

The appreciation of personalised automatic track selection

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Rapport no. 1136

**The appreciation of
personalised automatic track
selection**

Dunja Ober

A handwritten signature in black ink, appearing to be 'J.H. Eggen', is written over a horizontal dotted line. The signature is somewhat stylized and includes a large loop.

Voor akkoord; Dr.ir. J.H. Eggen

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The appreciation of Personalised Automatic Track Selection
a user evaluation of music compiling functionalities

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Eindhoven, November 1996

Abstract

This document describes the experimental evaluation of the PATS-system that was performed as a part of the 'Adaptive Multimodal Interaction'-project (formerly known as 'Turn on the Base') at the Institute for Perception Research (IPO). This project is aiming at research and development of methods to assess and select relevant information items in multi-media application for home entertainment environments. It is considered relevant to develop tools, to help people solve the selection problem that arises when the user is confronted with large amounts of information.

Adaptive Multimodal Interaction concentrates on a selection out of a large (personal) music collection. To achieve this goal a new functionality has been designed: PATS, Personalised Automatic Track Selection. PATS should compose music compilations (from a large personal music collection) which are personalised for every user and each context-of-use situation. The system has to learn the preferences of the user and will gradually offer more interesting compilations for the user.

The main goal of this experiment was to test PATS on utility and usability aspects. Respectively, could PATS meet certain technical requirements, could PATS offer enjoyable listening sessions and would the participants think PATS to be an acceptable functionality for future use. In the experiments, participants were asked to listen to and judge music compilations. Half of these compilations were created by the PATS-functionality, the other half were purely Random, without the participants being aware of this.

A few conclusions can be drawn. First of all, the PATS compilations contained significantly more preferred music tracks than Random compilations. Additionally, the PATS compilations over time turned out to become increasingly better, which meant an adaptation to the preferences of the users. Both PATS and Random showed a difference in performance when tested in two kinds of (imaginary) situations. This was not an intended effect but its' consequences are diminished while both functionalities display the same effect; therefore the cause of this effect must be searched in an other source than the functionality. Finally it can be said that most participants were interested in having a system like PATS themselves.

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Eindhoven, Dunja Ober.

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1. Introduction

The amount of multi-media content in professional and consumer environments is increasing. The number of television- and radio-programmes are for example still growing and there is also an overwhelming number of newspapers and magazines. In addition, an increase in the number of devices which can be used to access these media is apparent. For instance, more computers and consumer electronic products (like television and CD-players) are developed and used.

From this it might be clear that in the near future, multi-media and multi-media systems or products will be playing a dominant role, not only in the professional-environment, but also in the (home) entertainment environment. Therefore so-called home entertainment systems are developed, which are at best described as an integration of traditional consumer electronic products.

At first sight, it seems a positive development, but it also causes a problem, namely selection problems for the users. A possible solution might be, system adaptivity to the users. The following sections will illustrate these aspects.

1.1 Information Overload

The opportunity to access information does not mean that retrieving specific information is functioning well. When people intend to gather information about a certain subject, a selection process takes place; they filter the data that is available and select only what is of interest to them (e.g. buying a certain magazine and reading specific articles in this magazine).

Nowadays, people are confronted with an ever increasing supply of information. Very often only a small fraction of the available information will actually be relevant to a person. Shardanand even speaks of an 'information overload'; Recent years have seen the explosive growth of the sheer volume of everyday things. The number of products, books, music, movies, news, advertisements, and the flow of information in general, is staggering. A person could not possibly filter through every item in order to select the ones that he or she truly wants and needs (Shardanand, 1994).

Because of this information overload there is a need to design systems or products which help people to find the preferred information. Already information filtering systems exist (for instance, 'Personal News Service' from Jennings & Higuchi, 1993 and 'Tapestry-system' from Goldberg et al., 1992) but most of them are still in an experimental stage. Their interaction styles are often too limited and difficult to use.

1.2 Adaptivity

Besides supplying and filtering information, it is also important that these information filtering systems dynamically adapt to the changing interests of the user.

Adaptivity means improving an appropriate response to the user (Westerink, 1994). A distinction must be made between adaptivity of a functionality and adaptivity of the user-interface. Adaptivity must not be confused with *adaptability* which refers to the user's ability to adjust the form of input and output.

Adaptability is also referred to as 'lexical customisation'; the modifiability is restricted to the surface of the interface, the overall structure of the interaction is kept unchanged. The distinction between adaptivity and adaptability is that the user plays an explicit role in adaptability, whereas her role in an adaptive interface is more implicit. (Dix et al., 1993).

Adaptability is the most likely solution for professional tools. Professional tools are designed for a well-defined, homogeneous target group and used in reasonably known environments. Professionals can be expected to tailor the user interface of their tools to their habits and preferences. That is why it makes user-initiated adaptation a viable technique in many cases.

Adaptivity, on the other hand, could be better used for consumer products. These are mainly designed for a much broader, heterogeneous target group and used in many different, often unknown, environments.

User habits and preferences differ widely, so it might be desirable to equip these products with a user interface that will adapt itself to an individual user. This requires automatic, system-initiated adaptation (de Vet, 1994).

1.3 Adaptive Multimodal Interaction and PATS

With the future home entertainment systems in mind, new functionalities must be designed in order to help people use these systems in a satisfactory and pleasant way. These are, after all, the dominant usability criteria for these products.

In the Adaptive Multimodal Interaction-project, we want to develop new ways to access information content on these home entertainment systems. The application platform is a large personal music collection. With PATS (Personalised Automatic Track Selection) people can be assisted in the selection problem that could arise when confronted with a big amount of music. PATS consists of an automatic compilation generation, of a music programme addressing the music preference of the listener by means of an adaptivity process (adaptivity of the functionality not of the user-interface).

We think that problems and solutions we encounter in this project, can be generalised to other multimedia domains, in particular those which deal with entertainment environments.

1.4 The study

This research is especially directed at the evaluation of the performance of the PATS-functionality on *usefulness*. Usefulness refers to, whether the system can be used to achieve some desired goals. It can be broken down into the two categories *utility* and *usability*. Utility refers to, whether the functionality of the system in principle can do what is needed. Usability denotes, how well users can use that functionality (Nielsen, 1993).

In this study the primary goals are testing on the following aspects:

- **Utility:** testing the 'technical' performance of PATS, with the help of objective metrics.
 - does PATS perform significantly better than other functionalities, at least better than a purely random-functionality?
 - does PATS adapt to the preferences of the user, and thereby offer increasingly better listening-sessions?
- **Usability:** testing the (subjective) participants' opinions (and appreciation) on the performance of the PATS-functionality, by means of questionnaires and semi-structured interviews.
 - did the participants enjoy the listening sessions they were offered? (satisfaction).
 - would the users want a system like PATS in their own home environment? (acceptance).

The distinction made, between utility and usability is in this case very narrow, because the technical performance of PATS is in fact dependent on the judgements of the users.

Other usability criteria, such as effectivity (which refers to the clarity and usefulness of the interface), were not yet of interest, given the fact that the interface is still a prototype. A new interface is being designed and developed (Scheffer, 1996).

2. User Requirements

2.1 Introduction

For a good working PATS-system it is important to know which variables are important for pleasant listening sessions. Also due to former questionnaires, interviews and experiments (Pauws, 1995 and Ober, 1996) we discovered that the following variables (amongst others) have to be taken into account when composing a music compilation:

- user types;
- taste and preference;
- coherence and variation;
- relevant attributes;
- intention;
- expectancy.

2.1.1 User types

Adaptive systems need to incorporate a model of the users for whom these systems are intended. But not all users of information-filtering (adaptive) systems have the same needs and expectations. Two (extreme) types of users can be distinguished (Loeb, 1992). First of all, users with very well defined information needs which are usually formulated as a query or a profile. Loeb calls these users *proactive* users, we prefer to call them *professional* users. In our opinion, this term provides a better distinction from the second type of users; the so called *casual* users. The casual users do not have immediate and specific information needs, and they are typically the users of entertainment and daily news services. Until now most research on information-filtering systems has been done with proactive (professional) users (Loeb, 1992). It is assumed that potential users of the PATS-functionality are best described as casual users.

2.1.2 Taste and Preferences of the user

A distinction can be made, between the *musical taste* and the *music preference* of the user. Musical taste refers to a long-term commitment to a specific range of music. The musical taste of people is often resembled by the music collection they have at home. Musical taste is influenced by the cultural and personal characteristics of a person. Music preference, on the other hand, is more dependent on factors like mood and current activities. So music preference is more instantaneous and does not necessarily include a long-term commitment; it is the liking of a particular piece of music at a certain moment, for instance during a birthday party or a romantic diner (Pauws & Eggen, 1996). This study concentrates mostly on music preference.

2.1.3 Coherence and Variation

Two more aspects are considered important for a good listening session: *coherence* and *variation*. These two variables seem to be incompatible with each other but in fact they are not. Coherence refers to the amount of similarity between different music tracks in a listening session. People are obviously looking for at least some similarity; they listen to radio-programmes in which the music relates to a particular theme (e.g. Classic FM, Euro Jazz and Sky Radio).

But this coherence should not be too extreme; people also like to have some variation when they are listening to music. That is why they do not always play the same CD or listen to the same radio-programme. In general, coherence is more applicable to the tracks within a listening session whereas variation applies to the tracks within *and* between different listening sessions.

2.1.4 Relevant Attributes

A music track can be described by a number of attributes. All these attributes together should give a good characterisation of a track.

People are used to describe tracks in ways of attributes; they speak for example of the artist, the title of the song, the year of recording, or the type of instruments. Therefore, it is important to find out what attributes are most important and take these in consideration when making music compilations.

Clustering tracks with resembling attributes can make a valuable contribution to coherent listening sessions. Making clusters of tracks with different relevant attributes can result in varied listening sessions.

2.1.5 Intentions and Expectations

Finally, two more variables are important namely *intention* and *expectation*. These two concepts are closely related to each other. When a listener puts on some music, most of the time, a specific intention is in mind. For instance, music can serve as easy background music or as a dedicated activity. These are two completely different intentions and therefore also cause completely different expectations. So in fact, expectations are a consequence of intentions, because the music that is offered has to be suitable with what the listener has in mind.

2.2 Existing Functionalities

Current CD-players with a large storage capacity (like a jukebox) already offer a wide range of functionalities to select and play CDs. Some familiar functionalities are described below (Scheffer, 1996):

- **FTS (Favourite Track Selection), Program**: Enables the user to store the title of a CD and the order in which the tracks must be played. Disliked tracks can be left out. The player automatically recognises the CD. Some CD-players are equipped with a multi-disc program; such CD-changers allow users to compose a program out of more than one CD.
- **Random-play/ Shuffle play**: Tracks are selected randomly and played afterwards. The tracks can be selected from one CD, from all CDs or from a category of CDs.
- **Repeat**: Continuously repeating the track/CD/group of CDs, or program that is being played at the moment of activation. Sometimes, users can also repeat a set of randomly selected tracks.
- **Repeat A-B**: Continuously repeating a specified fragment of a track between marker A and B.
- **Intro-scan**: The first few seconds (10 or less) of all tracks on a CD or a group of CDs are being played. During this time users can select the track and add it to the program.
- **Group file/User file**: Create clusters of CDs in the total collection available by the CD-changer. For instance, one could create a group for classical music, jazz, and pop. By using group files, these styles will not be mixed up when playing in normal or shuffle mode.

- Delete file/delete bank: Contains a list of disliked tracks that should not be played whenever using delete shuffle and delete play.

PATS is supposed to complement the FTS functionality and the Random-play functionality. It offers personal and coherent compilations comparable with FTS/programming while giving the ease of use and the variation of automated selections generated with Random-play (Scheffer, 1996).

3. The PATS-system

3.1 Introduction

The objective of PATS is to create music compilations (from a large personal music collection) which are personalised for every user (*Personalised Automatic Track Selection*). This adaptation will be achieved after a couple of sessions. The system has to learn the preferences of the user and will gradually offer more interesting compilations for the user. Learning and adaptation to the preferences of the user is done by processing their judgements. In this chapter PATS will be described in global terms. A more detailed description can be found elsewhere (Pauws, 1995, a,b).

3.2 Track Collection

To use the PATS-functionality adequately, a large music collection is required. If the user does not want to hear the same compilations every time, the system must have the ability to select from a lot of tracks. Tracks are extracted from CDs, stored in the database, and annotated by some *attributes*. Attributes are specific properties of a track, like artist, instrument, or tempo. In this case, 16 attributes are used to describe a track. Appendix A provides an overview of them.

3.2.1 Interacting Tracks

The tracks in the database are now modelled as autonomous components, which are called '*agents*'. An agent includes both the track and information about this track (specified by its attributes). Before the system is put into operation, the agents are all moving randomly in a virtual 2-dimensional space. The behaviour of the agents within this space is metaphorically comparable with the flocking of birds (Eggen, 1995). When agents have the same properties (common attributes) they attract each other and stick together in a cluster (Figure 3.1).

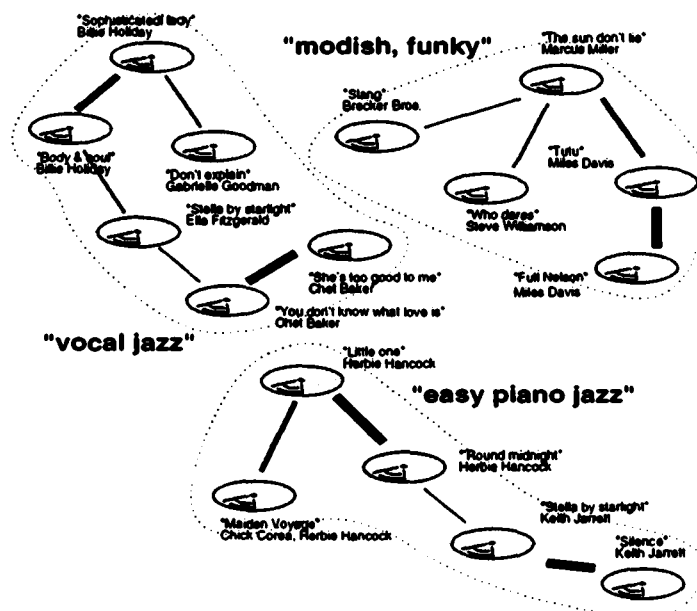


Figure 3.1: An example of the 'clustering-process' in PATS; thin lines represent narrow resemblances between tracks. Fat lines represent large resemblances

This so called 'follow behaviour' of the tracks, is determined by the local similarity between the track attributes. Similarity is defined as a weighted sum of common attribute-values in which the weights express the salience of the attribute-values with respect to the user music preference (Pauws, 1996). Consequently the similarity within a cluster should be high, which resembles the requested coherence within a listening session. The similarity between different clusters should be low, which resembles the requested variation between listening sessions. The making of the clusters is a continuous process; clusters are continually dissolved and built up again. Clusters are thus variable over time.

3.2.2 Actual use of PATS

When a user wants to listen to a listening session created by PATS, the start-session button has to be activated (see Figure 3.2). The user selects one track out of all tracks in the database. This track already belongs to a certain cluster and this cluster is offered to the user as a listening session. While listening, the user is able to manipulate the sessions with some features like, 'play', 'pause', 'fast forward' and 'rewind'. Besides these features, which are also found on current audio-sets, PATS is supplied with four other buttons.

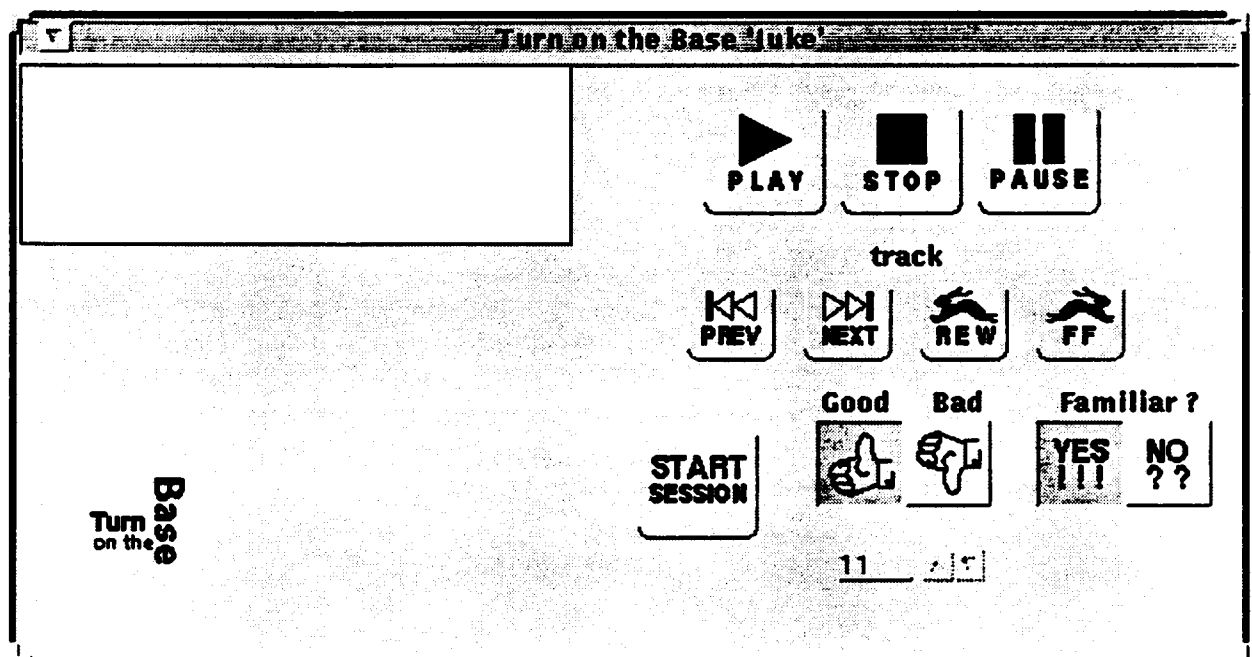


Figure 3.2: An overview of the current interface as used in the experiments.

First of all, the 'thumb-up'-button, which is reserved for indicating a users' approval of an offered track and the 'thumb-down'-button, which is reserved for indicating a users' disapproval of an offered track. These buttons give the user the opportunity to judge tracks whether they are appropriate in the presented compilation. These judgements are important to improve the working of PATS. The system will remember the judgements of the users and assimilates it in following sessions. In this way, PATS adapts to the users' preferences and offers continuously better listening sessions. Users are naturally not always willing or capable to give these judgements. Since in this study an optimal performance of the PATS-system was to be tested, the listeners were asked to judge every track explicitly.

Besides the 'thumb-buttons' the user was able to indicate if the presented tracks were familiar or not (a note of exclamation meant: familiar, a question-mark meant: not familiar). This button was purely for research goals and will not be implemented on the 'real' PATS-functionality.

3.3 Evaluation of PATS

3.3.1 Measurement Features

The PATS-functionality is implemented as a demonstrator. Besides PATS, this demonstrator also has some features that can be used for experimental testing of the PATS-functionality. For example, it has some functionalities for displaying and calculating performance statistics and it can generate a random-session (Pauws, 1996). Calculating performance statistics of PATS was done by the following (quantitative) indicators:

* **Precision**: Precision measures the fraction of preferred music pieces in a compilation presented at time t , $O(t)$ denotes a fixed size set of offered music pieces, whereas $O_p(t)$ refers to the preferred subset of $O(t)$, $\#(S)$ denotes the number of items in set S .

$$\text{precision} = \frac{\#(O_p(t))}{\#(O(t))} \quad (\text{EQ 1})$$

* **Coverage**: Coverage measures the number of distinctive and preferred tracks offered. This is measured, over *all* compilations, which results in a cumulative count,

$$\text{coverage} = \#(\bigcup_{k=1}^t O_p(k)) \quad (\text{EQ 2})$$

* **Variation**: Variation measures the number of distinctive tracks between two compilations adjacent in time,

$$\text{variation} = \frac{\#(O(t) - O(t-1))}{\#(O(t))}, t > 1 \quad (\text{EQ 3})$$

* **Preferred Variation**: Preferred Variation measures the number of preferred and distinctive tracks between two compilations adjacent in time,

$$\text{pref. variation}(t) = \frac{\#(O_p(t) - O_p(t-1))}{\#(O(t))}, t > 1 \quad (\text{EQ 4})$$

For this experiment only, two additional metrics were installed :

* **Familiarity**: measures the number of familiar tracks per session,

* **Annoyance**: measures the number of non-preferred tracks in a compilation, that were already present in one of the preceding compilations, O_{np} denotes the number of offered, non-preferred tracks;

$$\text{annoyance}(t) = \frac{\#(\bigcup_{k=1}^{t-1} (O_{np}(k) \cap O_{np}(t)))}{\#(O(t))} \quad (\text{EQ 5})$$

3.3.2 Jazz-collection

The PATS-system is comparable with a CD jukebox player. The system (database) is filled with a personal music collection. For the sake of this research, 300 tracks were extracted from 100 albums. All tracks were Jazz oriented or related to Jazz music. Jazz music is a well-defined music area which stretches over a wide period (early 1920-now) and covers many styles. (Pauws, a,1995). If the PATS-functionality turns out to be successful with the jazz-collection, it will probably be successful with other kinds of popular music too.

The tracks were shortened to one minute. This 'shortening-procedure' was necessary in order to permit several listening sessions. If the participants should have listened to all tracks entirely it would have taken too much time. Pilot experiments showed that one minute was sufficient to obtain a clear idea of a track (Ober, 1996). Besides that, the participants were supposed to be jazz-lovers and the database should resemble at least a part of their personal music collection. Figure 3.3 depicts what jazz-styles are represented in the music collection.

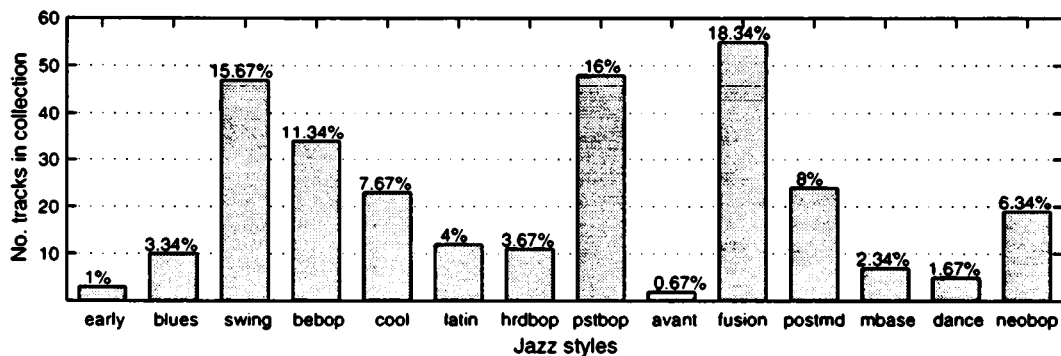


Figure 3.3: An overview of the jazz-styles represented in the database of PATS.

4. Research Questions

4.1 Purpose

The objective of the evaluation is to determine the added value of PATS with regard to functionalities already found on current products (like random-play, program and FTS). In general the PATS-functionality has to be a simplification for the selection-problem that arises when the user has to deal with a large music collection.

PATS will be tested on aspects of utility, like the performance of the system, and of usability, like satisfaction and acceptance of the system by the users.

4.2 Questions

The main question of interest, is whether the PATS-functionality offers a considerable contribution to the process of music selection. This question consists of three aspects:

1) First, the following requirements for a good working system must be stated:

- It should be proven, that the appreciated amount of music that is presented is (statistically) significant. The PATS listening sessions should score significantly better than Random offered listening sessions.
- Subsequent measurements have to show that the offered listening sessions will progressively improve. An adaptation trend should be found; the system should learn the music preference of the user. That is why the participants were offered several listening sessions instead of just one.
- The system should work the same in different pre-defined situations or moods of the user. This will be tested by comparing the performance of PATS in two different (imaginary) situations.

2) Secondly the subjective opinion of the participants, about the working of PATS, should be obtained. To get these results the following questions were asked:

- Does PATS offer listening sessions that are appreciated by the users?
- Does the user perceive the adaptation trend?
- Would the participant actually use PATS at home?

3) Finally there has to be a relation between these two aspects. It should be investigated if there is a relation between the measurements of the system and the information that comes from the participants with respect to important issues for a pleasant listening session.

5. Method

5.1 Global tasks of participants

During this experiment, the main task of the participants was to listen and judge the presented listening sessions. To start the first listening session, the participants had to think of a track that would resemble their preference in a specific situation. This 'starting-track' would remain the same during all sessions of one situation.

During the listening sessions, the participants were instructed to listen carefully and judge each track separately. They should base their judgements on suitability of the track in the situation they had in mind. By pressing the 'thumb-up' button, the participant was able to indicate whether the track was suitable in the imaginary situation. By pressing the 'thumb-down' button, the participant was able to indicate whether the track was *not* suitable in the imaginary situation. In addition to this judgement, the participants were instructed to indicate if the track was familiar to them.

Next to this 'track-judgement' the participants also had to give judgements on the level of the whole listening sessions. This was done by questionnaires and an interview. Furthermore the participants were able to manipulate the listening sessions through the other features that were present on the interface, like rewind, fastforward (see Figure 3.2).

5.2 Participants

Because the database of PATS consisted of a specific music collection, the experiment required a specific group of participants; they had to be jazz-lovers. The participants had to know (some of) the tracks in the database because it was supposed to resemble their personal music collection.

Through advertisements (Appendix B) 20 participants who were willing to join the experiments were selected, 17 males and 3 females with an average age of 26, the youngest participant was 19 years old and the oldest participant was 39 years old. They had different professions but all with above average education. When analyzing the data, the three females were included with the men, since they would not provide enough stability to give information about this sex group.

All participants were paid a small fee.

5.3 Procedure

5.3.1 Environment and Equipment

The participants had to come to IPO to join the experiments. The experiments were conducted in a silent office room. During the first two listening sessions, the experimenter stayed with the participants to answer possible questions or to clarify possible indistinctnesses. After that, the participants were left alone with the computer.

A music database comprising 300 one-minute excerpts of jazz music pieces (MPEG-2 128 Kbps stereo) served as test material. The test equipment consisted of a SUN sparc-5 workstation, APC/CS4231 codec audio chip, and two Fostex 6301 B personal monitors.

The participants were 'manipulating' the system by using a mouse. Every presented compilation and the associated judgements of the participant was recorded in log-files.

5.3.2 Experiments

The participants were asked to do eight *listening sessions* (experiments) on eight successive days. Each listening session consisted of two *compilations*, one PATS-compilation and one Random-compilation (not necessarily in that order, see 5.4 Repeated measures). Therefore every participant had to listen to 16 compilations. The participants were not informed they were being offered two different kinds of music compilations. The compilations consisted of 11 tracks of one minute. The listening sessions lasted about half an hour each, with the exception of the first and the last one. In these sessions respectively, an extra questionnaire and an extra interview were held. These sessions lasted about 45 minutes.

When the participants came for the first time, they were first given a questionnaire (Appendix C). This questionnaire was intended to get some information about three aspects:

- general descriptive characteristics of the participants like age and gender;
- the personal music interest of the participants;
- the personal music preferences in the present situation.

Thereafter the participants were given some instructions (Appendix D) in order to explain their tasks and the different buttons on the interface. The participants were not informed about the actual aim of the experiments, to avoid any kind of influence. They were told that this research was done to find out, what attributes people think important when they are judging music compilations.

The task they got was, first of all, to imagine that they were in a particular situation. To obtain this, two kinds of (extreme) situations were defined. One '*easy-listening*'-situation (for instance, soft music during diner) and one '*up-tempo*'-situation (for instance, dance music during a party). Every participant got four listening sessions for each situation.

The second task was to think of a prototypical track they would like to hear in that specific situation. Because this was not always that easy, we provided them a list of tracks that were available in the PATS-system (Appendix E).

When a prototypical track was chosen, the participants could select this track in the window with the whole track-collection. If a participant was not really certain about her choice, she had the ability to listen to the track without it being selected.

When the right track had been chosen the compilation could be started by pushing the start-session-button (see Fig. 3.2). For both the PATS- and the Random-functionality a compilation was being constructed around the prototypical track and offered to the participant.

The participants were instructed to judge every track with the thumb-buttons and the familiar-button (as already described in Section 5.1).

After each compilation, a second questionnaire (Appendix F) was handed out. The purpose of this questionnaire was to give the participants a sort of 'mind-set'; the questionnaire should bring to light significant aspects on which they should judge the compilations (for instance: coherence, variation and suitability). The questionnaire was in this case not used for analyses.

When both compilations were completed, the participants were handed out a third questionnaire (Appendix G). This questionnaire was meant to clarify the distinction between the two offered sessions. Questions were mainly focused on a clear distinction in preference between, PATS and Random. By means of forced binary choice the participants should for example make clear which compilation was more suitable, showed more coherence and more variation.

The participants were asked to follow this procedure twice, for both imaginary situations. After all 16 compilations, a small semi-structured interview was held (Appendix H). In this interview the participants could give their opinion about the PATS-functionality, about the experiments in general and about a potential acceptance of a system like PATS in the home-environment.

5.4 Repeated measurement design

For this research it was important to test the adaptation-trend of PATS and the associated judgements of the participants over time. The most appropriate method to test this, was a repeated-measurement design (or within-subject design). In such a design, the several response variables are results of the same test (or measurement) applied at a number of different times.

A major advantage of repeated measurement design is that each individual acts as his or her own control. When the same subject performs quite differently under each of the treatments then the effect of the independent variable is very clear indeed (Breakwell, 1995).

The experiments existed of a two-by-two-by-four factorial within-subjects design with one between factor. The between factor, 'group', was the random assignment to one of the two existing groups. Both groups got exactly the same treatments, however in a different order. The second factor, termed 'functionality', had levels PATS and Random. The third factor, termed 'situation', was divided in the levels 'easy listening' and 'up-tempo listening'. And the final factor, termed 'session', consisted of the four different listening sessions.

Problems with repeated measurement design

Because a repeated measurement design was used, some of the problems which are common with this method had to be taken care of (Breakwell, 1995);

1. **Order effects:** These effects arise because of the serial nature of testing, doing one task first and another second influences the participants' performance or judgement.
2. **Carry-over effects:** These effects come into play when the participants' performance or judgement on one condition is dependent in part on the conditions which precede it and thus risk of lowering the experiment's validity.

The solution for order effects is counterbalancing; divide the whole group in two and give both groups the same conditions only differ the sequence of these conditions. The solution for the carry-over effects is an alternating treatment design; change the order of the treatments within a participant between successive measurements. Taking all these aspects into consideration, an experimental design resulted, as shown in Table 5.1.

Table 5.1: Experimental Design, with counterbalancing and alternating pairs. Group 1: first up-tempo sessions and starting with a PATS-compilation. Group 2: first easy-listening sessions and starting with an Random-compilation.

		Experiment															
		1		2		3		4		5		6		7		8	
Group 1		P1u	R1u	R2u	P2u	P3u	R3u	R4u	P4u	P5e	R5e	R6e	P6e	P7e	R7e	R8e	P8e
Group 2		R1e	P1e	P2e	R2e	R3e	P3e	P4e	R4e	R5u	P5u	P6u	R6u	R7u	P7u	P8u	R8u

P = PATS

R = Random

u = up-tempo listening session

e = easy-listening session

The participants were therefore presented with a total of 16 compilations (8 PATS and 8 Random) during eight listening-sessions. Every compilation consisted of 11 tracks of one minute.

5.5 Pilot Experiment

Before the experiments started, a test was required to check whether the set-up of the experiment was functioning the way it was supposed to do. The user trial, the questionnaires, and the interview were tested on clarity and usefulness. Two participants were asked to go through the experiments critically and to point out were they noticed some difficulties or indistinctness. Remarks and recommendations were incorporated in the experiments.

6. Results

6.1 Participants

As already described in Section 5.2, 20 participants (17 male and 3 females) with an average age of 26, joined the experiments. The raw data of all results can be found in Appendix I.

The first questionnaire (Appendix C) provided some information about the 'musical listening habits' of these participants. Figure 6.1 shows an overview of the most important findings.

Because the participants were supposed to be active in their listening habits and therefore own a large music collection, we asked them how many CD's they owned. The majority of participants showed a collection of less than 50 CD's. Only three persons had more than 200 CD's.

Most participants indicated listening daily to their music collection, with an average listening time of two hours a day. Only three participants listened weekly, two of them about three hours a week, the third 15 hours a week. None of the participants listened only monthly to his or her collection.

Almost all participants said they used also different kind of sources to listen to music (besides their own collection). The most relevant alternatives were radio and television. Both sources were mentioned by 11 participants. Other ways to listen to music were borrowing CD's from a library, going to concerts, or making music themselves (16 participants played a music instrument). Only two participants did not use different sources but their own music collection.

The participants were asked which functionalities on the audio sets they *used* and *preferred*. However there is an overlap between people who declared a specific functionality as preferred and people who actually used it; participants who did not use other functionalities also did not have a preference. Many participants (9) indicated not to use any specific functionalities at all. Random-play or shuffle was the most used alternative besides not using any functionality. FTS (Favourite Track Selection) or the program-functionality was also used by five people. One person said he used the remote control for controlling the stereo. Another person often made use of the Repeat A-B-functionality (continuously repeating a specific fragment between marker A and B).

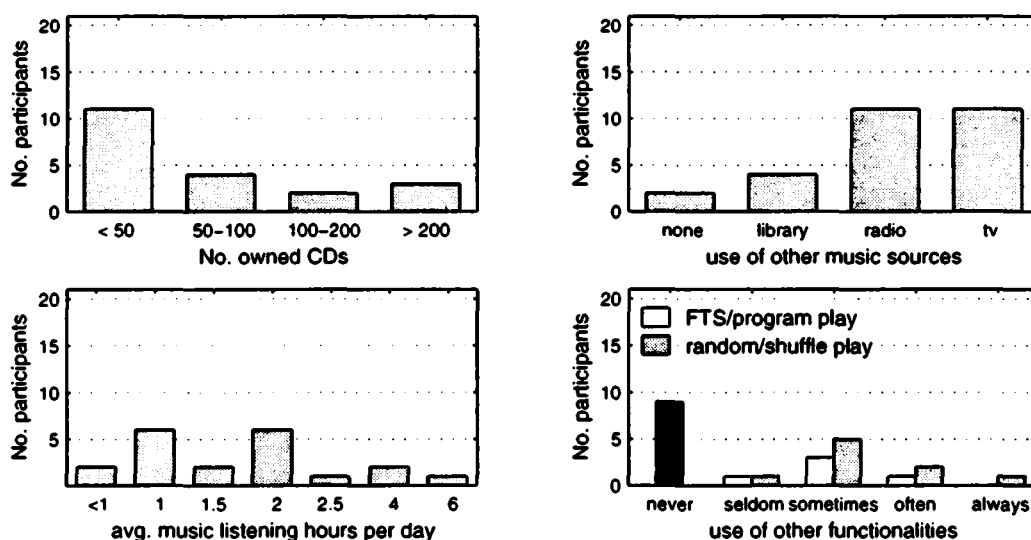


Figure 6.1: These four figures show respectively, the number of owned CD's, the use of different music sources besides their own collection, the average listening time per day and the use of different functionalities besides their own collection.

Random (or shuffle) seemed to be the most preferred functionality (by seven participants). The other functionalities mentioned (like FTS (program), remote control and Repeat A-B) were all just indicated by one person as favourite.

We also asked the participants how many good tracks a CD should have, for them to buy that particular CD. An average number of 5.5 was the result. The median showed a number of 6.5 and the mode a number of 7.

Finally, we wanted to know if the participants wanted to see some improvements on current audio-sets. The majority of the participants did not see a need for improvements, however a few people mentioned the following wishes:

- A multi-CD player (for 6 to 10 CD's);
- A negative program-functionality;
- A mood functionality;
- Simplified control of the audio-sets;
- Memory to be able to program some fragments to remember.

Some of these are already existing functionalities, but obviously not known by the participants.

6.2 Experiment Results

The data resulting from the experiments could be divided in three subdivisions;

- 1) Quantitative data stored by the system itself (like precision, coverage, variation);
- 2) Quantitative data from the questionnaires;
- 3) Qualitative data from the interviews.

All quantitative results reported here were obtained using SPSS for Windows, version 6.0. All *F* values reported are for unique sums of squares. An alpha level of .05 was used for all statistical tests. The interviews were analysed by interpretation of the interviewer.

In all of the following analysis, the measurement of 'appreciation of a listening session' was based on the variable precision. Precision can be formulated as the number of preferred tracks compared to all offered tracks in a compilation (the number of offered tracks is always 10). This seemed in our opinion, the best operationalization of the participants' appreciation.

Besides precision, the participants were asked to give a grade for each compilation (0-10, with 0 being very bad and 10 being very good). The repeated measurement analysis of variance on these data showed the same results as precision did.

6.2.1 Results from the system

In order to test hypotheses regarding the effects of functionality, situation and session on appreciation of a listening session, we computed a 2 (functionality) x 2 (situation) x 4 (session) repeated measurement analysis of variance (ANOVA) with one between factor (group), using a multiple analysis of variance (MANOVA) procedure. The means and standard deviations of all conditions are shown in Table 6.1.

Table 6.1: Means and standard deviations of all conditions, based on precision (maximum=10).

	PATS easy listening	PATS up-tempo listening	Random easy listening	Random up-tempo listening
Session 1	7.25 (1.71)	5.95 (1.88)	5.40 (1.54)	3.45 (1.61)
Session 2	7.05 (1.64)	6.50 (1.82)	5.00 (2.03)	4.05 (1.76)
Session 3	7.10 (1.68)	6.30 (2.10)	5.10 (1.94)	3.95 (1.67)
Session 4	8.05 (1.82)	7.25 (2.02)	5.10 (2.10)	3.60 (2.09)

Main-effect 1: Group-effect

First of all, a significant group-effect was not found, $F(1,18)=.27, p=.608$. Neither there were significant interaction-effects. This meant that the sequence of measurements (on which the difference between the two groups was based) did not have to be taken into account. The two formed groups could be taken together in processing the results. This created the advantage that the results could be generalised to the whole sample size.

Main-effect 2: Functionality-effect

We did find a significant functionality-effect, $F(1,18)=91.80, p=.000$. After examination of the means of PATS and Random we may well conclude a significant better score for the PATS listening sessions (Fig. 6.2). No other significant effects were found.

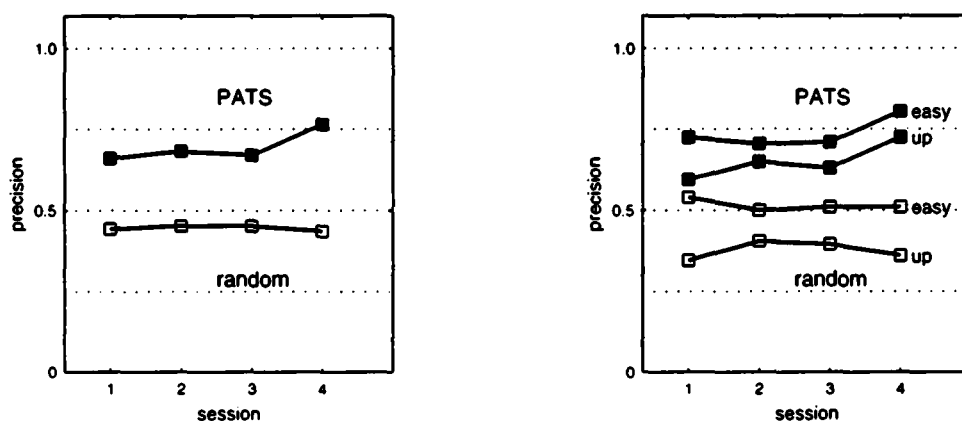


Figure 6.2: Average precision on PATS and Random. The left graph shows clearly a higher score on precision for the PATS-functionality, taken both situations together. The right graph shows the same results for PATS and Random but thereby also shows a significant situation-effect, with a better score for easy-listening sessions in both situations.

Main-effect 3: Situation-effect

The third main-effect on situation also appeared to be significant, $F(1,18)=12.73, p=.002$. This means a significant difference exists, in the appreciation of the up-tempo-and easy-listening sessions. Figure 6.2 (right) shows clearly a higher score for the easy listening sessions. Both PATS and Random showed this difference in performance with both (imaginary) situations. This was not an intended effect but its' consequences are diminished while both functionalities display the same effect; therefore the cause of this effect must be searched in an other source than the functionality

Main-effect 4: Session-effect

The last main-effect refers to the adaptation trend that PATS should (and Random should not) perform over the four sessions. We did not find a significant session-effect when taken PATS and Random together; $F(3,54)=1.14, p=.341$. What we did find was a significant interaction-effect of session x functionality; $F(3,54)=3.23, p=.029$. Random itself does not show a significant effect; $F(3,54)=.13, p=.943$. But PATS actually does have a significant session-effect; $F(3,54)=3.38, p=.025$.

The fact that a relation exists between the PATS-functionality and the different sessions does not by all means signify that this trend is linear. A regression analysis was done to test the linearity of the trend. This turned out to be significant as well; $F(1,158)=4.873, p=.0287$ with $\xi=.173$. Because the graph especially intensifies at the fourth session, we also tested on a quadratic trend. This also turned out to be significant, $F(2,157)=3.195, p=.0436$.

Variation, Preferred Variation, Coverage and Familiarity

Besides these four main-effects with respect to our hypotheses, we also measured the efficiency of the system by the variables variation, preferred variation, coverage and familiarity.

Variation

Variation measures the number of distinctive pieces between two compilations adjacent in time. The amount of variation for both PATS and Random is shown in the left graph of Figure 6.3.

For all sessions, Random shows a significant higher score on variation than PATS does ($F(1,18)=91.22, p=.000$), as was already expected. Furthermore a significant group-effect was found, $F(1,18)=10.97, p=.004$. This means an unexplainable significant influence of the order of experiments on variation. (Participants of the first group were offered more varied compilations). A significant group x functionality interaction-effect was also found, $F(1,18)=6.63, p=.019$. After examination of PATS and Random separately, this group-effect only appeared within the PATS condition ($F(1,18)=9.80, p=.006$).

Preferred Variation

In addition to 'normal' variation, preferred variation gives an overview of the number of distinctive *and* preferred pieces between two compilations adjacent in time. Again a significant functionality-effect was found $F(1,18)=20.21, p=.000$. Figure 6.3 shows a higher level of preferred variation for PATS. Besides that we also found a significant situation-effect ($F(1,18)=4.28, p=.053$). Again the easy-listening sessions showed a higher score than the up-tempo listening sessions.

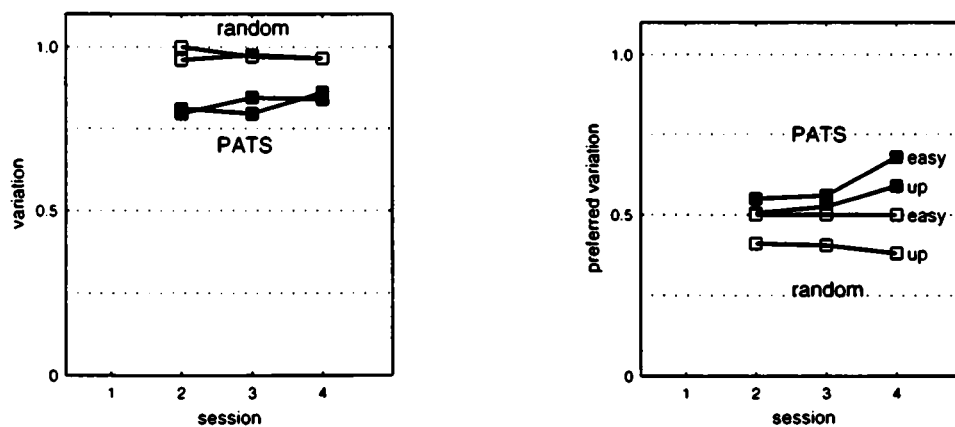


Figure 6.3: The left graph represents the amount of variation, the right graph represents the amount of preferred variation for both PATS and Random and easy-/up-tempo-listening sessions.

Coverage

Coverage was defined as the total number of preferred but also different tracks after every listening session. Once again, we found a significant functionality-effect, $F(1,18)=66.03$, $p=0001$, as shown in Figure 6.4.

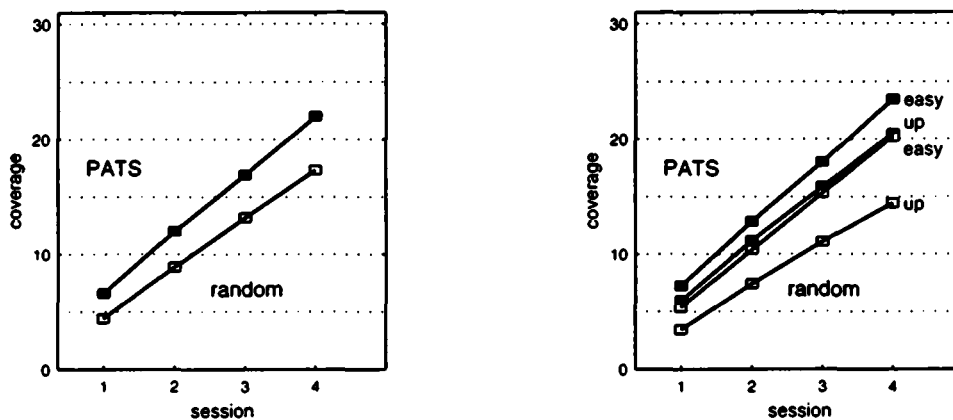


Figure 6.4: Left: amount of coverage for both PATS and Random, it is clear from this picture that PATS-sessions offer more distinctive and preferred tracks than Random does. Right: this figure shows besides the functionality-effect also the situation-effect; easy-listening sessions possess more coverage.

In the left figure a higher rate of coverage for PATS over all sessions is to be seen. Aside from this, the easy-listening sessions are for both functionalities (PATS & Random) significantly higher in their amount of coverage ($F(1,18)=13.26$, $p=.0019$), which is shown in the right figure. The effect of session was also significant, $F(3,54)=644.96$, $p=.0001$. And finally, there was a significant interaction-effect from functionality x session $F(3,54)=8.25$, $p=.0001$. This interaction-effect was caused by a faster increasing PATS curve.

Familiarity

The variable familiarity which measures the number of familiar tracks. Familiarity only has a significant functionality-effect, $F(1,18)=12.33$, $p=.002$, which shows more familiar tracks in the PATS-compilations. Furthermore, familiarity does not have any other significant effects (Fig. 6.5).

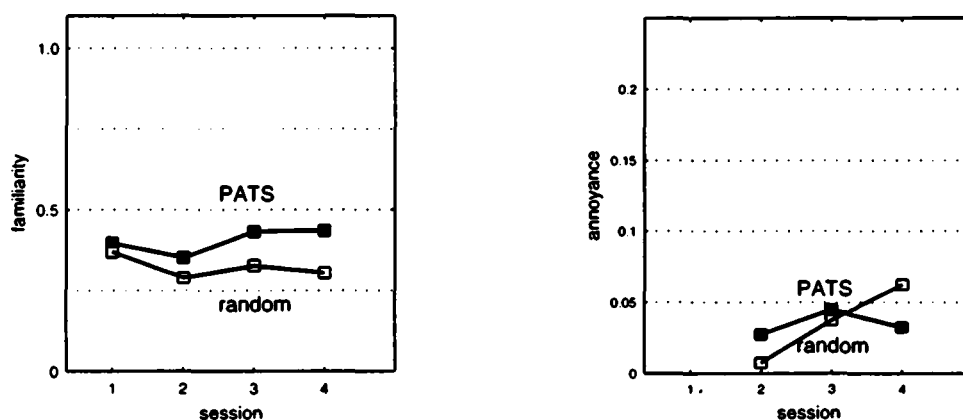


Figure 6.5: Left: The number of familiar tracks per session. Right: the amount of annoyance per session.

Annoyance

At last we examined the variable annoyance, which measures the number of non-preferred tracks in a compilation, that were already present in one of the preceding compilations. We only found a significant

main effect on session, $F(2,36)=5.05$, $p=.015$. Thereby we found an interaction-effect of functionality x session, $F(2,38)=5.74$, $p=.007$. As shown in the right graph of Figure 6.5, both functionalities are influenced in a different way by session. In session 2 and 3, PATS seems to have more annoyance in its compilations, which means more non-preferred tracks that were already offered. Besides this, the annoyance with PATS decreases while Random shows an increase. The shown linear contrast of Random is significant, $F(1,118)=20.09$, $p=.000$. Although a quadratic contrast for PATS is suggested by the figure, this only turned out to be significant for the easy-listening sessions, $F(1,57)=3.88$, $p=.026$.

6.2.2 Results from the questionnaires

Former results were all based on data received from the input of participants on the system. Besides that they were asked to fill in several questionnaires which measured their subjective opinion on the listening sessions.

Before analysing the data of these questionnaires, the reliability of the questionnaires had to be stated. Reliability refers to the consistency of examinees' relative performances over repeated administrations of the same test or parallel forms of the test. To estimate the internal consistency of a test, coefficient alpha is a commonly used measure. Coefficient alpha provides a convenient way to estimate the lower bound of the coefficient of precision for a test (Crocker & Algina, 1986). For a good test a reliability of .80 is required. Questionnaire 3 (Appendix C) gives a Cronbach's alpha of .70, which is rather low. Therefore one should be very careful in drawing any conclusions from these data.

The questionnaire consisted of five questions with a dichotomous answering format. Because of this format it was possible to test the results with a binomial test. With an alpha of 5% we found the following results (also shown in Figure 6.6);

- The question, which session was better PATS or Random was in all but two cases (easy-listening sessions 2 and 3) answered significantly in the favour of PATS.
- PATS showed also a significantly better score on the question which listening session exhibited more coherence. Only the up-tempo listening session 3 showed no significant effect.
- Only two Random listening sessions (namely up-tempo, sessions 1 and 3) showed a significant effect on the third question; which session showed more variation. All other sessions did not show significant results.
- In all cases the PATS listening sessions fulfilled the expectations of the participants significantly more than the Random listening sessions.
- The final question was, which sessions would fit better in the imaginary situation. The PATS sessions were in all cases significantly more appropriate.

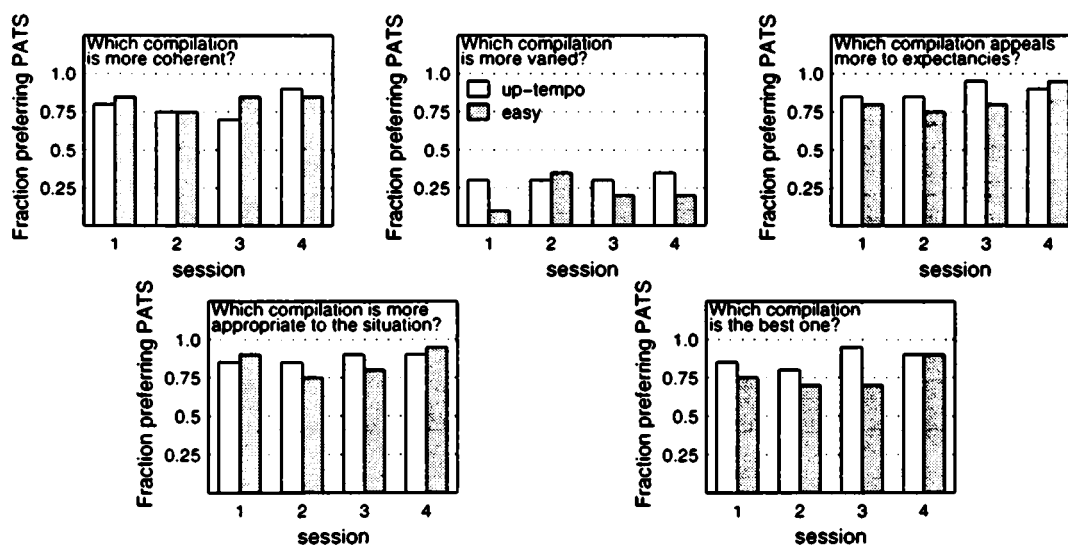


Figure 6.6: An overview from the questions asked in the third questionnaire.

6.3 Interview Results

The concluding interview was intended to yield some supplementary findings.

First of all, we wanted to know the general opinion of the participants on the offered listening sessions. This was a very general question because it included *all* listening sessions. It would have been impossible for the participants to make a distinction between the PATS and the Random compilations especially due to the alternating treatment design.

Most participants thought the compilations to be varied, but also discovered a specific trend; within one listening session there was always one compilation that would fit better in the imaginary situation.

Looking at the results from the questionnaires and the system this would most probably be the PATS-compilations.

Only one person judged all listening sessions negatively. In his opinion, most sessions would not fit in the different situations. Another person thought the sessions were somewhat too messy. But the remainder of participants thought the sessions to be reasonable or good.

Furthermore, there were two things that caused some irritation to some participants;

First of all a few participants remarked they were offered a couple of times the same tracks or tracks that very much looked alike (for instance, several tracks of one artist or tracks of the same time-period or style).

The second remark was actually in the same line as the former; people were (unpleasantly) surprised when negatively judged tracks were still presented to them. The 'annoyance-metric' showed that the number of these recurrences was actually low.

The linear trend, that should arise in positively judged sessions, was not discovered convincingly by the participants. Eight persons did notice this linear trend. They said the sessions became increasingly better and even adapted to their preferences. Eleven participants did not notice any trend at all.

We also asked if the participants did notice some difference between the easy-listening and the up-tempo sessions. Half of them did not notice any difference. In the other half, three people enjoyed the up-tempo listening sessions more and seven people liked the easy-listening sessions more. This last finding resembles the results found in the other tests (a better performance of the easy-listening sessions). The participants explained this finding themselves by saying that the easy-listening sessions were simply better fit for the imaginary situation.

Finally, the participants were asked if they would like to have a system that would create personal listening sessions. Seven people did not really see the need for such a system. Their major objection to it was their loss of control; they want the freedom to decide themselves what music to listen to. Another person did not want such a system either, but thought it a good solution for café's or department stores. The other twelve participants would like to have a 'personalised music offering system'. Their main reason for this was to be able to acquaint themselves with different and varying music-styles or artists. Besides that, it could be a good instrument to cover their whole (large) music collection.

7. Discussion, Conclusions & Recommendations

7.1 Discussion

The study reported has a number of research issues:

First, the participants represent a fairly narrow sample and there is no guarantee that these results can be generalised to a wider population. However, for a first indication of PATS' performances, a sample size of 20 participants was supposed to have enough power to test the hypotheses.

In our opinion, most hypotheses could be tested by the used research-design. In that way, the validity of this research appeared to be quite high.

Only two unexplainable effects were found.

First of all the significant group-effect on variation. Many factors can be responsible for this effect. However in this situation it can probably best be ascribed to pure coincidence.

The second unexpected effect was that of situation. PATS and Random did not manage to offer compilations of the same quality for both imaginary situations, the easy-listening sessions were over all judged more positively. It is hard to discover the cause for this phenomenon. It could be that the collection of easy-listening tracks, that would fit in the imaginary situation of the user, was larger than those of the up-tempo listening tracks. And therefore 'they' had a better chance to be admitted to form a cluster.

Another explanation could be a larger tolerance of the user for easy-listening sessions or a more stringent attitude towards the up-tempo listening sessions.

The 'annoyance-metric' showed that the number of repeated tracks was actually very low. Still, a few participants remarked to have heard the same tracks in different compilations, even when those tracks were judged negatively. This was, in their opinion, especially the case with the PATS-listening sessions. The variation of the PATS-sessions is indeed lower than the variation of the Random-sessions (which does not implicate a lower appreciation of the PATS-sessions, most of the time the Random-sessions were even judged to be too varied). A possible explanation for this is the difference in gathering tracks for both functionalities. With Random all tracks in the database are potential to be chosen in a listening session. With PATS this potential is limited, only the tracks with resembling attributes are potential 'candidates'.

A final understandable objection can be raised against the fact that in this research PATS was only compared to a Random functionality. It may be questionable if a better performance of PATS is proven this way.

The reason why this was done is simple: the aim of this research was not to do a real comparison test with current functionalities. Moreover it was intended to find an indication of PATS performances and users' acceptance of PATS *besides* the other functionalities.

To test this, comparing with a purely Random compilation seemed, in our opinion, the best option, because this is probably the most 'neutral' alternative.

We also tried to simulate a kind of FTS-functionality by letting the participants compose a list of preferred tracks in each situation. This turned out to be too difficult for the participants, since they often could not remember the title or artist of a certain track.

7.2 Conclusions

Because of the small sample size and the explorative nature of this study, definitive conclusions cannot be drawn. However, we believe that it is safe to conclude that the PATS-functionality performed well. With respect to our hypotheses the following (most important) findings were revealed:

1. On the base of the measured precision and the questionnaires it can be said that the PATS listening sessions were more appreciated than the Random listening sessions. In the PATS sessions more tracks were judged positively and were said to be a better fit in the imaginary situation. Besides that the PATS sessions did more address the expectations of the participants also with respect to the situation they had in mind.
2. The PATS listening sessions did show a linear trend over all sessions. Although this 'adaptation-trend' was not yet convincing, it is already pointing in the right direction. Further alterations on the system should make this adaptation-trend stronger and more convincing. Perhaps this could be done by a more specified preference of the user.
3. Another important requirement for PATS was a equal performance level for different situations or moods of the user. In this experiment both PATS and Random could not fulfil this requirement. PATS was considered useful for both situations, but overall the easy-listening sessions were judged more positive.
4. Finally it can be said that most participants were interested in having a system like PATS themselves. This is not only a pleasant finding for the PATS-functionality but also for other information-filtering or adaptive systems which in the near future will become more and more necessary.

7.3 Recommendations

Although this research indicated a positive working of PATS, further and more extensive research should be done to test its' performance and acceptance with potential users. A few suggestions can be made;

In this research, the participants were not told the true aim of the experiments. They did not know anything about the PATS- or the Random functionality. In following research, it might be better to let (at least half of) the participants know about the PATS functionality and about PATS' purposes. This way the participants will build up some expectations and it can be tested if PATS could come up to these expectations. This might be a better way to test PATS performances, because it is a better resemblance of the reality, in which users have at least a faint idea of what they may expect from a new functionality.

Furthermore, it should be investigated, if the performance of PATS in different situations can be improved. It should perform equally well over all different kind of situations. Perhaps more (imaginary) situations should be tested, or participants should have the opportunity to imagine a situation themselves. In this research, it was deliberately chosen to test only two extreme situations, to avoid undefinable or vague imaginary situations.

Besides adding other situations, perhaps it would also be more pleasant for the users to be able to change the prototypical track. This way, the chance on more diverse compilations (with PATS) increases because the number of suitable tracks could be enlarged. In this case we did not do that because we were interested in the adaptation-trend. This trend would be at highest when using the same prototypical track in each situation.

Further improvements on the system should make this adaptation-trend stronger and more convincing. The most easiest way to do this, is by offering more sessions to the user. By doing this PATS gets more chances to get to know the preferences of the user.

Another possibility is a better specified preference of the user; the user should be able to express his/her preference in the content of the tracks (for instance, a preference for a certain artist, tempo or style) or in the composition of a compilation (for instance, the amount of coherence or variation). This way it should be easier for PATS to adapt to the users' preference. Besides that, the user will also regain some feeling of control, if needed. A drawback of this would be a more active role of the user again, which actually should be diminished.

A disadvantage of this research was the unnatural (laboratory-) environment. Testing this way makes it harder for participants to imagine to be in the situation they have in mind when judging a music compilation. Besides the environment, there was also some unnaturalness in the way the music tracks were offered (they were shortened to one minute). Actually, this shortening-procedure did not seem to irritate the participants but it might have influenced the final results; it is not certain that the same effects would have been found when the participants were offered whole music tracks. In future research it is advisable to test with these whole music tracks.

Especially because PATS should be seen as an entertainment instrument, that people use at home, the testing of it would actually be at best in the users' own home environment, and in different situations. If this would be possible, it would even be better to test the use and (appreciation) of PATS in comparison with the other functionalities owned by (or supplied to) the participant. This would be the best simulation of the natural use of PATS. Another better way to test PATS would be, letting the users install their own music collection into the database of PATS. This way the functionality would operate under the intentional circumstances and be most lucrative. Under the current conditions we only tested jazz-music compilations judged by jazz-lovers. It is not by all means clear that the results would also be found with other types of music or another kind of users.

Finally, it must be clear, that the current "lay-out" and working of PATS, is still just an onset. New potential interfaces are being designed and are to be tested. Besides that, the actual working of PATS might go through some necessary changes.

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Appendix A: Table of attributes

Table of the attributes of tracks in the database (Pauws, b 1995):

Name	Description
Title	song title
Artist	name of performing group or artist
Album	album title
Composed_by	composer
Recorded_by	record label
Produced_by	producer(s)
Played_by	musicians that play along in the recording setting
Solo_from	musicians soloing or playing a prominent role on the recording
Instrument	the instruments played by the musicians
Standard/Classic	'standard' indicates whether the recording is a commonly played tune by jazz musicians that were already popular songs before the heyday of jazz, and thus not primarily intended for jazz musicians. 'Classic' indicates whether the recording is a commonly played tune composed by a jazz musician.
Live	indicates whether the recording is recorded in front of live audience
Year	year of recording
Place	place of recording (studio, concert hall, etc.)
NumMusicians	number of musicians that play along on the recording
Tempo	metre of the recording measured in beats per minute
Style	the jazz style or area of the recording. Some styles were picked out that were prominent in the collection: early jazz, Blues jazz, Swing, Bebop, Cool jazz, Latin jazz, Hardbop, Postbop, Avantgarde Jazz, Fusion, PostModern, Mbase, Neobop, Dance.
Melodic/harmonic development	characterizes the relation of the chord progression and melody (improvisation) lines of the recording. The following categories are available: Progressive, Blues, Chromatic, Non-tonal, Free
Rhythmic accompany	characterizes the rhythmic structure and accompaniment made by the rhythmic section of a group

Appendix B: Advertisement

The advertisement to gather participants for the research;

Hallo Jazz-liefhebber!

Bij het IPO (Instituut voor Perceptie Onderzoek) wordt er onderzoek gedaan naar de waardering van mensen voor muziekcompilaties.

Het is de bedoeling dat we te weten komen waar mensen hun waardering voor muziek op baseren en daarvoor hebben we de hulp nodig van jazz-liefhebbers. In 8 luistersessies van ongeveer een half uur worden verschillende muziekcompilaties aangeboden. Deze compilaties worden samengesteld vanuit een collectie van 300 jazz-nummers vanaf 1940 tot nu. De nummers zijn afkomstig van 100 verschillende CD's.

De taak van de jazz-liefhebber is om de nummers uit deze compilaties te beoordelen. Het enige wat jij dus hoeft te doen is naar de muziek te luisteren en aan te geven of je een nummer goed of slecht vindt. Daarna zal er nog een korte vragenlijst worden afgenomen.

Het is niet noodzakelijk om veel verstand van jazz te hebben. Als je het maar mooi vindt!

De onderzoeken worden gehouden bij het IPO, dat zich bevindt op het TUE-terrein. Je krijgt een vergoeding van f65,-. We willen de onderzoeken het liefst laten plaatsvinden in de maanden juni en juli. Mocht je tijd en zin hebben om aan dit onderzoek mee te doen, vul dan het onderstaande strookje in en stuur het naar:

IPO (Instituut voor Perceptie Onderzoek)
t.a.v. Dunja Ober
Postbus 513
5600 MB Eindhoven

Je kunt ons ook gewoon bellen of mailen voor een afspraak of voor meer informatie.

We hopen snel iets van je te horen!

Dunja Ober, telefoonnummer: 040-2773824
e-mail: ober@natlab.research.philips.com

C-----

Ik:.....wil graag mee doen met het onderzoek naar jazz-muziek-
compilaties en ontvang voor 8 luistersessies à een half uur f65,-.

Overdag ben ik bereikbaar op het telefoonnummer:.....
's Avonds ben ik bereikbaar op het telefoonnummer:.....
(eventueel e-mail adres:)

Appendix C: Questionnaire 1

Vragenlijst 1:

Proefpersoon

Persoonlijke gegevens:

1) **Sexe:**

Man Vrouw

2) **Leeftijd:**

3) **Beroep:**

Vragen over persoonlijke muziekinteresses:

1) **Hoeveel CD's heb je thuis?:**

Minder dan 50 50-100 100-200 meer dan 200

2) **Hoe vaak luister je gemiddeld naar je CD's?:**

dagelijks, ongeveer uur
 wekelijks, ongeveer uur
 maandelijks, ongeveer uur

3) **Gebruik je ook andere 'bronnen' om naar muziek te luisteren? Zo ja, welke en hoe vaak?:**

nee
 ja, namelijk: bibliotheek, ongeveer keer per week/maand/jaar.
 radio, ongeveer uur per week/maand/jaar
 televisie, ongeveer uur per week/maand/jaar
 anders, namelijk.....

4) **Welke van de volgende functionaliteiten gebruik je bij het beluisteren van je (eigen) muziek? En hoe vaak?:**

geen speciale functionaliteiten
 FTS (Favorite Track Selection) of programmeertoets,
 nooit zelden soms vaak altijd
 Random-play of shuffle
 nooit zelden soms vaak altijd
 andere functionaliteiten, namelijk.....

5) Welke van de functionaliteiten van vraag 4) prefereer je en waarom?:

.....

6) Mis je iets aan deze functionaliteiten of zou je er graag iets aan verbeterd zien?

.....

7) Stel dat je een CD wilt kopen met 10 nummers, hoeveel nummers moeten er goed zijn wil je die CD aanschaffen?

..... nummers.

8) Speel je zelf een muziekinstrument en zo ja welk?

Nee
 Ja, namelijk

Preferentie in de denkbeeldig situatie

1) De luistersessie die je straks te horen krijgt moet passen in de denkbeeldige situatie. Kun je omschrijven wat volgens jou passend is in de situatie? (Denk daarbij aan attributen zoals instrumenten, muziekstijl, jaar van opname of aantal musici):

.....

2) Stel dat je zelf een luistersessie van 11 nummers zou mogen samenstellen in de betreffende situatie, hoe zou deze er dan uit zien? (Je kunt gebruik maken van de bijgevoegde lijst met nummers):

	naam zanger(-es) / band	nummer
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		

Appendix D: Instructions

Instructions group 1

Zoals gezegd zullen er in totaal acht experimenten worden gehouden. Ieder experiment bestaat uit twee luistersessies en drie korte vragenlijsten. We zijn geïnteresseerd in jouw waardering voor een aantal muziekcompilaties. Deze compilaties worden samengesteld vanuit een database van 300 nummers.

Het is de bedoeling dat je de luistersessies beluistert en er een oordeel over geeft. Dit beoordelen dien je op twee manieren te doen:

- 1) In eerste instantie dien je op het systeem zelf aan te geven wat je van het nummer vond. Een positieve beoordeling kunt je aanduiden door op de 'duim-omhoog'-toets te drukken (dit betekent dus dat een nummer naar jouw mening goed in de sessie past). Een negatieve beoordeling door op de 'duim-omlaag'-toets te drukken (dit betekent dus dat een nummer naar jouw mening niet goed in de sessie past).
- 2) Daarnaast krijg je na iedere luistersessie een vragenlijst waarop je ook jouw mening over de aangeboden luistersessie kunt geven.

Naast deze beoordeling van de gehele sessies is het ook de bedoeling dat je op het systeem aangeeft of het een bekend of onbekend nummer is. Bij een bekend nummer toets je op de 'uitroepteken'-knop. Bij een onbekend nummer toets je op de 'vraagteken'-knop.

Het is de bedoeling dat je bij het beluisteren van de sessies voor ogen houdt dat de aangeboden nummers in een bepaalde situatie passen. Tijdens de eerste vier experimenten moeten de nummers passen in een drukke sfeer, zoals bijvoorbeeld dansmuziek op een feestje. Tijdens de laatste vier experimenten moeten de nummers passen in een rustige sfeer, zoals bijvoorbeeld achtergrondmuziek bij een etentje.

Om te beginnen met een luistersessie zul je eerst een nummer moeten kiezen dat je zelf zou draaien in de bestemde situatie. Dus in de drukke situatie een druk nummer en in de rustige situatie een rustig nummer. Je krijgt een lijst van alle nummers die zich in het systeem bevinden en daar kun je dan een nummer uit kiezen.

De nummers die je te horen krijgt zijn ingekort tot een minuut, in totaal krijg je 11 nummers te horen. Je bent in staat de luistersessies te beïnvloeden met behulp van een aantal functies. Dit kan bijvoorbeeld nodig zijn als je niet zeker weet of een nummer nu wel of niet in een situatie past en dit nog eens terug wilt horen. Of dat je zeker weet dat een nummer niet in de situatie past en dus verder wilt naar het volgende nummer.

Je bent in staat de luistersessie te beïnvloeden met behulp van de volgende functies:

- *Start-session-knop*: voor het opstarten van de luistersessie;
- *play-knop*: voor het afspelen en herhalen van een nummer;
- *stop-knop*: voor het beëindigen van een nummer;
- *pauze-knop*: voor het pauzeren en daarna weer hervatten van een nummer;
- *track -knop*: voor het overgaan naar het vorige of volgende nummer;
- *rewind-knop, fast forward-knop*: voor het respectievelijk terug-of vooruit spoelen.

* De *stop-session-knop* mag pas aan het einde van een hele sessie worden ingedrukt*

Alvast bedankt voor de medewerking en veel succes!

Instructions group 2

Zoals gezegd zullen er in totaal acht experimenten worden gehouden. Ieder experiment bestaat uit twee luistersessies en drie korte vragenlijsten. We zijn geïntereesed in uw waardering voor een aantal muziekcompilaties. Deze compilaties worden samengesteld vanuit een database van 300 nummers.

Het is de bedoeling dat je de luistersessies beluistert en er een oordeel over geeft. Dit beoordelen dien je op twee manieren te doen:

- 1) In eerste instantie dien je op het systeem zelf aan te geven wat je van het nummer vond. Een positieve beoordeling kun je aanduiden door op de 'duim-omhoog'-toets te drukken (dit betekent dus dat een nummer naar jouw mening goed in de sessie past). Een negatieve beoordeling door op de 'duim-omlaag'-toets te drukken (dit betekent dus dat een nummer naar jouw mening niet goed in de sessie past).
- 2) Daarnaast krijg je na iedere luistersessie een vragenlijst waarop je ook je mening over de aangeboden luistersessie kan geven.

Naast deze beoordeling van de gehele sessies is het ook de bedoeling dat je op het systeem aangeeft of het een bekend of onbekend nummer is. Bij een bekend nummer toets je op de 'uitroepteken'-knop. Bij een onbekend nummer toets je op de 'vraagteken'-knop.

Het is de bedoeling dat je bij het beluisteren van de sessies voor ogen houdt dat de aangeboden nummers in een bepaalde situatie passen. Tijdens de eerste vier experimenten moeten de nummers passen in een rustige sfeer, zoals bijvoorbeeld achtergrondmuziek bij een etentje. Tijdens de laatste vier experimenten moeten de nummers passen in een drukke sfeer, zoals bijvoorbeeld dansmuziek op een feestje.

Om te beginnen met een luistersessie zul je eerst een nummer moeten kiezen dat je zelf zou draaien in de bestemde situatie. Dus in de rustige situatie een rustig nummer en in de drukke situatie een druk nummer. Je krijgt een lijst van alle nummers die zich in het systeem bevinden en daar kan je dan een nummer uit kiezen.

De nummers die je te horen krijgt zijn ingekort tot een minuut, in totaal krijg je 11 nummers te horen. Je bent in staat de luistersessies te beïnvloeden met behulp van een aantal functies. Dit kan bijvoorbeeld nodig zijn als je niet zeker weet of een nummer nu wel of niet in een situatie past en dit nog eens terug wilt horen. Of dat je zeker weet dat een nummer niet in de situatie past en dus verder wilt naar het volgende nummer.

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- *stop-knop*: voor het beëindigen van een nummer;
- *pauze-knop*: voor het pauzeren en daarna weer hervatten van een nummer;
- *track -knop*: voor het overgaan naar het vorige of volgende nummer;
- *rewind-knop, fast forward-knop*: voor het respectievelijk terug-of vooruit spoelen.

* De *stop-session-knop* mag pas aan het einde van een hele sessie worden ingedrukt*
Alvast bedankt voor de medewerking en veel succes!

Appendix E: List of tracks in database

No.	Artist	Song title	Album title
1.	Adderley, Cannonball	'Minority - Take 3'	'This here'
2.	Adderley, Cannonball	'St. Louis blues'	'This here'
3.	Adderley, Cannonball	'Stay on it'	'This here'
4.	Ammons, Gene - Stitt, Sonny	'There is no greater love'	'Boss tenors'
5.	Ammons, Gene - Stitt, Sonny	'Autumn Leaves'	'Boss tenors'
6.	Ammons, Gene - Stitt, Sonny -	'Blues up and down'	'Boss tenors'
7.	Baker, Chet	'Mid-forte'	'Chet in Paris vol 1'
8.	Baker, Chet	'Sad walk'	'Chet in Paris vol 1'
9.	Baker, Chet	'In memory of Dick'	'Chet in Paris vol 1'
10.	Baker, Chet	'There will never be another you'	'The best of Chet Baker sings'
11.	Baker, Chet	'You don't know what love is'	'The best of Chet Baker sings'
12.	Baker, Chet	'Just Friends'	'The best of Chet Baker sings'
13.	Batida	'Falsa baiana'	'Tudo bem'
14.	Batida	'Tudo bem'	'Tudo bem'
15.	Batida	'Amar outra vez'	'Tudo bem'
16.	Blakey, Art	'Mirage'	'Midnight session'
17.	Blakey, Art	'Potpourri'	'Midnight session'
18.	Blakey, Art	'Reflections on Buhainia'	'Midnight session'
19.	Brecker, Michael	'Suspone'	'Don't try this at home'
20.	Brecker, Michael	'Scrabin'	'Don't try this at home'
21.	Brecker, Michael	'Don't try this at home'	'Don't try this at home'
22.	Brecker Brothers, The	'Slang'	'Out of the loop'
23.	Brecker Brothers, The	'And then she wept'	'Out of the loop'
24.	Brecker Brothers, The	'When it was'	'Out of the loop'
25.	Brown, Ray	'Love walked in'	'Something for Lester'
26.	Brown, Ray	'Little girl blue'	'Something for Lester'
27.	Brown, Ray	'Sister sadio'	'Something for Lester'
28.	Brubeck, Dave	'Blue rondo a la Turk'	'Time out'
29.	Brubeck, Dave	'Take five'	'Time out'
30.	Brubeck, Dave	'Three to get ready'	'Time out'
31.	Carter, Ron - Galliano, Richard	'Summer in Central Park'	'Paramanhattan'
32.	Carter, Ron - Galliano, Richard	'Spleen'	'Paramanhattan'
33.	Carter, Ron - Galliano, Richard	'Allee Des Brouillards'	'Paramanhattan'
34.	Carter, Ron	'Arboretum'	'Etudes'
35.	Carter, Ron	'Bottums up'	'Etudes'
36.	Carter, Ron	'Rufus'	'Etudes'
37.	Casiopea	'Down upbeat'	'Down upbeat'
38.	Casiopea	'The continental way'	'Down upbeat'
39.	Casiopea	'Twilight solitude'	'Down upbeat'
40.	Catherine, Philip	'Cote Jardin'	'Moods vol 1'
41.	Catherine, Philip	'A time for love'	'Moods vol 1'
42.	Catherine, Philip	'Fridge blues'	'Moods vol 1'
43.	Cobham, Billy	'The dancer'	'Warning'
44.	Cobham, Billy	'Slow body poppin''	'Warning'
45.	Cobham, Billy	'Go for it!'	'Warning'
46.	Coltrane, John	'Say it -over and over again'	'Ballads'
47.	Coltrane, John	'I wish I knew'	'Ballads'
48.	Coltrane, John	'All or nothing at all'	'Ballads'
49.	Corea, Chick	'Got a match?'	'Electric band'
50.	Corea, Chick	'King cockroach'	'Electric band'
51.	Corea, Chick	'Rumble'	'Electric band'
52.	D-Code	'Cockpit'	'D-Code'
53.	D-Code	'Alfie's theme'	'D-Code'
54.	D-Code	'Charlie and Martino Boehlee'	'D-Code'
55.	Davis, Miles	'Inis'	'E.S.P.'
56.	Davis, Miles	'Little one'	'E.S.P.'
57.	Davis, Miles	'E.S.P.'	'E.S.P.'
58.	Davis, Miles	'Blue in green'	'Kind of blue'
59.	Davis, Miles	'All blues'	'Kind of blue'

No.	Artist	Song title	Album title
60.	Davis, Miles	'Freddie freeloader'	'Kind of blue'
61.	Davis, Miles	'Miles'	'Milestones'
62.	Davis, Miles	'Straight no chaser'	'Milestones'
63.	Davis, Miles	'Two bass hit'	'Milestones'
64.	Davis, Miles	'Full Nelson'	'Tutu'
65.	Davis, Miles	'Portia'	'Tutu'
66.	Davis, Miles	'Perfect way'	'Tutu'
67.	Davis, Miles	'It never entered my mind'	'Workin''
68.	Davis, Miles	'In your own sweet way'	'Workin''
69.	Davis, Miles	'Four'	'Workin''
70.	DeFrancesco, Joey	'The end of a love affair'	'Part III'
71.	DeFrancesco, Joey	'O.E.I.'	'Part III'
72.	DeFrancesco, Joey	'Gut bucket blues'	'Part III'
73.	DeJohnette, Jack	'Nine over reggae'	'Parallel realities'
74.	DeJohnette, Jack	'Parallel realities'	'Parallel realities'
75.	DeJohnette, Jack	'Indigo dreamscapes'	'Parallel realities'
76.	DiMeola, Al	'Paradiso'	'Orange and blue'
77.	DiMeola, Al	'Precious little you'	'Orange and blue'
78.	DiMeola, Al	'On my own'	'Orange and blue'
79.	Kessel, Barney	'I will wait for you'	'Black lion artistry in jazz'
80.	Gordon, Dexter	'Doxy'	'Black lion artistry in jazz'
81.	Wilson, Teddy	'Striding for Fats'	'Black lion artistry in jazz'
82.	Moroni, Dodo - Carter, Ron	'Angel eyes'	'EmArCy jazz at it's finest'
83.	Lewis, John	'Delaunay's dilemma'	'EmArCy jazz at it's finest'
84.	Kaneko, Harumi-Carter, Ron	'Sweet Georgia Brown'	'EmArCy jazz at it's finest'
85.	Patitucci, John	'On the corner'	'GRP on the cutting edge'
86.	Eubanks, Kevin	'Cookin''	'GRP on the cutting edge'
87.	Benoit, David	'Sailing through the city'	'GRP on the cutting edge'
88.	Scott, Tom	'Upbeat 90's'	'GRP the sounds of '94'
89.	Jackets, Yellow	'Even song'	'GRP the sounds of '94'
90.	Rangell, Nelson	'Never forgotten'	'GRP the sounds of '94'
91.	Jones, Quincy	'Kings road blues'	'GRP the story of Impulse'
92.	Webster, Ben	'Someone to watch over me'	'GRP the story of Impulse'
93.	Coltrane, John - Hartman, Johnny	'They say it's wonderful'	'GRP the story of Impulse'
94.	Goodman, Gabrielle	'Don't explain'	'Travelin' light'
95.	McLaughlin, John	'Just ideas'	'Live at the Royal Festival Hall'
96.	Caine, Uri	'Round midnight'	'Sphere music'
97.	Smith, Jimmy	'Road song'	'Cat nappin''
98.	James Taylor Quartet, The	'Redneck'	'Cat nappin''
99.	Karolak, Wojcieck	'State train'	'Cat nappin''
100.	Haynes, Graham	'R. H. for Roy Haynes'	'Listen Up'
101.	Sane, Quite	'This won't work'	'Listen Up'
102.	Williamson, Steve	'Who dares'	'Journey of Truth'
103.	Jones, Quincy	'Dancin' pants'	'The Impulse Years'
104.	Carter, Betty	'I can't help it'	'The Impulse Years'
105.	Coltrane, John	'In a sentimental mood'	'The Impulse Years'
106.	Garland, Red	'A foggy day'	'OJC all that jazz is back'
107.	Gillespie, Dizzy	'Birks works'	'OJC all that jazz is back'
108.	Adderley, Cannonball	'Things are getting better'	'OJC all that jazz is back'
109.	Fuller, Curtis	'Five spot after dark'	'Savoy jazz sampler vol 1'
110.	Pepper, Art	'Surf ride'	'Savoy jazz sampler vol 1'
111.	Navarro, Fats	'Nostalgia'	'Savoy jazz sampler vol 1'
112.	Getz, Stan - Gilberto, Joao	'Garota de Ipanema - Girl from Ipanema'	'The Antonio Carlos Jobim Songbook'
113.	Getz, Stan - Bonf'a, Luiz	'Morro Nao Tem Vez - Favela'	'The Antonio Carlos Jobim Songbook'
114.	Carlos Jobim, Antonio	'S'o Danco Samba - Jazz Samba'	'The Antonio Carlos Jobim Songbook'
115.	Parker, Charlie	'Ormithology'	'The best of Blue Note'
116.	Davis, Miles	'Rocker'	'The best of Blue Note'
117.	Basie, Count	'The kid from Red Bank'	'The best of Blue Note'
118.	Coleman, George	'Amsterdam after dark'	'Timeless in case you missed it'
119.	Lightsey, Kirk - Hubbard, Freddy	'Brigitte'	'Timeless in case you missed it'
120.	Flanagan, Tommy	'Mean streets'	'Timeless in case you missed it'
121.	Jacquet, Illinois	'Have you met Miss Jones'	'Verve North Sea '94 disc 1'
122.	Peterson, Oscar	'9-20 special'	'Verve North Sea '94 disc 1'
123.	Rosenberg Trio, The	'La promenade'	'Verve North Sea '94 disc 1'
124.	McLean, Jackie - DeFrancesco, Joey	'One nite stand'	'Verve North Sea '94 disc 2'
125.	Wee Ellis, Pee	'Why not'	'Verve North Sea '94 disc 2'

No.	Artist	Song title	Album title
126.	Corea, Chick - Hancock, Herbie	'Maiden voyage'	'Verve North Sea '94 disc 2'
127.	Gilberto, Joao	'Meditacao - Meditation'	'The Antonio Carlos Jobim Songbook'
128.	Peterson, Oscar	'Wave'	'The Antonio Carlos Jobim Songbook'
129.	Carlos Jobim, Antonio - Regina, Elis	'Aguas de Marco - Waters of March'	'The Antonio Carlos Jobim Songbook'
130.	Haden, Charlie	'Ev'ry time we say goodbye'	'Verve jazz nu'
131.	Scott, Stephen	'No more misunderstandings'	'Verve jazz nu'
132.	Weston, Randy	'The call'	'Verve jazz nu'
133.	Washington, Dina	'You don't know what love is'	'Verve jazz' best'
134.	Fitzgerald, Ella	'Stella by starlight'	'Verve jazz best'
135.	Mulligan, Gerry	'Tell me when'	'Verve jazz' best'
136.	Drew, Kenny	'Serenity'	'And for you'
137.	Drew, Kenny	'Autumn Leaves'	'And for you'
138.	Drew, Kenny	'I love you'	'And for you'
139.	Dulfer, Hans	'Streetbeats'	'Big boy'
140.	Dulfer, Hans	'Big boy'	'Big boy'
141.	Dulfer, Hans	'Jazz disaster - cool!'	'Big boy'
142.	Eldridge, Roy	'Blue moon'	'Dale's wail'
143.	Eldridge, Roy	'A foggy day'	'Dale's wail'
144.	Eldridge, Roy	'Sweet Georgia Brown'	'Dale's wail'
145.	Evans, Bill	'My romance'	'Waltz for Debby'
146.	Evans, Bill	'Milestones'	'Waltz for Debby'
147.	Evans, Bill	'Porgy - I love you Porgy'	'Waltz for Debby'
148.	Evans, Bill	'Peacocks'	'You must believe in spring'
149.	Evans, Bill	'B minor waltz'	'You must believe in spring'
150.	Evans, Bill	'Suicide is painless'	'You must believe in spring'
151.	Frissel, Bill	'Etude'	'Works'
152.	Frissel, Bill	'Black is the color of my true love's hair'	'Works'
153.	Frissel, Bill	'Conception vessel'	'Works'
154.	Getz, Stan	'Cherokee'	'Highlights Volume 2'
155.	Getz, Stan	'Where or when'	'Highlights Volume 2'
156.	Getz, Stan	'Honeysuckle rose'	'Highlights Volume 2'
157.	Getz, Stan	'The folks who live on the hill'	'Highlights Volume 2'
158.	Getz, Stan	'Corcovado'	'Highlights Volume 2'
159.	Getz, Stan	'Litha'	'Highlights Volume 2'
160.	van de Geyn, Hein	'Conversation in G'	'Van de Geyn meets Konitz'
161.	van de Geyn, Hein	'My funny valentine'	'Van de Geyn meets Konitz'
162.	van de Geyn, Hein	'Free blues'	'Van de Geyn meets Konitz'
163.	Gillespie, Dizzy	'Anthropology'	'Dizzy Gillespie 1945 - 1950'
164.	Gillespie, Dizzy	'Bloomdido'	'Dizzy Gillespie 1945 - 1950'
165.	Gillespie, Dizzy	'Good bait'	'Dizzy Gillespie 1945 - 1950'
166.	Gonsalves, Paul	'Walkin''	'Gettin' together'
167.	Gonsalves, Paul	'Yesterdays'	'Gettin' together'
168.	Gonsalves, Paul	'Low gravity'	'Gettin' together'
169.	Gordon, Dexter	'Cheese cake'	'The best of Blue Note'
170.	Gordon, Dexter	'Don't explain'	'The best of Blue Note'
171.	Gordon, Dexter	'Soy Califa'	'The best of Blue Note'
172.	Gruisin, Dave - Ritenour, Lee	'Early a.m. attitude'	'Harlequin'
173.	Gruisin, Dave - Ritenour, Lee	'Cats of Rio'	'Harlequin'
174.	Gruisin, Dave - Ritenour, Lee	'Grid-lock'	'Harlequin'
175.	Haden, Charlie	'Always say goodbye'	'Always say goodbye'
176.	Haden, Charlie	'Alone together'	'Always say goodbye'
177.	Haden, Charlie	'Where are you my love?'	'Always say goodbye'
178.	Hancock, Herbie	'So what'	'A tribute to Miles Davis'
179.	Hancock, Herbie	'Little one'	'A tribute to Miles Davis'
180.	Hancock, Herbie	'Pinocchio'	'A tribute to Miles Davis'
181.	Hancock, Herbie	'Round midnight'	'A jazz collection'
182.	Hancock, Herbie	'The eye of the hurricane'	'A jazz collection'
183.	Hancock, Herbie	'Maiden voyage'	'A jazz collection'
184.	Hancock, Herbie	'Dolphin dance'	'The best on Blue Note'
185.	Hancock, Herbie	'Watermelon man'	'The best on Blue Note'
186.	Hancock, Herbie	'Maiden voyage'	'The best on Blue Note'
187.	Holiday, Billie	'Sophisticated Lady'	'The essential - songs of lost love'
188.	Holiday, Billie	'Body and Soul'	'The essential - songs of lost love'
189.	Holiday, Billie	'I don't want to cry anymore'	'The essential - songs of lost love'
190.	Houdini's, The	'Gertrude's favourite'	'The Houdini's in New York'
191.	Houdini's, The	'Lullaby'	'The Houdini's in New York'
192.	Houdini's, The	'In the situation'	'The Houdini's in New York'

No.	Artist	Song title	Album title
193.	Jackson, Milt	'They can't take that away from me'	'Meet Milt Jackson'
194.	Jackson, Milt	'Flamingo'	'Meet Milt Jackson'
195.	Jackson, Milt	'I've lost your love'	'Meet Milt Jackson'
196.	James, Etta	'The man I love'	'Mystery lady - songs of Billie Holiday'
197.	James, Etta	'The very thought of you'	'Mystery lady - songs of Billie Holiday'
198.	James, Etta	'I'll be seeing you'	'Mystery lady - songs of Billie Holiday'
199.	Jarret, Keith	'Bop-be'	'Silence'
200.	Jarret, Keith	'Blackberry winter'	'Silence'
201.	Jarret, Keith	'Silence'	'Silence'
202.	Jarret, Keith	'Stella by starlight'	'Standards live'
203.	Jarret, Keith	'Falling in love with you'	'Standards live'
204.	Jarret, Keith	'The old country'	'Standards live'
205.	Kikovski, David	'Presage'	'Presage'
206.	Kikovski, David	'In the still of the night'	'Presage'
207.	Kikovski, David	'A nightingale sang in Berkeley square'	'Presage'
208.	Kirkland, Kenny	'Steeplan faith'	'Kenny Kirkland'
209.	Kirkland, Kenny	'Criss cross'	'Kenny Kirkland'
210.	Kirkland, Kenny	'Ana Maria'	'Kenny Kirkland'
211.	Koinonia	'Gazoot'	'Frontline'
212.	Koinonia	'Easy morning'	'Frontline'
213.	Koinonia	'Lovely one'	'Frontline'
214.	Konitz, Lee	'Crazy she calls me'	'Very cool'
215.	Konitz, Lee	'Billie's bounce'	'Very cool'
216.	Konitz, Lee	'Kary's trance'	'Very cool'
217.	Manne, Shelly	'I am in love'	'Live at the Black Hawk vol 3'
218.	Manne, Shelly	'Whisper not'	'Live at the Black Hawk vol 3'
219.	Manne, Shelly	'Black hawk blues'	'Live at the Black Hawk vol 3'
220.	Maria, Tania	'Funky tamborim'	'The real Tania Maria'
221.	Maria, Tania	'Yatra-ta'	'The real Tania Maria'
222.	Maria, Tania	'Vem Pra roda'	'The real Tania Maria'
223.	Marsalis, Branford	'Yesterdays'	'Random abstract'
224.	Marsalis, Branford	'Crepuscle with Nellie'	'Random abstract'
225.	Marsalis, Branford	'Yes and no'	'Random abstract'
226.	Marsalis, Ellis	'Emily'	'The Ellis Marsalis trio'
227.	Marsalis, Ellis	'Limehouse blues'	'The Ellis Marsalis trio'
228.	Marsalis, Ellis	'The garden'	'The Ellis Marsalis trio'
229.	Marsalis, Wynton	'Hesitation'	'Wynton Marsalis'
230.	Marsalis, Wynton	'Sister Cheryl'	'Wynton Marsalis'
231.	Marsalis, Wynton	'Who can I turn to'	'Wynton Marsalis'
232.	Mays, Lyle	'Feet first'	'Street dreams'
233.	Mays, Lyle	'New born'	'Street dreams'
234.	Mays, Lyle	'Before you go'	'Street dreams'
235.	Metheny, Pat	'Have you heard'	'Letter from home'
236.	Metheny, Pat	'Beat 70'	'Letter from home'
237.	Metheny, Pat	'Slip away'	'Letter from home'
238.	Mezzoforte	'Northern comfort'	'Rising'
239.	Mezzoforte	'Take off'	'Rising'
240.	Mezzoforte	'Rising'	'Rising'
241.	Monk, Thelonious - Mulligan, Gerry	'Rhythm-a-ning'	'Mulligan meets Monk'
242.	Monk, Thelonious - Mulligan, Gerry	'Straight no chaser'	'Mulligan meets Monk'
243.	Monk, Thelonious - Mulligan, Gerry	'I mean you'	'Mulligan meets Monk'
244.	Monk, Thelonious	'Bemsha swing'	'Tokyo concert vol 1'
245.	Monk, Thelonious	'Epistrophy'	'Tokyo concerts vol 1'
246.	Monk, Thelonious	'Straight no chaser'	'Tokyo concerts vol 1'
247.	Mulligan, Gerry	'Line for Lyons'	'The Gerry Mulligan Chet Baker quartet'
248.	Mulligan, Gerry	'Five brothers'	'The Gerry Mulligan Chet Baker quartet'
249.	Mulligan, Gerry	'Makin' whoopee'	'The Gerry Mulligan Chet Baker quartet'
250.	Navarro, Fats	'Goin' to Minton's'	'1946-1949'
251.	Navarro, Fats	'Wail'	'1946-1949'
252.	Navarro, Fats	'The skunk'	'1946-1949'
253.	Norvo, Red	'Move'	'Move'
254.	Norvo, Red	'Godchild'	'Move'
255.	Norvo, Red	'September song'	'Move'
256.	Parker, Charlie	'Confirmation'	'Jazz masters 15'
257.	Parker, Charlie	'K.C. blues'	'Jazz masters 15'
258.	Parker, Charlie	'Lover man'	'Jazz masters 15'
259.	Parker, Charlie	'Bird of paradise'	'Masterworks 1946-47'

No.	Artist	Song title	Album title
260.	Parker, Charlie	'Yardbird suite'	'Masterworks 1946-47'
261.	Parker, Charlie	'Bird's nest'	'Masterworks 1946-47'
262.	Redman, Joshua	'Headin' home'	'MoodSwing'
263.	Redman, Joshua	'Faith'	'MoodSwing'
264.	Redman, Joshua	'Alone in the morning'	'MoodSwing'
265.	Rollins, Sonny	'You don't know what love is'	'Saxophone colossus'
266.	Rollins, Sonny	'St. Thomas'	'Saxophone colossus'
267.	Rollins, Sonny	'Moritat'	'Saxophone colossus'
268.	Rollins, Sonny	'God bless the child'	'The bridge'
269.	Rollins, Sonny	'Where are you'	'The bridge'
270.	Rollins, Sonny	'John S.'	'The bridge'
271.	Sanborn, David	'Better believe it'	'As we speak'
272.	Sanborn, David	'Love will come someday'	'As we speak'
273.	Sanborn, David	'Port of call'	'As we speak'
274.	Shorter, Wayne	'Infant eyes'	'The best on Blue Note'
275.	Shorter, Wayne	'Footprints'	'The best on Blue Note'
276.	Shorter, Wayne	'Water babies'	'The best on Blue Note'
277.	Ahead, Steps	'Sidewalk maneuvers'	'Yin-yang'
278.	Ahead, Steps	'Nite owl'	'Yin-yang'
279.	Ahead, Steps	'Orion'	'Yin-yang'
280.	Thielemans, Toots	'Days of wine and roses'	'Live'
281.	Thielemans, Toots	'Tenor madness'	'Live'
282.	Thielemans, Toots	'Dat mistige rooie beest'	'Live'
283.	Towner, Ralph	'Celeste'	'Old friends new friends'
284.	Towner, Ralph	'Kupula'	'Old friends new friends'
285.	Towner, Ralph	'Yesterday and long ago'	'Old friends new friends'
286.	Hancock, Herbie	'Jessica'	'The quintet'
287.	Hancock, Herbie	'Lawra'	'The quintet'
288.	Hancock, Herbie	'Byrdlike'	'The quintet'
289.	Report, Weather	'A remark you made'	'Heavy weather'
290.	Report, Weather	'Teen town'	'Heavy weather'
291.	Report, Weather	'Havona'	'Heavy weather'
292.	Webster, Ben	'Lover come back to me'	'Soulville'
293.	Webster, Ben	'Ill wind'	'Soulville'
294.	Webster, Ben	'Who'	'Soulville'
295.	Jackets, Yellow	'Widcats and cougars'	'Shades'
296.	Jackets, Yellow	'Shades'	'Shades'
297.	Jackets, Yellow	'And you know that'	'Shades'
298.	Zawinul, Joe	'Black water'	'Black water'
299.	Zawinul, Joe	'Little rootie tootie'	'Black water'
300.	Zawinul, Joe	'Familial'	'Black water'

3) **Vertoonde de luistersessie een samenhangend geheel?**

1	2	3	4	5
zeer	onsamenhangend	neutraal	samenhangend	zeer
onsamenhangend				samenhangend

4) **Hoe ervaarde je deze mate van samenhang?**

1	2	3	4	5
zeer	onaangenaam	neutraal	aangenaam	zeer aangenaam
onaangenaam				

5) **In hoeverre vond je de luistersessie gevarieerd?**

1	2	3	4	5
zeer ongevarieerd	ongevareerd	neutraal	gevarieerd	zeer gevarieerd

6) **Hoe ervaarde je deze mate van variatie?**

1	2	3	4	5
zeer	onaangenaam	neutraal	aangenaam	zeer aangenaam
onaangenaam				

7) **Wat is je algemene waardering voor de luistersessie? (Denk daarbij aan de situatie waarin de luistersessie gespeeld zou moeten worden).**

1	2	3	4	5
zeer	onaangenaam	neutraal	aangenaam	zeer aangenaam
onaangenaam				

8) **Heb je nog verdere op-of aanmerkingen over de aangeboden luistersessie?**

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Appendix G: Questionnaire 3

Vragenlijst 3:

Proefpersoon

Luistersessie.....

Kun je aangeven welke van de twee luistersessies:

1) Je beter vond?

- luistersessie 1
- luistersessie 2

2) Meer samenhang vertoonde?

- luistersessie 1
- luistersessie 2

3) Meer variatie vertoonde?

- luistersessie 1
- luistersessie 2

4) Meer aan je verwachtingen voldeed?

- luistersessie 1
- luistersessie 2

5) Beter in de denkbeeldige situatie zou passen?

- luistersessie 1
- luistersessie 2

6) Kun je een cijfer geven (tussen 0 en 10) voor beide sessies?

Luistersessie 1, cijfer

Luistersessie 2, cijfer

Appendix H: Interview-questions

Interview:

Proefpersoon

1) **Wat vond je over het algemeen van de aangeboden sessies?**

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2) **Viel je iets bijzonders op aan een van de luistersessies?**

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3) **Wat vond je van de opeenvolging van de sessies? Nam je een bepaalde trend waar?**

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4) **Was er een verschil tussen de drukke en de rustige sessies?**

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5) **Zou je behoefte hebben aan een systeem dat luistersessies voor je samenstelt?**

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Appendix I: Raw Data

Description of variables:

Variable name	Variable label	Value labels
part	participant	-
group	experimental group	1=first up-tempo, second easy-listening 2=first easy-listening, second up-tempo
age	age of participant	-
sexe	sexe of participant	m=male, v=female
func	functionality	1=PATS, 2=Random
situat	situation	1=up-tempo listening, 2=easy-listening
sess	session	1=listening session 1, 2=listening session 2, 3=listening session 3, 4=listening session 4
prec	precision	0-10, with 0 being 'all tracks judged negatively' and 10 being 'all tracks judged positively'
mark	mark for each compilation	0-10 with 0 being 'very bad' and 10 being 'very good'
fam	number of familiar tracks	0-10 with 0 being 'all tracks unfamiliar' and 10 being 'all tracks familiar'
var	variation in tracks, with regard to preceding session	0-1 with 0 being 'no variation' and 1 'total variation'
varpr	variation in preferred tracks, with regard to preceding session	0-1 with 0 being 'no variation' and 1 'total variation'
cov	coverage of tracks in database	0-1 with 0 being 'no coverage' and 1 'total coverage'
better	which compilation was better	0=this session was worse, 1=this session was better
mcoh	which session showed more coherence	0=this session less coherence, 1=this session more coherence
mvar	which session showed more variation	0=this session less variation, 1=this session more variation
mexp	which session fulfilled the expectations more	0=this session fitted worse with the expectations, 1=this session fitted better with the expectations
bsitua	which session fitted better in the imaginary situation	0=this session fitted worse, 1=this session fitted better

part	group	age	sexe	func	situat	sess	prec	mark	fam	var	varpr	cov	better	mcuh	mvar	mcxp	bsitua
A	1	26	m	1	1	1	6	6.0	1	.	.	.60	1	1	0	1	1
A	1	26	m	1	1	2	7	7.0	3	.8	.5	.61	1	1	0	1	1
A	1	26	m	1	1	3	6	7.0	4	.9	.5	.59	1	1	0	1	1
A	1	26	m	1	1	4	8	7.0	0	1	.8	.65	1	1	0	1	1
A	1	26	m	1	2	1	8	8.0	1	.	.	.80	1	1	0	1	1
A	1	26	m	1	2	2	8	8.0	2	.6	.5	.81	1	1	0	1	1
A	1	26	m	1	2	3	6	7.0	0	.8	.4	.70	1	1	0	1	1
A	1	26	m	1	2	4	10	9.0	0	1	1	.77	1	1	0	1	1
B	2	26	m	1	1	1	7	9.0	3	.	.	.71	1	1	0	1	1
B	2	26	m	1	1	2	7	8.0	3	.4	.3	.71	1	1	0	1	1
B	2	26	m	1	1	3	4	7.0	4	.6	.3	.61	1	1	0	1	1
B	2	26	m	1	1	4	7	8.0	0	1	.7	.62	1	0	1	1	1
B	2	26	m	1	2	1	6	6.8	1	.	.	.60	0	1	1	0	1
B	2	26	m	1	2	2	6	9.0	2	.9	.6	.63	0	1	0	1	1
B	2	26	m	1	2	3	7	7.8	0	.5	.3	.67	1	1	0	1	1
B	2	26	m	1	2	4	9	8.0	1	.8	.7	.72	1	1	0	1	1
C	1	26	m	1	1	1	6	8.0	3	.	.	.60	1	1	0	1	1
C	1	26	m	1	1	2	7	8.0	4	1	.7	.65	1	1	0	1	1
C	1	26	m	1	1	3	7	7.0	4	.8	.6	.64	1	1	0	1	1
C	1	26	m	1	1	4	6	7.5	7	.8	.5	.66	1	1	1	1	1
C	1	26	m	1	2	1	7	8.0	3	.	.	.70	1	1	0	1	1
C	1	26	m	1	2	2	10	9.0	5	.9	.9	.89	1	1	0	1	1
C	1	26	m	1	2	3	10	7.0	4	1	1	.93	1	1	0	1	1
C	1	26	m	1	2	4	8	7.5	6	1	.8	.91	1	1	0	1	1
D	2	34	m	1	1	1	5	6.0	6	.	.	.50	1	1	1	1	1
D	2	34	m	1	1	2	7	8.0	4	.8	.5	.61	1	1	1	1	1
D	2	34	m	1	1	3	3	5.0	4	1	.3	.50	1	1	0	1	1
D	2	34	m	1	1	4	8	8.0	7	.9	.7	.54	0	1	0	0	0
D	2	34	m	1	2	1	7	7.0	2	.	.	.70	1	1	0	1	1
D	2	34	m	1	2	2	7	8.0	3	.9	.6	.69	1	1	0	1	1
D	2	34	m	1	2	3	5	7.0	8	.4	.1	.62	1	1	0	1	1
D	2	34	m	1	2	4	7	7.0	7	.6	.3	.58	1	0	0	1	1
E	1	39	m	1	1	1	4	6.0	5	.	.	.40	1	1	0	1	1
E	1	39	m	1	1	2	2	3.0	4	.9	.1	.26	0	0	0	0	0
E	1	39	m	1	1	3	4	4.0	5	1	.4	.32	1	1	1	1	0
E	1	39	m	1	1	4	10	7.0	4	1	1	.53	1	1	1	1	1
E	1	39	m	1	2	1	9	9.0	5	.	.	.90	1	1	0	1	1
E	1	39	m	1	2	2	5	4.0	3	1	.5	.70	0	0	1	0	0
E	1	39	m	1	2	3	8	7.0	7	1	.8	.72	1	1	1	1	1
E	1	39	m	1	2	4	8	6.0	6	1	.8	.76	1	1	1	1	1
F	2	19	m	1	1	1	8	8.0	1	.	.	.80	1	1	0	1	1
F	2	19	m	1	1	2	10	10	2	.6	.6	.88	1	1	0	1	1
F	2	19	m	1	1	3	9	9.0	3	.6	.6	.91	1	1	0	1	1
F	2	19	m	1	1	4	8	6.0	2	.7	.6	.89	1	1	0	1	1
F	2	19	m	1	2	1	9	8.0	5	.	.	.90	1	1	0	1	1
F	2	19	m	1	2	2	9	9.0	5	.4	.3	.93	1	1	0	1	1
F	2	19	m	1	2	3	6	7.0	8	.6	.4	.94	1	1	0	1	1
F	2	19	m	1	2	4	9	9.0	7	.8	.7	.92	1	1	0	1	1
G	1	28	m	1	1	1	8	8.0	4	.	.	.80	1	1	1	1	1
G	1	19	m	1	1	2	9	8.0	3	.9	.8	.84	1	1	0	1	1
G	1	19	m	1	1	3	6	7.0	6	.8	.5	.81	1	1	1	1	1
G	1	19	m	1	1	4	10	8.0	3	1	1	.85	1	1	0	1	1
G	1	19	m	1	2	1	3	6.0	8	.	.	.30	0	1	0	0	0
G	1	19	m	1	2	2	5	7.0	7	1	.5	.40	1	1	0	1	1
G	1	19	m	1	2	3	8	7.0	5	.7	.5	.48	1	1	0	1	1
G	1	19	m	1	2	4	8	7.0	4	1	.8	.59	1	1	0	1	1
H	2	27	m	1	1	1	8	9.0	3	.	.	.80	1	1	1	1	1
H	2	27	m	1	1	2	8	8.0	2	.7	.5	.76	1	1	0	1	1
H	2	27	m	1	1	3	9	9.0	7	.7	.6	.78	1	1	0	1	1
H	2	27	m	1	1	4	7	7.0	6	.7	.4	.72	1	1	0	1	1
H	2	27	m	1	2	1	8	9.0	0	.	.	.80	1	1	0	1	1
H	2	27	m	1	2	2	7	6.0	3	.9	.6	.74	0	0	1	0	0
H	2	27	m	1	2	3	8	9.0	3	.9	.7	.74	1	1	0	1	1
H	2	27	m	1	2	4	8	8.0	5	.7	.5	.75	1	1	0	1	1

part	group	age	sex	func	situat	seas	prec	mark	fam	var	varpr	cov	better	mcoh	mvar	mexp	bsitua
I	1	24	m	1	1	1	5	8,0	3	.	.	,05	1	1	0	1	1
I	1	24	m	1	1	2	6	8,0	4	,8	,5	,61	1	0	0	1	1
I	1	24	m	1	1	3	8	8,0	5	,8	,6	,65	1	0	0	1	1
I	1	24	m	1	1	4	9	9,0	7	,3	,2	,64	1	1	0	1	1
I	1	24	m	1	2	1	8	7,0	4	.	.	,80	0	0	1	0	0
I	1	24	m	1	2	2	9	8,0	3	1	,9	,85	1	1	0	1	1
I	1	24	m	1	2	3	9	9,0	2	,9	,8	,86	1	1	0	1	1
I	1	24	m	1	2	4	8	8,0	5	1	,8	,84	1	1	0	1	1
J	2	37	m	1	1	1	7	7,0	3	.	.	,70	1	1	0	1	1
J	2	37	m	1	1	2	5	4,0	5	,9	,5	,63	1	1	0	1	1
J	2	37	m	1	1	3	8	7,0	4	,9	,8	,73	1	1	0	1	1
J	2	37	m	1	1	4	10	8,0	3	,8	,8	,77	1	1	0	1	1
J	2	37	m	1	2	1	5	7,0	5	.	.	,50	1	1	0	1	1
J	2	37	m	1	2	2	7	8,0	4	,9	,6	,58	0	0	1	0	0
J	2	37	m	1	2	3	9	8,0	3	,9	,8	,68	1	1	0	1	1
J	2	37	m	1	2	4	9	8,0	5	,5	,4	,68	1	1	0	1	1
K	1	21	m	1	1	1	3	7,0	4	.	.	,30	0	1	0	0	0
K	1	21	m	1	1	2	6	8,0	3	,7	,6	,53	1	1	0	1	1
K	1	21	m	1	1	3	4	6,0	0	,9	,3	,46	1	1	0	1	1
K	1	21	m	1	1	4	4	6,0	0	,9	,4	,47	0	1	0	0	0
K	1	21	m	1	2	1	6	8,0	4	.	.	,60	1	1	0	1	1
K	1	21	m	1	2	2	5	7,0	4	1	,5	,55	0	1	0	1	0
K	1	21	m	1	2	3	4	5,0	3	,8	,4	,54	0	0	0	0	0
K	1	21	m	1	2	4	8	8,0	6	,9	,7	,60	1	1	0	1	1
L	2	20	m	1	1	1	6	7,0	4	.	.	,60	1	0	1	1	1
L	2	21	m	1	1	2	5	6,0	3	,5	,1	,53	0	1	1	0	0
L	2	21	m	1	1	3	8	9,0	5	,9	,8	,67	1	1	0	1	1
L	2	21	m	1	1	4	6	7,0	4	,9	,5	,65	1	1	0	1	1
L	2	21	m	1	2	1	6	8,0	6	.	.	,60	1	1	0	1	1
L	2	21	m	1	2	2	7	8,0	4	,6	,4	,63	1	1	1	1	1
L	2	21	m	1	2	3	7	7,0	4	,9	,6	,64	1	1	0	1	1
L	2	21	m	1	2	4	10	9,0	4	,9	,9	,70	1	1	0	1	1
M	1	19	m	1	1	1	5	6,0	5	.	.	,50	0	0	0	0	0
M	1	19	m	1	1	2	4	8,0	6	,8	,3	,44	1	1	1	1	1
M	1	19	m	1	1	3	3	5,0	2	1	,3	,39	0	0	0	0	0
M	1	19	m	1	1	4	8	8,5	6	,9	,7	,46	1	1	0	1	1
M	1	19	m	1	2	1	8	9,0	5	.	.	,80	1	1	0	1	1
M	1	19	m	1	2	2	10	8,0	4	1	1	,90	1	1	1	1	1
M	1	19	m	1	2	3	8	8,5	5	,8	,6	,85	0	1	0	1	1
M	1	19	m	1	2	4	10	9,5	9	,9	,9	,88	1	1	1	1	1
N	2	27	m	1	1	1	4	3,0	2	.	.	,40	1	1	1	1	1
N	2	27	m	1	1	2	7	7,0	2	,8	,6	,56	0	1	0	1	1
N	2	27	m	1	1	3	10	8,0	4	,8	,8	,73	1	0	1	1	1
N	2	27	m	1	1	4	6	7,0	2	,7	,3	,67	1	1	0	1	1
N	2	27	m	1	2	1	7	6,0	5	.	.	,70	0	1	0	0	1
N	2	27	m	1	2	2	5	6,0	3	,9	,5	,63	1	1	0	1	1
N	2	27	m	1	2	3	7	7,0	4	,7	,5	,65	1	1	1	1	1
N	2	27	m	1	2	4	5	6,0	2	,8	,4	,62	0	0	1	0	0
P	2	21	m	1	1	1	7	9,0	6	.	.	,70	1	1	0	1	1
P	2	21	m	1	1	2	6	9,5	2	,9	,6	,68	1	1	0	1	1
P	2	21	m	1	1	3	7	7,0	7	,9	,6	,70	1	0	1	1	1
P	2	21	m	1	1	4	4	4,0	6	,9	,4	,63	1	0	1	1	1
P	2	21	m	1	2	1	9	9,0	8	.	.	,90	1	1	0	1	1
P	2	21	m	1	2	2	8	9,0	6	,9	,7	,84	1	1	0	1	1
P	2	21	m	1	2	3	5	3,0	6	1	,5	,72	0	1	0	0	0
P	2	21	m	1	2	4	10	9,0	8	,9	,9	,78	1	1	0	1	1
Q	1	27	m	1	1	1	5	7,0	2	.	.	,50	1	1	1	1	1
Q	1	27	m	1	1	2	7	7,0	2	,6	,4	,63	1	1	1	1	1
Q	1	27	m	1	1	3	7	7,0	2	,7	,5	,65	1	0	0	1	1
Q	1	27	m	1	1	4	5	6,0	1	,9	,4	,58	1	1	1	1	1
Q	1	27	m	1	2	1	7	8,0	10	.	.	,70	1	1	0	1	1
Q	1	27	m	1	2	2	5	6,0	0	,9	,5	,63	1	0	1	1	1
Q	1	27	m	1	2	3	5	6,0	10	1	,5	,61	0	1	0	0	0
Q	1	27	m	1	2	4	6	7,0	0	1	,6	,59	1	1	1	1	1
R	2	25	m	1	1	1	9	8,0	5	.	.	,90	1	1	1	1	1
R	2	25	m	1	1	2	5	6,0	1	,9	,4	,68	1	1	1	1	1

part	group	age	sex	func	situat	sess	prec	mark	fam	var	varpr	cov	better	month	mvar	meap	bsiua
R	2	25	m	1	1	3	7	7,0	4	,9	,6	,69	1	1	1	1	1
R	2	25	m	1	1	4	10	9,0	5	,7	,7	,76	1	1	1	1	1
R	2	25	m	1	2	1	9	9,0	6	,	,	,90	1	1	0	1	1
R	2	25	m	1	2	2	8	7,0	4	,8	,7	,89	1	1	0	1	1
R	2	25	m	1	2	3	7	8,0	5	,5	,3	,82	1	1	1	1	1
R	2	25	m	1	2	4	5	6,0	5	,9	,5	,76	0	1	0	1	1
S	1	32	v	1	1	1	3	6,0	3	,	,	,30	0	0	0	0	0
S	1	32	v	1	1	2	7	7,0	6	1	,7	,50	0	0	0	0	0
S	1	32	v	1	1	3	5	7,0	7	,8	,4	,52	1	1	0	1	1
S	1	32	v	1	1	4	7	8,0	9	,8	,6	,56	1	1	0	1	1
S	1	32	v	1	2	1	5	7,0	7	,	,	,50	1	1	0	1	1
S	1	32	v	1	2	2	6	8,0	8	,6	,2	,44	1	1	0	1	1
S	1	32	v	1	2	3	6	7,0	5	,9	,6	,54	1	1	0	1	1
S	1	32	v	1	2	4	4	7,5	6	,9	,4	,53	1	1	0	1	1
T	2	24	v	1	1	1	9	8,0	2	,	,	,90	1	1	0	1	1
T	2	24	v	1	1	2	6	5,0	3	1	,6	,75	1	1	0	1	1
T	2	24	v	1	1	3	4	5,5	3	,9	,3	,64	1	0	0	1	1
T	2	24	v	1	1	4	8	9,0	3	1	,8	,69	1	1	0	1	1
T	2	24	v	1	2	1	8	8,0	3	,	,	,80	1	1	0	1	1
T	2	24	v	1	2	2	7	5,0	3	,4	,2	,71	0	1	0	0	1
T	2	24	v	1	2	3	7	3,0	3	,8	,6	,75	0	0	1	0	0
T	2	24	v	1	2	4	10	9,0	3	,9	,9	,83	1	1	0	1	1
U	1	26	v	1	1	1	4	7,0	3	,	,	,40	1	1	1	1	1
U	1	26	v	1	1	2	9	8,0	2	,9	,8	,63	1	0	1	1	1
U	1	26	v	1	1	3	7	6,0	5	1	,7	,73	1	0	1	1	1
U	1	26	v	1	1	4	4	5,0	4	,9	,3	,67	0	0	1	1	1
U	1	26	v	1	2	1	10	9,0	3	,	,	,1,0	1	1	0	1	1
U	1	26	v	1	2	2	7	7,0	4	,6	,3	,81	0	0	1	0	0
U	1	26	v	1	2	3	10	7,0	3	,8	,8	,86	1	1	0	1	1
U	1	26	v	1	2	4	7	8,0	6	,7	,6	,89	1	1	0	1	1
A	1	26	m	2	1	1	5	4,0	2	,	,	,50	0	0	1	0	0
A	1	26	m	2	1	2	6	5,0	0	1	,6	,55	0	0	1	0	0
A	1	26	m	2	1	3	3	4,0	0	1	,3	,48	0	0	1	0	0
A	1	26	m	2	1	4	4	3,0	0	1	,4	,47	0	0	1	0	0
A	1	26	m	2	2	1	4	3,0	0	,	,	,40	0	0	1	0	0
A	1	26	m	2	2	2	2	2,0	2	1	,2	,30	0	0	1	0	0
A	1	26	m	2	2	3	5	5,0	0	1	,5	,38	0	0	1	0	0
A	1	26	m	2	2	4	6	4,0	0	1	,6	,44	0	0	1	0	0
B	2	26	m	2	1	1	2	7,0	0	,	,	,20	0	0	1	0	0
B	2	26	m	2	1	3	1	5,0	0	1	,1	,14	0	0	1	0	0
B	2	26	m	2	1	4	0	4,0	1	1	,0	,11	0	1	0	0	0
B	2	26	m	2	2	1	5	6,0	0	,	,	,50	0	0	1	0	0
B	2	26	m	2	2	2	5	5,0	0	1	,5	,50	1	0	1	0	0
B	2	26	m	2	2	3	4	6,0	0	1	,4	,47	0	0	1	0	0
B	2	26	m	2	2	4	3	7,0	4	1	,3	,43	0	0	1	0	0
C	1	26	m	2	1	1	3	7,0	5	,	,	,30	0	0	1	0	0
C	1	26	m	2	1	2	3	6,0	5	1	,3	,30	0	0	1	0	0
C	1	26	m	2	1	3	4	6,0	7	1	,4	,31	0	0	1	0	0
C	1	26	m	2	1	4	3	5,0	2	1	,3	,32	0	0	0	0	0
C	1	26	m	2	2	1	6	6,5	5	,	,	,60	0	0	1	0	0
C	1	26	m	2	2	2	6	5,0	4	1	,6	,60	0	0	1	0	0
C	1	26	m	2	2	3	2	4,0	2	,9	,2	,50	0	0	1	0	0
C	1	26	m	2	2	4	3	5,0	4	1	,3	,46	1	1	1	1	1
D	2	34	m	2	1	1	1	2,0	2	,	,	,10	0	0	0	0	0
D	2	34	m	2	1	2	4	5,0	5	1	,4	,25	0	0	0	0	0
D	2	34	m	2	1	3	5	2,0	3	1	,5	,34	0	0	1	0	0
D	2	34	m	2	1	4	6	6,0	1	1	,6	,42	1	0	1	1	1
D	2	34	m	2	2	1	6	5,0	1	,	,	,60	0	0	1	0	0
D	2	34	m	2	2	2	3	4,0	3	1	,3	,45	0	0	1	0	0
D	2	34	m	2	2	3	3	4,0	1	1	,3	,40	0	0	1	0	0
D	2	34	m	2	2	4	3	4,0	2	,8	,3	,40	0	1	1	0	0
E	1	39	m	2	1	1	5	5,0	6	,	,	,50	0	0	1	0	0
E	1	39	m	2	1	2	4	6,0	3	1	,4	,45	1	1	1	1	1
E	1	39	m	2	1	3	5	5,0	2	1	,5	,47	0	0	0	0	1
E	1	39	m	2	1	4	7	6,0	7	1	,7	,54	0	0	0	0	0

part	group	age	sex	func	situat	sess	prec	mark	fam	var	varpr	cov	better	mcoh	mvar	mexp	bsitua
E	1	39	m	2	2	1	6	5,0	4	.	.	,60	0	0	1	0	0
E	1	39	m	2	2	2	5	5,0	7	1	,5	,55	1	1	0	1	1
E	1	39	m	2	2	3	5	4,0	5	,9	,5	,55	0	0	0	0	0
E	1	39	m	2	2	4	5	5,0	5	1	,5	,57	0	0	0	0	0
F	2	19	m	2	1	1	3	4,0	3	.	.	,30	0	0	1	0	0
F	2	19	m	2	1	2	3	6,0	2	,9	,3	,32	0	0	1	0	0
F	2	19	m	2	1	3	1	4,0	1	,9	,1	,25	0	0	1	0	0
F	2	19	m	2	1	4	1	5,0	1	,8	,1	,22	0	0	1	0	0
F	2	19	m	2	2	1	5	5,0	3	.	.	,50	0	0	1	0	0
F	2	19	m	2	2	2	5	6,0	4	1	,5	,50	0	0	1	0	0
F	2	19	m	2	2	3	4	5,0	4	,9	,4	,46	0	0	1	0	0
F	2	19	m	2	2	4	6	4,0	3	1	,6	,50	0	0	1	0	0
G	1	19	m	2	1	1	5	6,0	4	.	.	,50	0	0	1	0	0
G	1	19	m	2	1	2	7	6,0	4	,8	,6	,61	0	0	1	0	0
G	1	19	m	2	1	3	7	5,0	3	1	,7	,64	0	0	0	0	0
G	1	19	m	2	1	4	4	6,0	1	1	,4	,60	0	0	1	0	0
G	1	19	m	2	2	1	7	6,5	3	.	.	,70	1	0	1	1	1
G	1	19	m	2	2	2	5	6,0	0	1	,5	,60	0	0	1	0	0
G	1	19	m	2	2	3	2	5,0	3	1	,2	,48	0	0	1	0	0
G	1	19	m	2	2	4	3	5,0	2	1	,3	,44	0	0	1	0	0
H	2	27	m	2	1	1	4	5,0	3	.	.	,40	0	0	0	0	0
H	2	27	m	2	1	2	4	4,0	3	1	,4	,40	0	0	1	0	0
H	2	27	m	2	1	3	3	4,0	5	1	,3	,38	0	0	1	0	0
H	2	27	m	2	1	4	4	4,0	2	1	,4	,39	0	0	1	0	0
H	2	27	m	2	2	1	6	7,0	2	.	.	,60	0	0	1	0	0
H	2	27	m	2	2	2	6	8,0	1	1	,6	,60	1	1	0	1	1
H	2	27	m	2	2	3	5	5,0	3	,8	,4	,57	0	0	1	0	0
H	2	27	m	2	2	4	4	4,0	3	,9	,3	,53	0	0	1	0	0
I	1	24	m	2	1	1	2	4,0	2	.	.	,20	0	0	1	0	0
I	1	24	m	2	1	2	4	5,0	5	1	,4	,30	0	1	1	0	0
I	1	24	m	2	1	3	6	7,0	6	1	,6	,41	0	1	1	0	0
I	1	24	m	2	1	4	3	6,0	5	1	,3	,37	0	0	1	0	0
I	1	24	m	2	2	1	8	9,0	6	.	.	,80	1	1	0	1	1
I	1	24	m	2	2	2	7	6,0	2	1	,7	,75	0	0	1	0	0
I	1	24	m	2	2	3	9	7,0	2	1	,9	,80	0	0	1	0	0
I	1	24	m	2	2	4	9	6,0	4	,9	,8	,86	0	0	1	0	0
J	2	37	m	2	1	1	3	2,0	2	.	.	,30	0	0	1	0	0
J	2	37	m	2	1	2	4	6,0	2	1	,4	,35	0	0	1	0	0
J	2	37	m	2	1	3	6	4,0	2	1	,6	,43	0	0	1	0	0
J	2	37	m	2	1	4	5	4,0	2	,9	,4	,44	0	0	1	0	0
J	2	37	m	2	2	1	5	6,0	5	.	.	,50	0	0	1	0	0
J	2	37	m	2	2	2	3	5,0	5	1	,3	,40	1	1	0	1	1
J	2	37	m	2	2	3	5	3,0	3	1	,5	,43	0	0	1	0	0
J	2	37	m	2	2	4	4	3,0	2	,9	,4	,45	0	0	1	0	0
K	1	21	m	2	1	1	5	8,0	8	.	.	,50	1	0	1	1	1
K	1	21	m	2	1	2	4	5,0	5	,9	,3	,47	0	0	1	0	0
K	1	21	m	2	1	3	3	4,0	5	1	,3	,41	0	0	1	0	0
K	1	21	m	2	1	4	3	8,0	5	,9	,3	,41	1	0	1	1	1
K	1	21	m	2	2	1	4	6,0	3	.	.	,40	0	0	1	0	0
K	1	21	m	2	2	2	3	6,0	3	1	,3	,35	1	0	1	0	1
K	1	21	m	2	2	3	4	7,0	1	1	,4	,37	1	1	1	1	1
K	1	21	m	2	2	4	9	6,0	3	1	,9	,50	0	0	1	0	0
L	2	21	m	2	1	1	2	5,0	4	.	.	,20	0	1	0	0	0
L	2	21	m	2	1	2	4	6,0	2	1	,4	,30	1	0	0	1	1
L	2	21	m	2	1	3	3	5,0	2	1	,3	,30	0	0	1	0	0
L	2	21	m	2	1	4	3	6,0	4	1	,3	,31	0	0	1	0	0
L	2	21	m	2	2	1	6	6,0	3	.	.	,60	0	0	1	0	0
L	2	21	m	2	2	2	4	5,0	1	1	,4	,50	0	0	0	0	0
L	2	21	m	2	2	3	5	5,0	2	1	,5	,50	0	0	1	0	0
L	2	21	m	2	2	4	3	6,0	0	1	,3	,46	0	0	1	0	0
M	1	19	m	2	1	1	3	7,0	7	.	.	,30	1	1	1	1	1
M	1	19	m	2	1	2	4	7,0	5	1	,4	,35	0	0	0	0	0
M	1	19	m	2	1	3	5	8,5	4	1	,5	,38	1	1	1	1	1
M	1	19	m	2	1	4	6	8,0	3	1	,6	,44	0	0	1	0	0
M	1	19	m	2	2	1	2	5,0	5	.	.	,20	0	0	1	0	0
M	1	19	m	2	2	2	5	6,5	5	1	,5	,35	0	0	0	0	0

part	group	age	sexe	func	situat	sess	prec	mark	fam	var	varpr	cov	better	mcch	mvar	mexp	bsitua
M	1	19	m	2	2	3	7	8,0	6	1	,7	,48	1	0	1	0	0
M	1	19	m	2	2	4	6	7,0	5	1	,6	,50	0	0	0	0	0
N	2	27	m	2	1	1	2	1,0	3	.	.	,20	0	0	0	0	0
N	2	27	m	2	1	2	8	7,0	1	,9	,7	,53	1	0	1	0	0
N	2	27	m	2	1	3	6	5,0	1	1	,6	,55	0	1	0	0	0
N	2	27	m	2	1	4	6	4,0	1	1	,6	,57	0	0	1	0	0
N	2	27	m	2	2	1	5	7,0	4	.	.	,50	1	0	1	1	0
N	2	27	m	2	2	2	5	5,0	2	1	,5	,50	0	0	1	0	0
N	2	27	m	2	2	3	5	6,0	4	,9	,4	,48	0	0	0	0	0
N	2	27	m	2	2	4	6	7,0	5	1	,6	,50	1	1	0	1	1
P	2	21	m	2	1	1	7	6,0	6	.	.	,70	0	0	1	0	0
P	2	21	m	2	1	2	5	5,0	5	1	1	,60	0	0	1	0	0
P	2	21	m	2	1	3	5	6,0	6	,7	,7	,58	0	0	1	1	1
P	2	21	m	2	1	4	3	2,0	7	,8	,8	,50	1	1	0	0	0
P	2	21	m	2	2	1	7	7,0	6	.	.	,70	0	0	1	0	0
P	2	21	m	2	2	2	4	4,0	5	1	,4	,55	0	0	1	0	0
P	2	21	m	2	2	3	6	7,0	6	1	,6	,55	1	0	1	1	1
P	2	21	m	2	2	4	6	7,0	6	1	,6	,56	0	0	1	0	0
Q	1	27	m	2	1	1	5	5,0	10	.	.	,50	0	0	0	0	0
Q	1	27	m	2	1	2	4	3,0	0	,9	,3	,42	0	0	0	0	0
Q	1	27	m	2	1	3	3	5,0	0	1	,3	,38	0	1	1	0	0
Q	1	27	m	2	1	4	2	4,0	10	1	,2	,33	0	0	0	0	0
Q	1	27	m	2	2	1	4	7,0	0	.	.	,40	0	0	1	0	0
Q	1	27	m	2	2	2	8	5,0	0	1	,8	,60	0	1	0	0	0
Q	1	27	m	2	2	3	5	6,0	10	1	,5	,59	1	0	1	1	1
Q	1	27	m	2	2	4	4	6,0	0	1	,4	,55	0	0	0	0	0
R	2	25	m	2	1	1	3	5,0	2	.	.	,30	0	0	0	0	0
R	2	25	m	2	1	2	1	5,0	0	1	,1	,20	0	0	0	0	0
R	2	25	m	2	1	3	4	4,0	3	1	,4	,28	0	0	0	0	0
R	2	25	m	2	1	4	1	4,0	1	,9	,1	,24	0	0	0	0	0
R	2	25	m	2	2	1	6	7,0	5	.	.	,60	0	0	1	0	0
R	2	25	m	2	2	2	7	6,0	3	1	,7	,65	0	0	1	0	0
R	2	25	m	2	2	3	8	7,0	3	1	,8	,72	0	0	0	0	0
R	2	25	m	2	2	4	6	6,0	2	1	,6	,69	1	0	1	0	0
S	1	32	v	2	1	1	3	6,5	5	.	.	,30	1	1	1	1	1
S	1	32	v	2	1	2	6	7,0	6	1	,6	,45	1	1	1	1	1
S	1	32	v	2	1	3	4	6,0	8	,9	,4	,43	0	0	1	0	0
S	1	32	v	2	1	4	5	6,5	4	1	,5	,45	0	0	1	0	0
S	1	32	v	2	2	1	3	6,0	6	.	.	,30	0	0	1	0	0
S	1	32	v	2	2	2	1	5,8	5	1	,1	,20	0	0	1	0	0
S	1	32	v	2	2	3	5	5,8	2	1	,5	,30	0	0	1	0	0
S	1	32	v	2	2	4	3	5,8	2	,8	,2	,30	0	0	1	0	0
T	2	24	v	2	1	1	5	5,5	4	.	.	,50	0	0	1	0	0
T	2	24	v	2	1	2	3	3,0	5	1	,3	,40	0	0	1	0	0
T	2	24	v	2	1	3	3	5,0	5	1	,3	,37	0	1	1	0	0
T	2	24	v	2	1	4	6	7,0	4	1	,6	,43	0	0	1	0	0
T	2	24	v	2	2	1	5	4,0	4	.	.	,50	0	0	1	0	0
T	2	24	v	2	2	2	7	5,0	2	1	,7	,60	1	0	1	1	0
T	2	24	v	2	2	3	9	9,0	2	1	,9	,70	1	1	0	1	1
T	2	24	v	2	2	4	9	6,5	3	1	,9	,75	0	0	1	0	0
U	1	26	v	2	1	1	1	3,0	1	.	.	,10	0	0	0	0	0
U	1	26	v	2	1	2	2	3,0	0	,9	,2	,16	0	1	0	0	0
U	1	26	v	2	1	3	2	2,0	5	1	,2	,17	0	1	0	0	0
U	1	26	v	2	1	4	0	2,0	4	1	,0	,13	1	1	0	0	0
U	1	26	v	2	2	1	8	7,0	4	.	.	,80	0	0	1	0	0
U	1	26	v	2	2	2	9	8,0	2	1	,9	,85	1	1	0	1	1
U	1	26	v	2	2	3	4	5,0	4	1	,4	,70	0	0	1	0	0
U	1	26	v	2	2	4	5	5,0	2	1	,5	,67	0	0	1	0	0