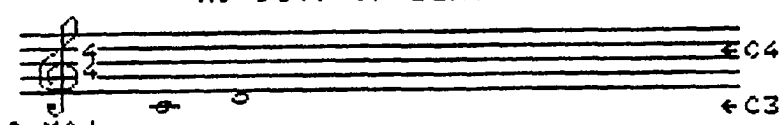
PITCH 1	C3
PITCH 2	D3
PITCH 3	E3

INCORRECT OCTAVE ENTRY-PRESS RETURN

FOR HELP TYPE HELP
TO RETURN TO MENU PRESS 'ESC' KEY

If you enter an unacceptable octave (an octave not within 2 octaves of the correct octave or an octave which cannot be displayed) the computer will give you an error message. Press return and redo that entry.

UNIT 1A 1 EASY MELODIES-
NO DIV. OF BEAT



C MAJ

ENTER THE PITCHES


PITCH 1	C3
PITCH 2	D3
PITCH 3	E3

INCORRECT PITCH ENTRY-PRESS RETURN

FOR HELP TYPE HELP
TO RETURN TO MENU PRESS 'ESC' KEY

The same thing happens when you make a typo and enter a letter other than A thru G. Press return and redo that entry.

UNIT 1A 1 EASY MELODIES-
NO DIV. OF BEAT

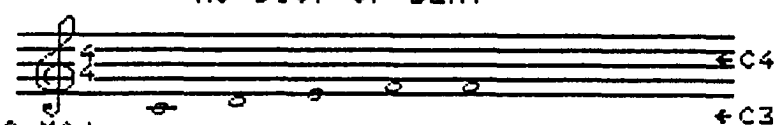


C MAJ

YOU MISSED 1 NOTE(S).
YOUR FIRST ERROR WAS ON PITCH 5
PRESS RETURN TO HEAR YOUR MELODY.

When you have entered the last note your entire melody is corrected. Note that you are told not only how many errors you made but also where the first error occurred. Pressing return will allow you to hear your version of the melody.

UNIT 1A 1 EASY MELODIES-
NO DIV. OF BEAT




C MAJ C4

YOU MISSED 1 NOTE(S).
YOUR FIRST ERROR WAS ON PITCH 5
HERE IS THE CORRECT MELODY.

After your version is played the correct version is played.

UNIT 1A 1 EASY MELODIES-
NO DIV. OF BEAT



C MAJ C4

CONGRATULATIONS!
YOU HAVE ENTERED ALL THE PITCHES
CORRECTLY. PRESS RETURN TO CONTINUE.

Once all pitches are entered correctly you can move on to rhythm.

UNIT 1A

EASY MELODIES—NO DIV. OF BEAT EX.#1

PRESS P TO PLAY MELODY AGAIN

PRESS T TO CHANGE TEMPO


PRESS R TO ENTER RHYTHM

PRESS Q TO QUIT

WHICH ONE?

Here is your rhythm menu. "P", "T", and "Q" work the in the same manner as they did in the melody menu. If you press "R" you will see the following screen.

UNIT 1A 1 EASY MELODIES—
NO DIV. OF BEAT



ENTER THE RHYTHM VALUES

NOTE 1

FOR HELP TYPE HELP
TO RETURN TO MENU PRESS 'ESC' KEY

Note that this screen is similar to the melody entry screen except now all the pitches are displayed as whole notes. Your "HELP" and "ESCAPE" options are still available. If you type "HELP" you will see the following screens.

```

                HELP - RHYTHM ENTRY
    TO ENTER A RHYTHM VALUE-
    1) TYPE THE INITIAL OF THE RHYTHM VALUE

      ♩ = S  ♪ = E  ♪ = Q  ♪ = H  ♪ = W
    2) FOR DOTTED VALUES TYPE A PERIOD (.)
       THEN THE INITIAL.
      ♩ = .S  ♪ = .E  ♪ = .Q  ♪ = .H  ♪ = .W
    NOTE - REMEMBER THAT DOTTED NOTES ARE
           ENTERED AS YOU WOULD SAY THEM.
           'DOTTED EIGHTH' = .E
           PRESS RETURN
  
```

```

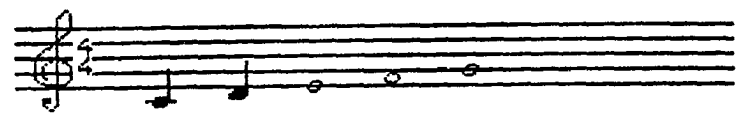
                RHYTHM HELP - PAGE 2

    YOU WILL NOT HAVE TO ENTER ANY TIED
    NOTE VALUES OR RESTS AT THIS TIME.

    PRESS RETURN TO GO BACK TO THE EXERCISE
  
```

Pressing "RETURN" sends you back to the rhythm entry screen.

UNIT 1A 1 EASY MELODIES-
NO DIV. OF BEAT



C MAJ

ENTER THE RHYTHM VALUES


NOTE	1	Q
NOTE	2	Q
NOTE	3	Q
NOTE	4	Q

INCORRECT ENTRY - PRESS RETURN

FOR HELP TYPE HELP
TO RETURN TO MENU PRESS 'ESC' KEY

Errors in your entry will be caught just as they are in the melody entry screen.

UNIT 1A 1 EASY MELODIES-
NO DIV. OF BEAT



C MAJ

ENTER THE RHYTHM VALUES

NOTE	1	Q
NOTE	2	Q
NOTE	3	Q E
NOTE	4	Q

FOR HELP TYPE HELP
TO RETURN TO MENU PRESS 'ESC' KEY

Note the correct way to enter a dotted note value in entry number 3.

UNIT 1A 1 EASY MELODIES-
NO DIV. OF BEAT

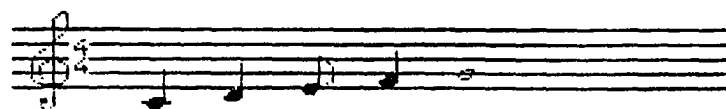


C MAJ

YOU MISSED 1 RHYTHM VALUE(S).
YOUR FIRST ERROR WAS ON PITCH 3
PRESS RETURN TO HEAR YOUR RHYTHM

Your rhythm entries are corrected in the same manner as your pitch entries.

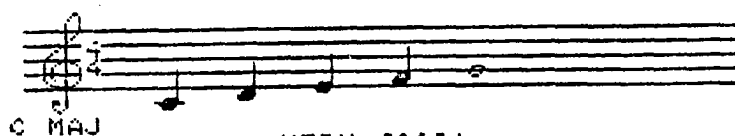
UNIT 1A 1 EASY MELODIES-
NO DIV. OF BEAT



C MAJ

YOU MISSED 1 RHYTHM VALUE(S).
YOUR FIRST ERROR WAS ON PITCH 3
HERE IS THE CORRECT RHYTHM.
PRESS RETURN TO TRY AGAIN.

UNIT 1A 1 EASY MELODIES-
NO DIV. OF BEAT



VERY GOOD!

YOU HAVE ENTERED ALL THE RHYTHM VALUES
CORRECTLY. NOW...

AFTER WHICH NOTE SHOULD THE FIRST
BARLINE BE PLACED? (1, 2, 3, ...)

Once you have entered all the rhythm values correctly you will be asked to place the first barline. Following are two error messages you may see if you make an incorrect entry.

UNIT 1A 1 EASY MELODIES-
NO DIV. OF BEAT



VERY GOOD!

YOU HAVE ENTERED ALL THE RHYTHM VALUES
CORRECTLY. NOW...

AFTER WHICH NOTE SHOULD THE FIRST
BARLINE BE PLACED? (1, 2, 3, ...) 5

A BARLINE OCCURS EARLIER THAN THAT.
PRESS RETURN

UNIT 1A 1 EASY MELODIES-
NO DIV. OF BEAT



C MAJ

VERY GOOD!

YOU HAVE ENTERED ALL THE RHYTHM VALUES
CORRECTLY. NOW...

AFTER WHICH NOTE SHOULD THE FIRST
BARLINE BE PLACED? (1, 2, 3, ...) 2

NO, NOT AFTER NOTE 2.

PRESS RETURN

This is the final screen for each exercise. You may continue with the next exercise of the unit. (If you have completed the last exercise of the unit you will be asked to choose another unit.) If you wish to choose another unit and/or exercise you can press "M". To end press "E".

UNIT 1A 1 EASY MELODIES-
NO DIV. OF BEAT



C MAJ

HERE IS THE COMPLETED EXERCISE.

PRESS RETURN TO GO ON TO NEXT EXERCISE

PRESS M TO GO TO ANOTHER UNIT/EXERCISE

PRESS E TO END

APPENDIX B

PROGRAM LISTINGS

Title (Hello)

```
10  REM ** PGM "HELLO" **
20  :
30  REM ** PAMELA A. COVERT **
40  :
50  REM *** COPYRIGHT 1983 ***
60  :
70  REM      (M-R DRILL)
80  :
90  REM      (9/28/83)
100 :
110 :
120 HOME:GR:COLOR=1
130 D$=CHR$(13)+CHR$(4)
140 REM ** MELODY **
150 VLIN 7,2 AT 4:PLOT 5,3:PLOT 6,4:PLOT 7,3:VLIN 7,2 AT 8
160 VLIN 7,2 AT 10:HLIN 10,13 AT 2:HLIN 10,12 AT 5:HLIN 10,13 AT 7
170 VLIN 7,2 AT 15:HLIN 15,18 AT 7
180 VLIN 6,3 AT 20:HLIN 21,23 AT 7:VLIN 6,3 AT 24:HLIN 21,23 AT 2
190 VLIN 7,2 AT 26:VLIN 6,3 AT 29:HLIN 27,28 AT 7:HLIN 27,28 AT 2
200 PLOT 31,2:PLOT 32,3:PLOT 34,3:PLOT 35,2:VLIN 4,7 AT 33
210 REM ** PLUS **
220 VLIN 12,17 AT 10:HLIN 11,12 AT 12:HLIN 11,12 AT 15:VLIN 13,14 AT
    13
230 VLIN 12,17 AT 15:HLIN 15,18 AT 17
240 VLIN 12,16 AT 20:VLIN 12,16 AT 23:HLIN 21,22 AT 17
250 PLOT 28,13:HLIN 26,27 AT 12:PLOT 25,13:PLOT 26,14:PLOT 27,15:
    PLOT 28,16:HLIN 26,27 AT 17:PLOT 25,16
260 REM ** RHYTHM **
270 VLIN 22,27 AT 3:HLIN 4,5 AT 22:HLIN 4,5 AT 25:VLIN 23,24 AT 6:
    VLIN 26,27 AT 6
280 VLIN 22,27 AT 8:VLIN 22,27 AT 12:HLIN 9,11 AT 25
290 PLOT 14,22:PLOT 15,23:PLOT 17,23:PLOT 18,22:VLIN 24,27 AT 16
300 HLIN 20,24 AT 22, VLIN 23,27 AT 22
310 VLIN 22,27 AT 26:VLIN 22,27 AT 30:HLIN 27,29 AT 25
320 VLIN 22,27 AT 32:VLIN 22,27 AT 36:PLOT 33,23:PLOT 34,24:PLOT
    35,23
330 REM ** DRILL **
340 VLIN 32,37 AT 8:VLIN 33,36 AT 11:HLIN 9,10 AT 32:HLIN 9,10 AT 37
350 VLIN 32,37 AT 13:HLIN 14,15 AT 32:HLIN 14,15 AT 35:VLIN 33,34 AT
    16:VLIN 36,37 AT 16
360 HLIN 18,22 AT 32:HLIN 18,22 AT 37:VLIN 33,36 AT 20
370 VLIN 32,37 AT 24:HLIN 24,27 AT 37
```

```

380 VLIN 32,27 AT 29:HLIN 29,32 AT 37
390 PRINT D$;"BLOAD MEP(HARMONY).1"
400 REM ** CREDITS **
410 TEXT:HOME:VTAB 3:HTAB 13:PRINT "PAMELA COVERT":VTAB 4:
    HTAB 7:PRINT "WESTERN MICHIGAN UNIVERSITY":VTAB 5:HTAB 11:
    PRINT "COPYRIGHT (C) 1983"
420 REM ** WANT INTRO? **
430 VTAB 12:PRINT "DO YOU WANT A MORE DETAILED DESCRIPTION":
    VTAB 14:PRINT "OF THIS PROGRAM AND SOME HELPFUL":VTAB 16:
    PRINT "TIPS? (Y/N)":GET R$
440 D$=CHR$(13)+CHR$(4):IF R$="Y" THEN PRINT D$;"RUN INTRO"
450 IF R$="N" THEN HOME:VTAB 10:PRINT "ONE MOMENT PLEASE -
    PROGRAM LOADING":PRINT D$;"RUN M-R DRILL"
460 IF NOT (R$="Y" OR R$="N") THEN PRINT CHR$(7):GOTO 430

```

Introduction

```

10 REM **** PGM "INTRO" ****
20 :
30 REM ** PAMELA A COVERT **
40 :
50 REM ** COPYRIGHT 1983 **
60 :
70 REM      (M-R DRILL)
80 :
90 REM      (9/28/83)
100 :
110 :
120 D$=CHR$(13)+CHR$(4)
130 TEXT:HOME:VTAB 2:HTAB 8:PRINT "MELODY PLUS RHYTHM DRILL"
140 NORMAL:VTAB 5:PRINT "THE PURPOSE OF THIS PROGRAM IS TO
    ALLOW":VTAB 6:PRINT "YOU TO PRACITCE TAKING DICTATION
    AS":VTAB 7:PRINT "YOU WOULD IN 'REAL LIFE'."
150 VTAB 11:PRINT "EACH EXERCISE HAS THREE PARTS.":VTAB
    12:PRINT "FIRST YOU WILL ENTER THE MELODY NOTES.":VTAB
    13:PRINT "NEXT YOU WILL ENTER THE RHYTHM VALUES.":VTAB
    14:PRINT "FINALLY, YOU WILL PLACE THE BARLINES."
160 VTAB 22:HTAB 10:PRINT "PRESS RETURN":GOSUB 260:HOME
170 VTAB 5:PRINT "HERE ARE SOME TIPS TO HELP YOU."
180 VTAB 8:PRINT "1) THE FIRST NOTE OF EACH EXERCISE WILL":
    VTAB 9:PRINT "BE GIVEN. REMEMBER THAT YOU MUST ENTER":
    VTAB 10:PRINT "ALL GIVEN NOTES - EVEN THE FIRST."
190 VTAB 13:PRINT "2) MEMORIZE EACH MELODY BEFORE TRYING
    TO":VTAB 14:PRINT "ENTER IT. TRY TO MEMORIZE THE MELODY":
    VTAB 15:PRINT "IN AS FEW PLAYINGS AS YOU CAN."
200 VTAB 22:HTAB 10:PRINT "PRESS RETURN":GOSUB 260:HOME
210 VTAB 6:PRINT "3) READ ALL INSTRUCTIONS CAREFULLY!"
220 VTAB 8:PRINT "IF YOU READ AND FOLLOW ALL INSTRUCTIONS":
    VTAB 9:PRINT "YOU SHOULD NOT HAVE ANY PROBLEMS."

```

```

230 VTAB 13:PRINT "YOU WILL SEE MESSAGES AT THE BOTTOM
    OF":VTAB 14:PRINT "THE SCREEN TELLING YOU WHEN HELP
    IS":VTAB 15:PRINT "AVAILABLE AND WHAT OPTIONS ARE":VTAB
    16:PRINT "AVAILABLE."
240 VTAB 19:PRINT "4) HAVE FUN!":VTAB 22:PRINT "PRESS RETURN TO
    BEGIN THE DRILL.":GOSUB 260
250 TEXT:HOME:VTAB 10:PRINT "ONE MOMENT PLEASE - PROGRAM
    LOADING":PRINT D$;"RUN M-R DRILL"
260 REM ***PRESS RETURN SUB***
270 POKE -16368,0:GET R$:RETURN

```

Drill

```

10 PRINT CHR$(4);"MAXFILES 1"
20 LOMEM: 32768
30 :
40 REM *** PGM "M-R DRILL" ***
50 :
60 REM ** PAMELA A. COVERT **
70 :
80 REM *** COPYRIGHT 1983 ***
90 :
100 REM      (9/28/83)
110 :
120 :
130 GOSUB 2250
140 GOSUB 1850:GOSUB 1890:GOSUB 1920
150 TEXT:HOME:VTAB 10:PRINT "PLEASE INSERT DISK LABELED 'TEXT
    FILES.':VTAB 12:PRINT "PRESS RETURN WHEN YOU HAVE DONE
    THIS.":GOSUB 490
160 VTAB 20:HTAB 1:CALL -958:PRINT "IS YOUR MUSIC BOARD IN SLOT
    2 OR 4?":GOSUB 490
170 IF R$="2" THEN S=160:GOTO 200
180 IF R$="4" THEN S=192:GOTO 200
190 IF NOT(R$="2" OR R$="4")THEN PRINT CHR$(7):GOTO 160
200 POKE 26787,S:POKE 26583,S:POKE 26596,S:POKE 26552,5:POKE
    26566,90:POKE 26522,100:POKE 26581,150:POKE 26577,10:POKE
    26590,50:CALL 26551
210 VTAB 22:HTAB 1:CALL-868:PRINT "DID YOU HEAR A SOUND (Y/N)?
    Y":PRINT CHR$(8):GOSUB 490
220 IF R$=CHR$(13) THEN R$="Y"
230 IF NOT(R$="Y" OR R$="N")THEN PRINT CHR$(7):GOTO 210
240 IF R$="N" THEN 160
250 :
260 TEXT:HOME:VTAB 1:HTAB 8:PRINT "MELODY PLUS RHYTHM DRILL"
270 POKE 26552,1:POKE 26566,3:POKE 26522,3:POKE 26581,5:POKE
    26577,5:POKE 26590,250
280 GOSUB 520:VTAB 15:PRINT "CHOOSE A LEVEL OF DIFFICULTY
    FOR":VTAB 16:HTAB 1:PRINT "MELODY. (1,2,OR 3)":GOSUB 700

```

```

290 HOME:GOSUB 540:VTAB 15:PRINT "CHOOSE A RHYTHMIC
    DIFFICULTY":VTAB 16:HTAB 1:PRINT "LEVEL. (A,B,C,OR D)";GOSUB
    780
300 VTAB 20:HTAB 1:CALL -868:PRINT "WHICH EXERCISE? (1-5)";GOSUB
    830
310 HOME:VTAB 9:HTAB 1:PRINT "YOU HAVE CHOSEN UNIT ";M$;L$;,"
    EX. #";E$;":"
320 NN$=ML$+" - ":HT=20-INT(LEN(NN$)/2):VTAB 13:HTAB HT:PRINT NN$
330 VTAB 15:HTAB HT:PRINT RL$
340 VTAB 19:HTAB 1:CALL -958:PRINT "OK (Y/N)?Y";:PRINT
    CHR$(8);:GOSUB 490
350 IF R$=CHR$(13)THEN R$="Y"
360 IF NOT (R$="Y" OR R$="N")THEN PRINT CHR$(7):GOTO 340
370 IF R$="N" THEN 260
380 GOSUB 620
390 IF RIGHT$(TS$,1)<>"8" THEN XX=0
400 IF XX=1 THEN TP=TP/2
410 GOSUB 560:VTAB 23:HTAB 15:PRINT "WHICH ONE?";:GOSUB 490
420 IF R$="T" THEN GOSUB 850:GOTO 410
430 IF R$="K" THEN 950
440 IF R$="P" THEN GOSUB 1050:GOTO 410
450 IF R$="M" THEN GOTO 1150
460 IF R$="E" THEN 250
470 IF R$="Q" THEN 3610
480 IF NOT(R$>="A" AND R$<="E")THEN PRINT CHR$(7):GOTO 410
490 REM ***PRESS RETURN SUB***
500 POKE -16368,0:GET R$:PRINT R$:RETURN
510 V=4:H=24576
520 VTAB 4:HTAB 17:PRINT "MELODY":VTAB 7:PRINT "1) EASY (SHORT
    MELODIES-MOSTLY STEPWISE)":VTAB 9:PRINT "2) MODERATE
    (LONGER MEL.-LARGER LEAPS)"
530 VTAB 11:PRINT "3) DIFFICULT (LONG MELODIES-HARD
    LEAPS)":RETURN
540 VTAB 2:HTAB 17:PRINT "RHYTHM":VTAB 5:PRINT "A) NO DIVISION
    OF BEAT":VTAB 7:PRINT "B) SIMPLE AND COMPOUND DIVISION OF
    BEAT"
550 VTAB 9:PRINT "C) DOTTED NOTE VALUES":VTAB 11:PRINT "D) ALL
    POSSIBLE VALUES":RETURN
560 TEXT:HOME:VTAB 2:HTAB 1:PRINT "UNIT "M$;L$;," EX. #";E$;":"
    ";ML$" -"
570 VTAB 4:HTAB 1:PRINT RL$
580 VTAB 10:HTAB 3:PRINT "PRESS K TO HEAR KEY":VTAB 12:HTAB 3:
    PRINT "PRESS P TO PLAY THE MELODY":VTAB 14:HTAB 3:PRINT
    "PRESS T TO CHANGE TEMPO OF MELODY"
590 VTAB 16:HTAB 3:PRINT "PRESS M TO ENTER MELODY PITCHES":
    VTAB 18:HTAB 3:PRINT "PRESS E TO CHOOSE ANOTHER
    EXERCISE":VTAB 20:HTAB 3:PRINT "PRESS Q TO QUIT":RETURN
600 TEXT:HOME:VTAB 2:HTAB 16:PRINT "UNIT ";M$;L$:VTAB 4:PRINT
    ML$;"-";RL$;" EX.#;E$
610 VTAB 8:HTAB 4:PRINT "PRESS P TO PLAY MELODY AGAIN":VTAB
    10:HTAB 4:PRINT "PRESS T TO CHANGE TEMPO":VTAB 12:HTAB

```

```

4:PRINT "PRESS R TO ENTER RHYTHM":VTAB 14:HTAB 4:PRINT
"PRESS Q TO QUIT":RETURN
620 :
630 PN=0:D$=CHR$(13)+CHR$(4)
640 PRINT D$;"OPEN ";L$;M$;" ";E$
650 PRINT D$;"READ ";L$;M$;" ";E$
660 INPUT NF:INPUT N:INPUT NB:INPUT K$:INPUT C:INPUT TS$
670 FOR I=0 TO (N*5)-1:INPUT M(I):NEXT I
680 PRINT D$;"CLOSE ";L$;M$;" ";E$:IF VAL(TP$)>39 THEN TP=VAL(TP$):
RETURN
690 TP=70:RETURN
700 POKE -16368,0:GET M$:IF M$="1" THEN ML$="EASY MELODIES:
RETURN
710 IF M$="2" THEN ML$="MODERATE MELODIES":RETURN
720 IF M$="3" THEN ML$="DIFFICULT MELODIES":RETURN
730 IF NOT(M$="1" OR M$="2" OR M$="3")THEN PRINT CHR$(7):POP:
GOTO 280
740 :
750 POKE 0,64:CALL 29746:CALL CLRSCN:RETURN
760 :
770 CALL 32672,PI$:RETURN
780 POKE -16368,0:GET L$:IF L$="A" THEN RL$="NO DIV. OF BEAT":
RETURN
790 IF L$="B" THEN RL$="SIMPLE AND COMPOUND DIV.":RETURN
800 IF L$="C" THEN RL$="DOTTED NOTE VALUES":RETURN
810 IF L$="D" THEN RL$="ALL POSSIBLE RHYTHMIC VALUES":RETURN
820 IF NOT(L$="A" OR L$="B" OR L$="C" OR L$="D")THEN PRINT
CHR$(7):POP:GOTO 290
830 POKE -16368,0:GET E$:IF NOT(E$>"0" AND E$<"6")THEN PRINT
CHR$(7):POP:GOTO 300
840 RETURN
850 HOME:VTAB 5:PRINT "THE COMPUTER USES THE NUMBERS 40 TO
200":VTAB 6:PRINT "AS A CODE FOR TEMPO."
860 IF XX=1 THEN TP=TP/2
870 VTAB 9:HTAB 3:PRINT "40 ----- 200":VTAB
11:PRINT "FASTEST":VTAB 11:HTAB 33:PRINT "SLOWEST":VTAB 15:
HTAB 6:PRINT "YOU ARE NOW AT ";TP;".
880 VTAB 18:HTAB 6:PRINT "WHAT SETTING WOULD YOU LIKE";:CALL
-868:INPUT TP$
890 IF VAL(TP$)<40 THEN 930
900 IF VAL(TP$)>200 THEN 930
910 TP=VAL(TP$):IF XX=1 THEN TP=TP*2
920 RETURN
930 PRINT CHR$(7):GOTO 880
940 :
950 PRINT D$;"OPEN ";K$:PRINT D$;"READ ";K$
960 INPUT KL:FOR I=0 TO KL-1:INPUT K(I):NEXT I
970 PRINT D$;"CLOSE ";K$:CF=57:V=4:ST=4:HRZ=8:NP=5:GOSUB 1920
980 FOR I=0 TO KL-1:MUS(I)=K(I):NEXT I:GOSUB 1950:GOSUB 2100:GOSUB
2080
990 PI$=K$:VTAB 15:HT=1:GOSUB 2160:VTAB 22:HT=1:PI$="PRESS

```

```

RETURN TO HEAR KEY":GOSUB 2160:GOSUB 490
1000 GOSUB 2050
1010 X1=0:X2=25:Y1=21:Y2=23:GOSUB 2180:VTAB 22:HT=1:PI$="AGAIN?
(Y/N)":GOSUB 2160:GOSUB 490
1020 IF R$="Y" THEN X1=0:X2=30:Y1=21:Y2=23:GOSUB 2180:GOTO 1000
1030 IF R$="N" THEN 410
1040 IF NOT(R$="Y" OR R$="N")THEN PRINT CHR$(7):GOTO 1010
1050 CF=C:V=1:ST=20:GOSUB 1920
1060 MUS(0)=240:MUS(1)=M(1):MUS(2)=224:MUS(3)=255:MUS(4)=255:GOSUB
1950
1070 HRZ=8:NP=4:GOSUB 2100:GOSUB 2080:GOSUB 3350
1080 H=24576:FOR I=0 TO (N*5)-1:MUS(I)=M(I):NEXT I:GOSUB 1950
1090 PI$="PRESS RETURN TO HEAR MELODY":HT=1:VTAB 20:GOSUB 2160:
POKE -16368,0:GET S$:X1=0:X2=30:Y1=19:Y2=21:GOSUB 2180
1100 PN=PN+1:PI$="THIS IS PLAY NUMBER "+STR$(PN):HT=1:VTAB 15:
GOSUB 2160:GOSUB 2030
1110 X1=0:X2=30:Y1=14:Y2=21:GOSUB 2180:PI$="AGAIN? (Y/N)":VTAB 20:
HT=1:GOSUB 2160:POKE -16368,0:GET S$
1120 IF S$="Y" THEN 1100
1130 IF S$="N" THEN RETURN
1140 IF NOT(S$="Y" OR S$="N")THEN PRINT CHR$(7):GOTO 1110
1150 :
1160 V=1:CF=C:HRZ=7:NP=3:ST=1
1170 GOSUB 1920:B$="":Y=0
1180 GOSUB 2100:MUS(0)=240:MUS(1)=M(1):MUS(2)=224:MUS(3)=255: MUS(4)=
255:GOSUB 1950:GOSUB 2080
1190 J=1:GOSUB 3350:GOSUB 3410:PI$="ENTER THE PITCHES":HT=10:
VTAB 12:GOSUB 2160
1200 FOR I=0 TO NF-5 STEP 5
1210 VTAB 13+J:HT=5:IF J<8 THEN 1230
1220 HT=20:VTAB J+6
1230 PI$="PITCH "+STR$(J):GOSUB 2160
1240 IF J<8 THEN HT=15:VTAB 13+J:GOTO 1260
1250 HT=29:VTAB 6+J
1260 GET R$:IF R$=CHR$(27) THEN 410
1270 IF R$=CHR$(13) THEN GOTO 1600
1280 IF R$=CHR$(8) AND LEN(B$)>1 THEN PI$=CHR$(32):HT=HT-1:GOSUB
2160:Y=Y-1:B$=LEFT$(B$, LEN(B$)-1):HT=HT-1:GOTO 1260
1290 IF R$=CHR$(8) THEN PI$=CHR$(32):HT=HT-1:GOSUB 2160:HT=HT-1:
Y=Y-1:B$="":GOTO 1260
1300 PI$=R$:GOSUB 2160:B$=B$+R$:IF B$="HELP" THEN 2200
1310 Y=Y+1:IF Y=5 THEN 1830
1320 GOTO 1260
1330 HT=29:VTAB 6+J
1340 GOSUB 2160:GOTO 1600
1350 R(J)=R:H=24576:Z=0:B$="":Y=0
1360 SN(Z)=240:SN(Z+1)=R:SN(Z+2)=224:SN(Z+3)=255:SN(Z+4)=255:GOSUB
1990:GOSUB 2080
1370 HRZ=HRZ+NP:IF J=N THEN 1390
1380 J=J+1:NEXT I
1390 J=1:FOR I=0 TO NF-5 STEP 5

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1400 SN(I)=240:SN(I+1)=R(J):SN(I+2)=224:SN(I+3)=M(I+3):SN(I+4)=M(I+4):J=J+1:
    NEXT I
1410 ST=25:H=24576:GOSUB 1920:GOSUB 1990
1420 :
1430 J=1:WN=0:FW=0
1440 FOR I=0 TO NF-4 STEP 5:IF SN(I)=M(I) THEN 1470
1450 IF WN=0 THEN FW=J
1460 WN=WN+1
1470 IF J=N THEN 1490
1480 J=J+1:NEXT I
1490 X1=0:X2=39:Y1=11:Y2=23:GOSUB 2180
1500 IF WN>0 THEN 1530
1510 HT=10:VTAB 15:PI$="CONGRATULATIONS!":GOSUB 2160:HT=1:VTAB
    17:PI$="YOU HAVE ENTERED ALL THE PITCHES":GOSUB 2160
1520 HT=1:VTAB 18:PI$="CORRECTLY. PRESS RETURN TO CONTINUE.":
    GOSUB 2160:GOSUB 490:GOSUB 2350
1530 HT=1:VTAB 12:PI$="YOU MISSED "+STR$(WN)+" NOTE(S).":GOSUB 2160
1540 VTAB 14:HT=1:PI$="YOUR FIRST ERROR WAS ON PITCH "+STR$(FW):
    GOSUB 2160:FOR I=0 TO NF-5 STEP 5:SN(I)=M(I):NEXT I:GOSUB 1990
1550 VTAB 16:HT=1:PI$="PRESS RETURN TO HEAR YOUR MELODY.":
    GOSUB 2160:GOSUB 490:GOSUB 2030
1560 X1=0:X2=39:Y1=15:Y2=17:GOSUB 2180
1570 VTAB 16:HT=1:PI$="HERE IS THE CORRECT MELODY.":GOSUB 2160
1580 FOR I=0 TO NF-5:MUS(I)=M(I):NEXT I:GOSUB 1950:GOSUB 2030
1590 VTAB 18:HT=1:PI$="PRESS RETURN TO TRY AGAIN.":GOSUB 2160:
    GOSUB 490:GOTO 1150
1600 :
1610 IF LEN(B$)>4 THEN 1800
1620 IF LEN(B$)<2 THEN 1800
1630 O$=RIGHT$(B$,1):IF C=30 THEN 1660
1640 IF O$>"2" AND O$<"5" THEN 1680
1650 GOTO 1810
1660 IF O$>"0" AND O$<"4" THEN 1680
1670 GOTO 1810
1680 P$=LEFT$(B$,1):IF P$<"A" THEN 1820
1690 IF P$>"G" THEN 1820
1700 IF ASC(P$)>66 THEN 1730
1710 IF P$="A" THEN R=6:GOTO 1740
1720 IF P$="B" THEN R=7:GOTO 1740
1730 R=ASC(P$)-66
1740 A$=MID$(B$,2,1):IF A$="S" THEN R=R+64
1750 IF A$="F" THEN R=R+32
1760 IF O$="2" THEN R=R+7
1770 IF O$="3" THEN R=R+14
1780 IF O$="4" THEN R=R+21
1790 GOTO 1350
1800 HT=1:VTAB 14+J:PI$="INCORRECT ENTRY-PRESS RETURN":GOTO
    1840
1810 HT=1:VTAB 14+J:PI$="INCORRECT OCTAVE ENTRY-PRESS RETURN":
    GOTO 1840
1820 HT=1:VTAB 14+J:PI$="INCORRECT PITCH ENTRY-PRESS RETURN":

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      GOTO 1840
1830 HT=1:VTAB 14+J:PI$="PRESS RETURN WHEN ENTRY IS COMPLETE":
      GOTO 1840
1840 B$="":Y=0:GOSUB 2160:GOSUB 490:X1=0:X2=39:Y1=12+J:Y2=14+J:
      GOSUB 2180:GOTO 1210
1850 :
1860 HEAD=768:SLOT=26787:TEMPO=836:HSET=882:KEY=805:VOICES=771:
      SETCNT=806:TIMBRES=832:TEMPO=836:NSPACE=879
1870 CLICKER=26551
1880 INITSCN=29746:CLRSCN=29777:S1STAFF=29606:SGSTAFF=29676:
      WDSTAFF=27593:WRITE=29485:CHAR=29518:PLAY=30180:DISPLAY=
      30200:PDISP=30220:AGAIN=30345:UNDISP=28608:RETURN
1890 :
1900 TIM(0)=120:TIM(1)=122:TIM(2)=122:TIM(3)=121
1910 V=4:H=24576:ST=65535:K=0:HRZ=8:NP=4:PG=64:VSTAFF=37:CF=57:CW=
      38:TP=70:RETURN
1920 :
1930 POKE NSPACE,NP
1940 POKE HEAD,H-INT(H/256)*256:POKE HEAD+1,H/256:POKE
      SLOT,S:POKE SETCNT,ST-INT(ST/256)*256:POKE
      SETCNT+1,INT(ST/256):POKE VOICES,V:POKE KEY,K:RETURN
1950 :
1960 F=0:FOR I=0 TO 88:POKE H+I,MUS(I):IF MUS(I)=255 AND F=1 THEN
      RETURN
1970 IF MUS(I)=255 THEN F=1
1980 NEXT I:RETURN
1990 :
2000 F=0:FOR I=0 TO 88:POKE H+I,SN(I):IF SN(I)=255 AND F=1 THEN
      RETURN
2010 IF SN(I)=255 THEN F=1
2020 NEXT I:RETURN
2030 :
2040 FOR I=0 TO 3:POKE TIMBRES+I,TIM(I):NEXT I:GOSUB 3620:POKE
      TEMPO,TP:CALL PLAY:RETURN
2050 IF XX=1 THEN TP=TP/2
2060 FOR I=0 TO 3:POKE TIMBRES+I,TIM(I):NEXT I:POKE TEMPO,TP:
      CALL PLAY:IF XX=1 THEN TP=TP*2
2070 RETURN
2080 :
2090 POKE HSET,HRZ:POKE NSPACE,NP:CALL DISPLAY:RETURN
2100 :
2110 POKE 0,PG:CALL INITSCN:CALL CLRSCN:POKE 1,VSTAFF:POKE 0,
      CF:POKE WDSTAFF,CW:IF CF=57 THEN CALL SGSTAFF
2120 IF CF<>57 THEN CALL S1STAFF
2130 RETURN
2140 :
2150 FOR I=0 TO 3:POKE TIMBRES+I,TIM(I):NEXT I:POKE TEMPO,TP:
      POKE HSET,HRZ:POKE NSPACE,NP:GOSUB 3620:CALL PDISP:RETURN
2160 :
2170 FOR I=1 TO LEN(PI$):POKE 0,ASC(MID$(PI$,I,1)):HTAB HT:CALL
      WRITE:HT=HT+1:NEXT I:RETURN

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2180 :
2190 POKE 0,32:POKE 1,X1:POKE 2,Y1:POKE 3,X2:POKE 4,Y2:CALL
      28607:RETURN
2200 TEXT:HOME:VTAB 10:PRINT "ONE MOMENT PLEASE - FILE
      LOADING":PRINT D$;"OPEN MEL HELP":PRINT D$;READ MEL HELP"
2210 INPUT Z:FOR I=1 TO (Z/3):INPUT ME(I):INPUT MA(I):INPUT ME$(I):
      NEXT I:PRINT D$;"CLOSE MEL HELP":HOME
2220 FOR I=1 TO Z/3:VTAB ME(I):HTAB MA(I):PRINT ME$(I)
2230 IF ME(I)=23 THEN GOSUB 490:HOME
2240 NEXT I:GOTO 1150
2250 :
2260 D$=CHR$(13)+CHR$(4)
2270 DIM K(44),MUS(88),SN(88),M(88)
2280 DIM MA(50),ME(50),ME$(50),R(20),RH(67),RETURN
2290 :
2300 TEXT:HOME:HTAB 10:VTAB 8:PRINT "WE ARE EXPERIENCING":VTAB
      9:HTAB 10:PRINT "TECHNICAL DIFFICULTIES..."
2310 VTAB 15:PRINT "YOU WILL HAVE TO SHUT OFF THE COMPUTER":
      VTAB 16:PRINT "AND RE-ENTER THIS PROGRAM."
2320 VTAB 20:PRINT "PLEASE NOTIFY YOUR INSTRUCTOR IF YOU ARE":
      VTAB 21:PRINT "HAVING SERIOUS PROBLEMS WITH":VTAB 22:PRINT
      "THIS PROGRAM.  THANK YOU."
2330 END
2340 :
2350 GOSUB 600:FOR I=0 TO NF-5 STEP 5:SN(I)=240:SN(I+1)=M(I+1):SN(I+2)=
      224:SN(I+3)=M(I+3):SN(I+4)=M(I+4)
2360 VTAB 21:HTAB 15:PRINT "WHICH ONE?":GOSUB 490
2370 IF R$="T" THEN GOSUB 850
2380 IF R$="P" THEN GOSUB 1050:GOTO 2350
2390 IF R$="R" THEN GOTO 2420
2400 IF R$="Q" THEN 3610
2410 IF NOT (R$="T" OR R$="P" OR R$="R") THEN PRINT CHR$(7):GOTO
      2350
2420 :
2430 HRZ=7
2440 GOSUB 2100:GOSUB 1990:GOSUB 2080
2450 GOSUB 3350
2460 PI$="ENTER THE RHYTHM VALUES":HT=10:VTAB 12:GOSUB 2160
2470 J=1:FOR I=0 TO NF-5 STEP 5
2480 VTAB 13+J:HT=1:IF J<8 THEN 2500
2490 HT=20:VTAB J+6
2500 PI$="NOTE "+STR$(J):GOSUB 2160
2510 IF J<8 THEN HT=9:VTAB 13+J:GOTO 2530
2520 HT=29:VTAB 6+J
2530 GET R$:IF R$=CHR$(13) THEN 3160
2540 IF R$=CHR$(27) THEN 2350
2550 IF R$=CHR$(8) AND LEN(B$)>1 THEN PI$=CHR$(32):HT=HT-1:GOSUB
      2160:HT=HT-1:Y=Y-1:B$=LEFT$(B$,LEN(B$)-1):GOTO 2530
2560 IF R$=CHR$(8) THEN PI$=CHR$(32):HT=HT-1:GOSUB 2160:HT=HT-1:
      Y=Y-1:B$="":GOTO 2530
2570 PI$=R$:GOSUB 2160:B$=B$+R$:IF R$="HELP" THEN 3490

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2580 Y=Y+1:IF Y=4 THEN 3260
2590 GOTO 2530
2600 RH(J)=R:H=24576:Z=0:B$="":Y=0
2610 SN(Z)=R:SN(Z+1)=R(J):SN(Z+2)=224:SN(Z+3)=255:SN(Z+4)=255:GOSUB
1990:GOSUB 2080
2620 HRZ=HRZ+NP:IF J=N THEN 2640
2630 J=J+1:NEXT I
2640 J=1:FOR I=0 TO NF-5 STEP 5
2650 SN(I)=RH(J):SN(I+1)=R(J):SN(I+2)=224:SN(I+3)=M(I+3):SN(I+4)=M(I+4):J=J+1
:NEXT I
2660 H=24576:GOSUB 1920:GOSUB 1990
2670 :
2680 J=1:WN=0:FW=0
2690 FOR I=0 TO NF-5 STEP 5:IF SN(I)=M(I) THEN 2730
2700 IF SN(I)+4=M(I) THEN 2730
2710 IF WN=0 THEN FW=J
2720 WN=WN+1
2730 IF J=N THEN 2750
2740 J=J+1:NEXT I
2750 X1=0:X2=39:Y1=11:Y2=23:GOSUB 2180
2760 IF WN>0 THEN 2790
2770 GOTO 2870
2780 :
2790 HT=1:VTAB 12:PI$="YOU MISSED "+STR$(WN)+" RHYTHM VALUE(S).":
GOSUB 2160
2800 HT=1:VTAB 14:PI$="YOUR FIRST ERROR WAS ON PITCH "+STR$(FW):
GOSUB 2160
2810 HT=1:VTAB 16:PI$="PRESS RETURN TO HEAR YOUR RHYTHM":
GOSUB 2160:GOSUB 490:GOSUB 2030
2820 X1=0:X2=39:Y1=15:Y2=17:GOSUB 2180
2830 VTAB 16:HT=1:PI$="HERE IS THE CORRECT RHYTHM.":GOSUB 2160
2840 FOR I=0 TO NF-5:MUS(I)=M(I):NEXT I:GOSUB 1950:GOSUB 2030
2850 FOR I=0 TO NF-5 STEP 5:SN(I)=240:NEXT I
2860 VTAB 18:HT=1:PI$="PRESS RETURN TO TRY AGAIN.":GOSUB 2160:
GOSUB 490:GOTO 2420
2870 :
2880 WN=0:VTAB 11:HT=15:PI$="VERY GOOD!":GOSUB 2160
2890 VTAB 13:HT=1:PI$="YOU HAVE ENTERED ALL THE RHYTHM
VALUES":GOSUB 2160:VTAB 14:HT=1:PI$="CORRECTLY. NOW...":
GOSUB 2160
2900 VTAB 16:HT=1:PI$="AFTER WHICH NOTE SHOULD THE FIRST":GOSUB
2160:VTAB 17:HT=1:PI$="BARLINE BE PLACED? (1,2,3,...)":GOSUB
2160:GOSUB 490
2910 IF R$="" THEN 3010
2920 VTAB 17:HT=35:PI$=R$:GOSUB 2160
2930 J=1:FOR I=2 TO NF-5 STEP 5:IF ASC(R$)<49 THEN 3010
2940 IF ASC(R$)>57 THEN 3010
2950 IF R$>STR$(J) THEN 2980
2960 IF M(I)=239 THEN PI$="CORRECT - PRESS RETURN":VTAB 22:HT=9:
GOSUB 2160:GOSUB 490:GOTO 3070
2970 GOTO 3030

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2980 IF M(I)=239 THEN 3020
2990 J=J+1:NEXT I
3000 :
3010 VTAB 20:HT=10:PI$="INCORRECT ENTRY":GOTO 3040
3020 VTAB 20:HT=1:PI$="A BARLINE OCCURS EARLIER THAN THAT.":
    WN=WN+1:GOTO 3040
3030 VTAB 20:HT=8:PI$="NO, NOT AFTER NOTE "+R$+ "." :WN=WN+1
3040 GOSUB 2160:IF WN>2 THEN PI$="PRESS RETURN TO SEE CORRECT
    BARLINES.":HT=1:VTAB 22:GOSUB 2160:GOSUB 490:GOTO 3070
3050 VTAB 22:HT=10:PI$="PRESS RETURN":GOSUB 2160:GOSUB 490
3060 X1=0:X2=39:Y1=15:Y2=23:GOSUB 2180:GOTO 2900
3070 :
3080 R$="P":HRZ=7:FOR I=0 TO NF-5:MUS(I)=M(I):NEXT I
3090 GOSUB 1950:GOSUB 2100:GOSUB 2080:GOSUB 3350
3100 VTAB 12:HT=1:PI$="HERE IS THE COMPLETED EXERCISE.":GOSUB
    2160
3110 VTAB 15:HT=1:PI$="PRESS RETURN TO GO ON TO THE NEXT
    EXERCISE":GOSUB 2160:VTAB 17:HT=1:PI$="PRESS M TO GO ON TO
    ANOTHER UNIT/EXERCISE":GOSUB 2160
3120 VTAB 19:HT=1:PI$="PRESS Q TO QUIT":GOSUB 2160
3130 GOSUB 490:IF R$="M" THEN 250
3140 IF R$="Q" THEN 3610
3150 GOTO 3280
3160 :
3170 R=0:O$=RIGHT$(B$,1):IF O$="S" THEN R=16:GOTO 3230
3180 IF O$="E" THEN R=32:GOTO 3230
3190 IF O$="Q" THEN R=64:GOTO 3230
3200 IF O$="H" THEN R=128:GOTO 3230
3210 IF O$="W" THEN R=240:GOTO 3230
3220 GOTO 3250
3230 P$=LEFT$(B$,1):IF P$="." THEN R=R+(R/2)
3240 GOTO 2600
3250 HT=1:VTAB 14+J:PI$="INCORRECT ENTRY - PRESS RETURN":GOTO
    3270
3260 HT=1:VTAB 14+J:PI$="PRESS RETURN WHEN ENTRY COMPLETE":
    GOTO 3270
3270 B$="":Y=0:GOSUB 2160:GOSUB 490:X1=0:X2=39:Y1=12+J:Y2=14+J:
    GOSUB 2180:GOTO 2480
3280 :
3290 E$=STR$(VAL(E$)+1):IF E$>"5" THEN 3310
3300 GOTO 380
3310 TEXT:HOME:VTAB 10:PRINT "YOU HAVE JUST COMPLETED THE
    LAST":VTAB 11:HTAB 1:PRINT "EXERCISE OF THIS UNIT."
3320 VTAB 13:HTAB 1:PRINT "PRESS RETURN TO CHOOSE A NEW UNIT.":
    VTAB 15:HTAB 1:PRINT "PRESS Q TO QUIT."
3330 HTAB 19:VTAB 20:GOSUB 490:PRINT R$:IF R$="Q" THEN 3610
3340 GOTO 250
3350 :
3360 PI$=LEFT$(TS$,1):VTAB 6:HTAB 5:GOSUB 760:PI$=RIGHT$(TS$,1):
    VTAB 7:HTAB 5:GOSUB 760
3370 PI$="UNIT "+M$+L$+" "+E$+": ":LL=LEN(PI$)+1:PI$=PI$+ML$+"-":VTAB

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2:HTAB 1:GOSUB 760:PI$=RL$:VTAB 3:HTAB LL:GOSUB 760
3380 PI$=K$:VTAB 10:HTAB 1:GOSUB 760
3390 IF R$="P" THEN RETURN
3400 PI$="FOR HELP TYPE HELP":HTAB 9:VTAB 22:GOSUB 760:PI$="TO
      RETURN TO MENU PRESS 'ESC' KEY":VTAB 23:HTAB 3:GOSUB 760:
      RETURN
3410 :
3420 IF CF=30 THEN 3460
3430 POKE 0,35:POKE 1,42:POKE 2,37:CALL CHAR:POKE 1,65:CALL
      CHAR
3440 POKE 0,67:POKE 1,42:POKE 2,38:CALL CHAR:POKE 1,65:CALL
      CHAR
3450 POKE 0,52:POKE 1,42:POKE 2,39:CALL CHAR:POKE 0,51:POKE
      1,65:CALL CHAR:RETURN
3460 POKE 0,35:POKE 1,48:POKE 2,37:CALL CHAR:POKE 1,67:CALL
      CHAR
3470 POKE 0,67:POKE 1,48:POKE 2,38:CALL CHAR:POKE 1,67:CALL
      CHAR
3480 POKE 0,50:POKE 1,48:POKE 2,39:CALL CHAR:POKE 0,49:POKE
      1,67:CALL CHAR:RETURN
3490 :
3500 Y=0
3510 GOSUB 740:PRINT D$;"OPEN RHY HELP":PRINT D$;"READ RHY
      HELP"
3520 INPUT Z:FOR I=1 TO Z:INPUT RH(I):NEXT I:PRINT D$;"CLOSE RHY
      HELP"
3530 PRINT D$;"OPEN RHY TEXT":PRINT D$;"READ RHY TEXT"
3540 INPUT Z:FOR I=1 TO Z/3:INPUT ME(I):INPUT MA(I):INPUT ME$(I):
      NEXT I:PRINT D$;"CLOSE RHY TEXT"
3550 J=0:FOR I=1 TO Z/3:VTAB ME(I):HTAB MA(I):PI$=ME$(I):GOSUB 760:IF
      J=0 THEN GOSUB 3580
3560 IF ME(I)=22 THEN GOSUB 490:GOSUB 740
3570 NEXT I:GOSUB 2420
3580 :
3590 POKE 1,64:HT=4:FOR J=1 TO 33:POKE 0,RH(J):POKE 2,HT:CALL
      CHAR:HT=HT+1:NEXT J
3600 POKE 1,111:HT=HT+3:FOR J=34 TO 66:POKE 0,RH(J):POKE 2,HT:
      CALL CHAR:HT=HT+1:NEXT J:J=1:RETURN
3610 TEXT:HOME:VTAB 10:HTAB 15:PRINT "GOODBYE":VTAB 15:HTAB 7:
      PRINT "COME SEE ME AGAIN SOON!":END
3620 :
3630 IF XX=1 AND RIGHT$(TS$,1)="8" THEN TP=TP/2:GOTO 3650
3640 XX=0
3650 X1=1000/(TP+1)
3660 IF TP<68 THEN X=2000:GOTO 3690
3670 IF TP<91 THEN X=2200:GOTO 3690
3680 X=2300
3690 IF NB<10 THEN 3710
3700 FOR I=1 TO NB/10:GOSUB 3720:CALL 26551:NEXT I:FOR J=X/2 TO 1
      STEP -X1:NEXT J:GOTO 3730
3710 FOR I=1 TO NB:GOSUB 3720:CALL 26551:NEXT I:GOSUB 3720:GOTO

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3730
3720 FOR J=X TO 1 STEP -X1:NEXT J:RETURN
3730 IF RIGHT$(TS$,1)="8" THEN TP=TP*2:XX=1:IF TP>254 THEN TP=254
3740 RETURN
```

APPENDIX C

DICTIONARY OF VARIABLES

A\$	Second character of melody entry (F or B)
AG	Again *
B\$	Student melody or rhythm entry
C	Clef
CF	Clef *
CH	Character *
CL	Clear screen *
CW	Clef width (space between lines of staff)
D\$	CHR\$(4) + CHR\$(13) - execute statement within program (EX. - load a file)
DI	Display *
E\$	Current exercise number
F	Flag in load text loop
FW	First wrong note in student entry
H	Head of file
HE	Head of file *
HR	(HRZ) Horizontal position of first note
HS	HSET* Tells where to position first set (first chord or note)
HT	Horizontal tab
HZ	HSET - see HS
I	Counter for loops
IN	INITSCN * - Initialize screen
J	Counter for loops
K	Key * - Indicates which key will interrupt file processing
K\$	Key name
KE	Key *
KL	Length of key file
K(Key file
L\$	Rhythmic difficulty level
LL\$	Determines horizontal tab in heading
M\$	Melodic difficulty level
MA(Horizontal tab in HELP files
ME(Vertical tab in HELP files
ME\$(Text in HELP files
ML\$	Melodic difficulty level description
MU(Temporary file for loading
M(Exercise file
N	Number of notes in exercise
NB	Number of set up beats to precede playing of exercise
NF	Number of lines in file **
NN\$	Used to print screen heading

NP Space between notes
 NS NSPACE * - see NP
 O\$ Octave of melody entry
 P\$ Pitch name of melody entry
 PD Play and display melody *
 PG Page - High resolution graphics screens
 PI\$ Text to be displayed in high resolution screen
 PL Play only *
 PN Play number - counter for number of times
 melody played
 R Converted melody or rhythm entry
 R\$ Used for GET (wait for any key to be pressed)
 RH(Student rhythm file
 RL\$ Rhythmic difficulty level description
 R(Student melody file
 S Slot number
 S\$ Used for GET (see R\$)
 S1 Single staff *
 SE SETCNT * - Set number of notes (beats, chords)
 SG Grand staff *
 SL Slot *
 SN(Student exercise file (student version of exercise)
 ST SETNCT - see SE
 TE Tempo *
 TI Timbre *
 TI(Timbre file
 TP Tempo
 TP\$ Tempo
 TS\$ Time signature
 UN Undisplay *
 V Number of voices
 VO Voices *
 VS Vertical position of staff on screen
 WD Width of staff *
 WN Number of wrong notes
 WR Write *
 X Relates TP to standard metronomic marking
 X1 Variable for block erasures
 X2 Variable for block erasures
 XX Sets tempo for exercises with eighth note getting beat
 Y Number of characters in student entry
 Y1 Variable for block erasures
 Y2 Variable for block erasures
 Z Counter for inputing student file

* Variable assigned and used by Music Expermenter's Package.

** Variable inserted in text files by computer.

APPENDIX D

TEXT FILES

Opening of text file

Each text file begins with six variables which establish certain criteria for the exercise. The variables always occur in this order:

NF, N, NB, K\$, C, TS\$

NF – This is assigned by the text writing program and is inserted by the computer. It is the number of lines in the file.

N – N is the number of notes in the exercise.

NB – NB is the number of beats to be played to establish tempo. If a half beat anacrusis is desired take the number of beats, subtract one, and multiply by ten.

K\$ – key of the exercise

C – clef (29 for treble and 30 for bass)

TS\$ – time signature ($3/4 = 34$)

The six initial variables are followed by the codes which define the individual notes of the exercise. Each note needs a code for the rhythm

value, pitch, barline, and two pointers to the next note. The documentation for the MEP program contains more information on creating codes.

APPENDIX E

EXERCISES

Unit 1A: Easy Melodies - No Division of Beat

1)  C Maj

2)  G Maj

3)  A Min

4)  E Min

5)  F Maj

Unit 1B: Easy Melodies - Simple and Compound Division

1.  C Maj

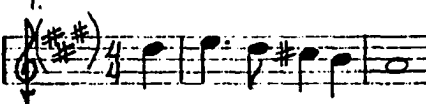

2.  B Min

3.  G Maj

4.  B \flat Maj

5.  D Min

Unit 1C: Easy Melodies – Dotted Note Values

1.  2. 

A Maj G Min

3. 

F Maj

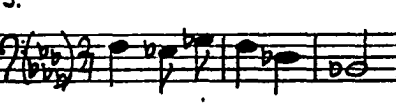
4.  5. 

G Maj FS Min

Unit 1D: Easy Melodies – All of the Above

1.  2. 

E Min A Min

3. 

Bb Min

4.  5. 

D Maj FS Min

Unit 2A: Moderate Melodies – No Division of Beat

1.  2. 
 G Maj G Min

3.  4. 
 B Min D Maj

5. 
 E F Maj

Unit 2B: Moderate Melodies – Simple and Compound Division

1.  2. 
 F Maj E Maj

3.  4. 
 C Min A Maj

5. 
 D Min

Unit 2C: Moderate Melodies – Dotted Note Values

1. 
A Min


2. 
B \flat Maj

3. 
E Min

4. 
A \flat Maj

5. 
F \sharp Min

Unit 2D: Moderate Melodies – All of the Above

1. 
D Min

2. 
A Maj

3. 
B \flat Maj

4. 
B Min

5. 
E \flat Maj

Unit 3A: Difficult Melodies – No Division of Beat

1. 
D Maj

2. 
C Min

3. 
BF Maj

4. 
FS Min

5. 
D Min

Unit 3B: Difficult Melodies – Simple and Compound Division

1. 
B Min


2. 
EF Maj

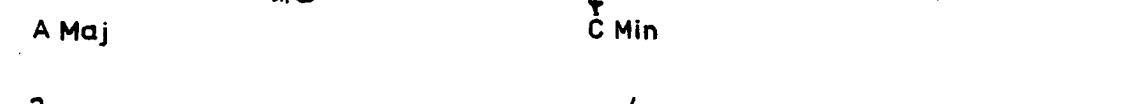
3. 
A Maj


4. 
G Min


5. 
E Maj

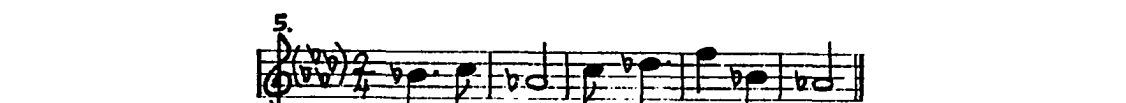
Unit 3C: Difficult Melodies – Dotted Note Values

1. 
A Maj C Min

2. 

3. 
B Min

4. 
G Maj

5. 
A \flat Maj

Unit 3D: Difficult Melodies – All of the Above

1. 
B \flat Maj

2. 
F \sharp Min

3. 
A \flat Maj

4. 
G Min

5. 
E Maj

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