(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 098 286 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
09.05.2001 Bulletin 2001/19

(51) Int Cl.[7]: **G08G 1/09**, H04H 1/00

(21) Application number: **00250369.6**

(22) Date of filing: **04.11.2000**

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **04.11.1999 JP 31439499**

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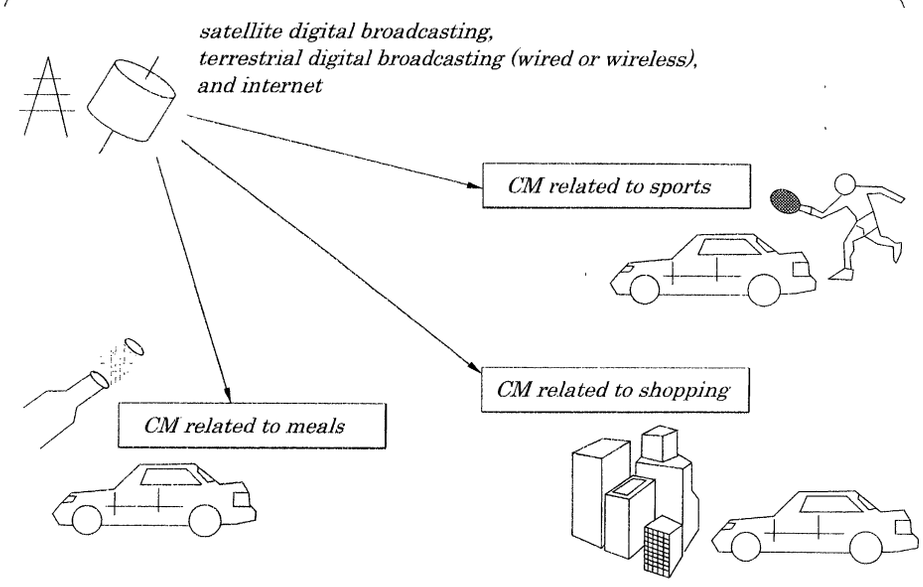
(54) Method for providing broadcasting program and apparatus for the same

(57) An apparatus and method are provided for broadcasting a CM a minimum number of times at a specified interval, which is guaranteed to a sponsor, even when the CM would not meet tastes of a user or would not be fully suitable to conditions of time and/or places on a user side. A broadcasting program providing apparatus to provide a broadcasting program in a manner to match conditions on a program receiving user who is in a changing state is composed of a broadcasting program storing section (1) having an attribute value storing sectionn (2), a previous broadcast time storing section (3), a broadcasting interval storing section (4), a broadcasting interval storing section (5) and a matching degree storing section (6), wherein the difference between a date and/or time when a program was broadcast last time and a present date and/or time is compared with a value stored in the broadcasting interval storing section (4) for each broadcasting program and a weight is calculated based on a difference and a value obtained by multiplying the calculated weight by a value output from an attribute matching degree calculating section (9) is stored in the matching degree storing section (6). (Fig. 1)

FIG.5



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Description

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present invention relates to a method for providing broadcasting programs and an apparatus for the same adapted to assure a minimum interval between broadcasts of commercials and to a computer-readable storage medium storing programs or data to implement the above method and a device in order to run programs and commercials in a manner that broadcasting matches momentarily changing requirements in terms of time, place and kind of information to be supplied on a user side in terrestrial digital broadcasting and/or satellite digital broadcasting in which ordinary programs and/or commercial programs are broadcast.

[0002] The present application claims the Convention Priority of Japanese Patent Application No. Heill-314394 filed on November 4,1999, which is hereby incorporated by reference.

Description of the Prior Art

[0003] In conventional television and/or radio broadcasting systems, there are two types of methods for broadcasting; one being a subscriber-type (called a NHK (Japan Broadcasting Corporation) type in Japan) broadcasting which provides programs by collecting fees from subscribers and the other being sponsored-type broadcasting which provides programs and, duringintervalsbetween broadcasts of ordinary programs, runs CMs (commercials), by collecting advertisement fees from sponsors. It would be expected that, even if digital broadcasting becomes widespread further in future, these two types of broadcasting methods would be continued. When analog broadcasting is replaced with a digital one, it would become possible to easily add character information and/or attribute information to ordinary programs or CMs. If so, as shown in Fig. 5, there is a possibility that a service of broadcasting is provided in which a CM is selected or run in a manner that it can meet tastes of a user or be suitable to present/current conditions (time and/or places) of the user, that is, when the user takes part in a sport, a CM related to sports is run, when the user wants to have a meal, a CM related to meals such as restaurant information is run and when going for shopping, a CM related to shopping is run, or a like.

[0004] In a field of the Internet, this method is called PUSH-type information delivery technology, which is widely used as an information delivery service in which information can be selected or rejected depending on the tastes of the user of the Internet, though it cannot yet provide the information to be able to meet such conditions designated by the user as time and/or places. For example, POINTCAST is a typical company which provides information service by using such PUSH-type information delivery technology (refer to home page address: www.pointcast. com) . POINTCAST network system is so devised that, the user who has registered, in advance, type of information that the user wants to get, can access to a WWW (World Wide Web) server on the Internet with proper timing (for example, every one hour, once a day or the like) to automatically obtainlatest information from the WWW server and to display it on a screen of a PC (Personal Computer) on the user side.

[0005] The PUSH technology allows the user to automatically and one after another, obtain information that the user wants to get. Though a way of receiving the information is seemingly the same as in the case of television which provides information one-sidedly to a viewer, it differs greatly in that television provides information to many and unspecified persons while the POINTCAST network provides only information that the user wants to obtain. That is, the POINTCAST network allows the user to obtain, free of charge, information including news, weather forecasts, stock prices or the like which are customized to suit the user. However, this service is available only when the user accesses to the WWW server on the Internet. If the user uses this service by a portable cellular phone in a car or somewhere, he/she must bear phone charges in addition to an Internet fee.

Description of the Related Art

[0006] A two-way communication is a prerequisite for a PUSH-type information delivery service. Therefore, seemingly, such communication media as broadcasting which transmits information one-sidedly from a broadcast station to a receiver is unable to provide the PUSH-type information delivery service as described above. The present inventor has invented a method for providing the PUSH-type information delivery service even through media transmitting the information one-sidedly.

[0007] To transmit information required for the PUSH-type information service from the receiver to the broadcast station, use of other media such as portable cellular phones seems to be possible. However, use of such other media cannot assure reliability that required information has been surely transmitted to the broadcast station. Instead of using such other media, a receiver of broadcasts can be applied. That is, many CMs are fed, in advance, to the receiver which then stores received CMs. When an appropriate time comes or when a user comes in a proper place, the receiver takes out a proper CM and inserts it into an ordinary broadcasting program and then regenerates the inserted CM.

[0008] By configuring as above, even in one-way broadcasting media, a CM delivery that can meet tastes of the user or that can be made at a time when the user wants or at a place where the user wants is made possible. Service of this kind is not yet available actually, however, technology related to this method is disclosed

in Japanese Patent Application No. Heill-263058 as "Device for transmitting and receiving on-demand type radio broadcast for car user and method for the same" applied by the present inventor and still pending. The device and method disclosed therein can be used in following states: When an advertiser is, for example, a manager who runs a restaurant being operated along a highway, the advertiser wants to run CMs related to the restaurant to drivers of vehicles and trucks which are running on the highway and coming near the restaurant. The manager thinks that, by doing this, excellent advertising effects can be obtained and requests that a broadcaster delivers the CM in a PUSH-type service manner to the driver. In response to the requirement, the broadcaster runs customized programs including the CM for the driver through the device for transmitting and receiving on-demand type radio broadcast in a state that the time, place and contents of required information change every moment. However, if the CM is chosen or rejected depending on tastes of the user or on conditions of time and/or places on the user side, there may be cases where some CMs are not chosen and not broadcast at all. This situation is favorable to the user of CMs because he/she can obtain only specified CMs at_the time when he/she wants to get or at the place where he/she wants to get, however, this situation is not acceptable to a sponsor who must pay an advertisement fee for the CMs.

[0009] Therefore, even if the method for broadcasting is basically configured so that CMs are chosen or rejected depending on tastes of users or on conditions of time and/or places on the user side as described above, unless the CMs are run a minimum number of times at a specified interval even when CMs are not fully suitable to the user, the broadcasting method would be rejected by the sponsor. This problem has not been solved in the above pending Japanese Patent Application No. Heill-263058.

SUMMARY OF THE INVENTION

[0010] In view of the above, it is an object of the present invention to provide a device and method for broadcasting a CM a minimum number of times at a specified interval, which is guaranteed to a sponsor, even when the CM would not meet tastes of a user or would not be fully suitable to conditions of time and/or places on a user side.

[0011] According to a first aspect of the present invention, there is provided a broadcasting program providing apparatus for delivering a broadcasting program in a manner that broadcasting matches momentarily changing requirements in terms of time, place and kind of information to be supplied on a user side in a case of a driver operating a moving automobile including:

a broadcasting program storing section to store a plurality of broadcasting programs containing an attribute value storing section to store attribute values of the broadcasting programs, a previous broadcast time storing section to store date and/or time when the broadcasting program was last run, a broadcasting interval storing section to store the interval between broadcasts of the broadcasting program ordinarily scheduled to be run, a program content storing section to store contents of the broadcasting programs and a matching degree storing section to store calculated matching degrees fed from a broadcasting interval considering section for every broadcasting program;

a current/present attribute value storing section to store a current/present state expressed by at least one kind of a pair of an attribute and its attribute value;

a matching degree rule storing section to store a method for calculation of a matching degree used when the attribute value stored in the present attribute value storing section is compared with the attribute value of each broadcasting program stored in the attribute value storing section;

an attribute matching degree calculating section to calculate the matching degree using a value output from the present attribute value storing section and a value of each broadcasting program output from the attribute value storing section as input values in accordance with method of calculation of matching degrees stored in the matching degree rule storing section and to output a result;

a current/present date/time storing section to store current/present date and/or time;

a broadcasting interval considering rule storing section to store a method for calculating a weight in which a difference between date and/or time for previous broadcasting of a program and date and/or time for present broadcasting of the program is compared with a value output from the broadcasting interval storing section for every broadcasting program and, if the difference is smaller than the value from the broadcasting interval storing section, a weight having a negative value corresponding to the difference is assigned to the broadcasting program, while, if the difference is larger than the value, a weight having a positive value corresponding to the difference is assigned to the broadcasting program;

a broadcasting interval considering section to calculate a weight using a value output from the previous broadcast time storing section, a value output from the present date/time storing section and a value output from the broadcasting interval storing section as input values in accordance with a calculation rule stored in the broadcasting interval considering rule storing section and to output a value obtained by multiplying calculated weight by an output from the attribute matching degree calculating section; and

a program regenerating section to select a broadcasting program having a largest matching degree out of values stored in the matching degree storing section contained in the broadcasting program storing section and to regenerate the program.

[0012] A preferable mode is one that includes a recent broadcasting average interval storing section contained in the broadcasting program storing section, which is mounted instead of the previously broadcast time storing section, to store an average interval date and/or time between broadcasts of each program which has been run recently and a new broadcasting interval considering rule storing section, which is mounted instead of the broadcasting interval considering rule storing section, to store a method for calculating a weight in which an average interval date and/or time between broadcasts of a program which has been run recently is compared with an interval value output from the broadcasting interval storing section and, if the average interval date and/or time between broadcasts of the program which has been run recently is smaller than the interval value output from the broadcasting interval storing section, a weight having a negative value corresponding to the difference is assigned to the program, while, if the average interval date and/or time between broadcasts of the program which has been run recently is larger than the interval value output from the broadcasting interval storing section, a weight having a positive value corresponding to the difference is assigned to the program.

[0013] Another preferable mode is one that includes an addition-type broadcasting interval considering section, which is mounted instead of the broadcasting interval considering section, to calculate a weight using a value output from the previously broadcast time storing section, a value output from the present date/time storing section and a value output from the broadcasting interval storing section as input values in accordance with rules stored in the broadcasting interval considering rule storing section and to output a value obtained by adding calculated weight to an output from the attribute matching degree calculating section.

[0014] According to a second aspect of the present invention, there is provided a broadcasting program providing method for delivering a broadcasting program in a manner that broadcasting matches momentarily changing requirements in terms of time, place and kind of information to be supplied on a mobile body side including steps of:

storing a plurality of the broadcasting programs each being paired with an attribute value stored in an attribute value storing section, with a date and/or time when a corresponding broadcasting program was last run stored in a previously broadcast time storing section, with the interval between broadcasts of the program ordinarily scheduled to be run stored in a broadcasting interval storing section, with a content of the broadcasting program stored in a program content storing section and with a matching degree stored in a matching degree storing section;

storing a present state of a mobile body expressed by at least one kind of a pair of an attribute of the broadcasting program and its attribute value in a present attribute value storing section;

storing, in a matching degree rule storing section, a method for calculation of a matching degree used when a value stored in the present attribute value storing section is compared with a value of each broadcasting program stored in the attribute value storing section contained in the broadcasting program storing section;

calculating, in an attribute matching degree calculating section, the matching degree using a value output from the present attribute value storing section and a value output from the attribute value storing section as input values in accordance with the method of calculation of matching degrees stored in the matching degree rule storing section and outputting a result;

storing a present date and/or present time in a present date/time storing section;

storing, in a broadcasting interval considering rule storing section, a method for calculating a weight in which a difference between a date and/or time of previous broadcasting of a broadcasting program and a present date and/or time is compared with a value output from the broadcasting interval storing section for every broadcasting program and, if the interval between broadcasts of the broadcasting program actually run is larger than the interval between broadcasts of the broadcasting program ordinarily scheduled to be run, a weight having a negative value corresponding to the difference is assigned to the broadcasting program, while, if the interval between broadcasts of the broadcasting program actually run is smaller than the interval between broadcasts of the broadcasting program ordinarily scheduled to be run, a weight having a positive value corresponding to the difference is assigned to the broadcasting program;

calculating, in a broadcasting interval considering section, a weight using a value output from the previous broadcast time storing section, a value output from the present date/time storing section and a value output from the broadcasting interval storing section as input values in accordance with the calculation rule stored in the broadcasting interval considering rule storing section and, outputting a value obtained by multiplying the calculated weight by an output from the attribute matching degree calculating section;

storing calculated results fed from the broadcasting interval considering section for every broadcasting program in a matching degree storing section con-

tained in the broadcasting program storing section; and

selecting, in a program regenerating section, a broadcasting program having the largest matching degree out of values stored in the matching degree storing section contained in the broadcasting program storing section and regenerating the broadcasting program.

[0015] In this context a preferable mode is one that includes steps of storing an average interval date and/or time between broadcasts of a broadcasting program which has run recently by using a recent broadcasting average interval storing section contained in the broadcasting program storing section, which is mounted instead of the previous broadcast time storing section, and of storing, by using a new broadcasting interval considering rule storing section, which is mounted instead of the broadcasting interval considering rule storing section, a method for calculating a weight in which an average interval date and/or time between broadcasts of a program which has run recently is compared with a value output from the broadcasting interval storing section and, if the average interval date and/or time between broadcasts of the broadcasting program which has run recently is smaller than the value output from the broadcasting interval storing section, a weight having a negative value corresponding to the difference is assigned to the broadcasting program, while, if the average interval date and/or time between broadcasts of the broadcasting program which has run recently is larger than the value output from the broadcasting interval storing section, a weight having a positive value corresponding to the difference is assigned to the broadcasting program.

[0016] Another preferable mode is one that includes steps of calculating, by an addition-type broadcasting interval considering section, which is mounted instead of the broadcasting interval considering section, a weight using a value output from the previously broadcast time storing section, a value output from the present date/time storing section and a value output from the broadcasting interval storing section as input values in accordance with rules stored in the broadcasting interval considering rule storing section and outputting a value obtained by adding calculated weight to an output from the attribute matching degree calculating section.

[0017] According to a third aspect of the present invention, there is provided a broadcasting program providing apparatus for delivering a broadcasting program in a manner that broadcasting matches momentarily changing requirements in terms of receiving conditions on a user side including:

a broadcasting program storing section to store a plurality of broadcasting programs each being handled as a set with an attribute value, a date and/or time when the broadcasting program was run last run, an interval between broadcasts of the broadcasting programs ordinarily scheduled to be run, a content of the broadcasting program and with a matching degree to an attribute;

a present attribute value storing section to store a present attribute value expressing a present attribute of the broadcasting program;

a matching degree rule storing section to store a method for calculation of the matching degree used when a value output from the present attribute value storing section is compared with an attribute value stored in the broadcasting program storing section;

an attribute matching degree calculating section to calculate the matching degree using a value output from the present attribute value storing section and a value output from the broadcasting program storing section as input values in accordance with rules stored in the matching degree rule storing section;

a broadcasting interval considering rule storing section to store a method for calculating a weight in which a difference between a date and/or time of previous broadcasting of a broadcasting program and a present date and/or time is compared with a value output from the broadcasting interval storing section for every broadcasting program and, if the difference is smaller than the value from the broadcasting interval storing section, a weight having a negative value corresponding to the difference is assigned to the broadcasting program, while, if the difference is larger than the value, a weight having a positive value corresponding to the difference is assigned to the broadcasting program;

a broadcasting interval considering section to calculate a weight using a value output from the previously broadcast time storing section, a value output from the present date/time storing section and a value output from the broadcasting interval storing section as input values in accordance with the calculation rule stored in the broadcasting interval considering rule storing section and to output a value obtained by multiplying calculated weight by an output from the attribute matching degree calculating section;

a matching degree storing section contained in the broadcasting program storing section to store calculated results fed from the broadcasting interval considering section for every broadcasting program; and

a program regenerating section to select the broadcasting program having the largest matching degree out of values stored in the matching degree storing section contained in the broadcasting program storing section and to regenerate the program.

[0018] According to a further aspect of the present invention, there is provided a broadcasting program providing apparatus for delivering a broadcasting program

in a manner that broadcasting matches momentarily changing requirements in terms of receiving conditions on a user side including:

a broadcasting program storing section to store a plurality of broadcasting programs each being handled as a set with an attribute value, a date and/or time when the broadcasting program was last run, the interval between broadcasts of the broadcasting programs ordinarily scheduled to be run, contents of the broadcasting program and with a matching degree to the attribute;
an attribute matching degree calculating section to calculate a weight of the attribute value of a present program by comparing the difference between the date and/or time when the broadcasting program was broadcast last time and a present date and/or time;
a broadcasting interval considering section to output avalue obtained by multiplying the matching degree between the attribute value of the present broadcasting program and the attribute value of the broadcasting program run the last time by the weight.

[0019] According to another aspect of the present invention, there is provided a computer-readable storage medium to store programs and data used to implement broadcasting program providing methods described above.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] The above and other objects, advantages and features of the present invention will be more apparent from the following description taken in conjunction with the accompanying drawings in which:

Fig. 1 is a schematic block diagram showing configurations of a regenerating device to implement a broadcasting interval guaranteed-type broadcast selecting method according to a first embodiment of the present invention;
Fig. 2 shows examples of matching degree rules stored in a matching degree rule storing section according to the first embodiment of the present invention;
Fig. 3 shows a graph representing the relationship between time and weights in operations performed by an attribute matching degree calculating section according to the first embodiment of the present invention;
Figs. 4A and 4B show graphs representing, in a different manner, the relationship between time and weights in operations performed by the attribute matching degree calculating section according to the first embodiment of the present invention;
Fig. 5 is an explanatory diagram showing states of advertisement requirements to a mobile body according to the present invention;
Fig. 6 is a schematic block diagram showing configurations of a regenerating device to implement a broadcasting interval guaranteed-type broadcast selecting method according to a second embodiment of the present invention;
Fig. 7 shows a graph representing the relationship between time and weights in operations performed by an attribute matching degree calculating section according to the second embodiment of the present invention;
Figs. 8A and 8B show graphs representing, in a different manner, the relationship between time and weights in operations performed by the attribute matching degree calculating section according to the second embodiment of the present invention; and
Fig. 9 is a schematic block diagram showing configurations of a regenerating device to implement a broadcasting interval guaranteed-type broadcast selecting method according to a third embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0021] Best modes of carrying out the present invention will be described in further detail using various embodiments with reference to the accompanying drawings.

First Embodiment

[0022] Figure 1 shows configurations of a broadcasting program regenerating device 15,

[0023] First, an overall configuration of the broadcasting program regenerating device 15 is described. The broadcasting program regenerating device 15 is composed of a broadcasting program storing section 1 (in description, a term "section" represents a "unified whole to implement a function"), a present attribute value storing section 7, a matching degree rule storing section 8, an attribute matching degree calculating section 9, a broadcasting interval considering rule storing section 10, a broadcasting interval considering section 11, a program regenerating section 12 and a present date/time storing section 13.

[0024] Next, each component of the broadcast program regenerating device 15 will be briefly described. The broadcasting program storing section 1, as shown in Fig. 1, is composed of an attribute value storing section 2, a previous broadcast time storing section 3, a broadcasting interval storing section 4, a program content storing section 5 and a matching degree storing section 6. Each of contents stored in the sections 2, 3, 4, 5 and 6 constitutes one record as a set of a unit element which corresponds to one CMprogram. One ex-

ample of a CM contained in the broadcasting program storing section 1 will be explained referring to Fig. 1. A type of a first CM is sports as listed in the attribute value storing section 2. The previously broadcast time storing section 3 shows that the day of broadcasting the sports CM last time was September 15. The broadcasting interval storing section 4 shows that a broadcaster has contracted with a sponsor to run the sports CM everyday. The program content storing section 5 shows that contents of the sports CM has been stored as a broadcasting file. The matching degree storing section 6 shows that the present matching degree of the sports CM is "1".

[0025] Similarly, the broadcasting program storing section 1 shows that a type of the second CM is shopping as listed in the attribute value storing section 2 which was run on September 18 as shown in the previous broadcast time storing section 3. The broadcasting interval storing section 4 shows that the broadcaster has contracted with the sponsor to run the shopping CM every other day, which has been stored as a broadcasting file as shown in the program content storing section 5 having a matching degree being as high as "2". Other types of CMs including gasoline and meals as listed in the attribute value storing section 2 are shown in a table format and in an associated manner at each of the above sections 2 to 6.

[0026] The present attribute value storing section 7 is a section adapted to store an attribute value of a CM being presently broadcast. The matching degree rule storing section 8 is a section in which rules (that is, judgement standards of matching degrees) used to judge whether each of attribute values is suitable to broadcasting are stored. The attribute matching degree calculating section 9 is a section adapted to read the judgement standards of matching degrees from the matching degree rule storing section 8 and calculates the matching degree of each attribute value based on the read judgement standards of matching degrees. The broadcasting interval considering rule storing section 10 is a section adapted to store rules to be used when an interval between broadcasts is decided. The broadcasting interval considering section 11 is a section adapted to decide an interval between broadcasts based on results (matching degrees) given by the attribute matching degree calculating section 9 in accordance with rules stored in the broadcasting interval considering rule storing section 10. The program regenerating section 12 is a section adapted to regenerate a program based on calculation results fed by the broadcasting interval considering rule storing section 10. The present date/time storing section 13 is a section adapted to store dates and/or time elapsed ordinarily.

[0027] Each component of the broadcasting program regenerating device 15 will be further described in detail. The attribute value storing section 2, previous broadcast time storing section 3, broadcasting interval storing section 4, program content storing section 5 and matching degree storing section 6 contained in the broadcasting program storing section 1 can be implemented by using related databases or spreadsheets. Moreover, in Fig. 1, only types of the CMs including sports, shopping, gasoline andmeals are stored in the attribute value storing section 2, however, by defining contents to be stored in this section in a more detailed manner, the CMs can be accepted or rejected with flexibly depending on tastes of a user or at a time when he/she wants or at a place where he/she wants.

[0028] In Fig. 2, three attributes of a program to be stored are prepared, as examples, which include "content", "time" and "place".

[0029] The attribute matching degree calculating section 9 reads a content attribute rule 81, a time attribute rule 82 and a place attribute rule 83 from the matching degree rule storing section 8 and compares stored contents in the present attribute value storing section 7 with those in the attribute value storing section 2 to calculate the matching degree and then outputs calculated results to the broadcasting interval considering section 11.

[0030] A format to express attributes is the same in between the present attribute value storing section 7 and the attribute value storing section 2. If attribute values are to be stored in a simple manner to include only types of the CMs as shown in Fig. 1, additional storage area is not required. If, however, attribute values are to be stored in more detailed manner as shown in Fig. 2, a storage area that can store detailed attribute values including the "content", "time" and "place" is required. In this situation, the attribute value "content" is designated directly by the user who is to receive the CM, in many cases. For example, when a driver now operating a vehicle wants to see or hear the CM related to meals because it is about time to take lunch, "meals" constituting the attribute value "content" is designated. If the user wants to go out to play, an "amusement facility" is designated. The attribute value "time" can be set by reading present time from an ordinary watch. Moreover, when the user wants to get information at a time and/or on a day designated by the user, the time and/or day designated by the user is set. The attribute value "place" can be obtained by mounting a device that provides a present latitude and longitute such as a GPS (Global Positioning System) . A general commercial car navigation system uses the GPS, which can be applicable to the present device described above.

[0031] The matching degree rule storing section 8 stores rules used to judge a matching degree between attribute values stored in the attribute value storing section 2 and the present attribute value storing section 7. Figure 2 shows examples of the matching degree rules stored in the matching degree rule storing section 8. In Fig. 2, three kinds of rules including the content attribute rule 81, time attribute rule 82 and place attribute rule 83 are shown. The definitions of the three matching degree rules are provided therein. The content attribute rule 81 defines that, if the attribute value "content" stored in the

attribute value storing section 2 conforms to that stored in the present attribute value storing section 7, both of the attribute values are considered to be matched to each other. If there is no conformity between them, both attribute values are not considered to be matched to each other. The time attribute rule 82 defines that, if a difference in time span between the attribute value "time" stored in the attribute value storing section 2 and that stored in the present attribute value storing section 7 is within one hour, both of the attribute values are considered to match with each other. If the difference is out of the range of one hour, both attribute values are not considered to match with to each other. The place attribute rule 83 defines that, if the difference in distance between attribute value "place" stored in the attribute value storing section 2 and that stored in the present attribute value storing section 7 is within five kilometers, both of the attribute values are considered to match with each other. If the difference is out of a range of five kilometers, both attribute values are not considered to match with each other. Since the attribute values "time" and "place" stored in the attribute value storing section 2 and in the present attribute value storing section 7 seldom conform completely with each other, some difference in them is allowable in a definition. A total matching degree can be calculated by assigning a weight to each element attribute and by obtaining a weighted average, or if the weight assigned to each element attribute is equal, the sum of matching degrees of each element attribute may be used as the total matching degree. When the total matching degree is calculated, not only such contents, time and places as described above but also other attributes derived from various conditions surrounding the user can be incorporated. For example, elements showing a rising boom in business or diversified tastes in society or the like may be incorporated into the calculation of the matching degree as well.

[0032] The attribute matching degree calculating section 9 calculates the matching degree by comparing the attribute value stored in the present attribute value storing section 7 with that stored in the attribute value storing section 2 contained in the broadcasting program storing section 1 in accordance with rules stored in the matching degree rule storing section 8 and feeds the calculated result to the broadcasting interval considering rule storing section 11.

[0033] The broadcasting interval considering rule storing section 10, if date and/or time when a broadcasting program was run last , a present date and/or time, and an average interval between broadcasts of the broadcasting program are fed, compares the difference between the date and/or time when the broadcasting program was last run and the present date and/or time with an interval between broadcasts ordinarily scheduled to be run. If the resulting difference is smaller than the interval value between broadcasts, for example, as in a case where the difference is "two days" and the interval is "every two days", that is, when the interval between broadcasts actually performed is larger than the interval between broadcasts ordinarily scheduled to be run, a weight of a negative value corresponding to the difference is output. If the above difference is larger than the interval between broadcasts, for example, as in a case where the difference is "three days" and the interval value is "every two days", that is, when the interval between broadcasts actually performed is smaller than the interval between broadcasts scheduled to be run, a weight of a positive value corresponding to the difference is output. In the broadcasting interval considering rule storing section 10, rules defining a method for calculation of a weight having a negative value or a positive value are stored.

[0034] Figure 3 shows the relationship between a difference in a date and/or time (T) and a weight (W). In Fig. 3, the difference of the date and/or time (T) is plotted as abscissa and the weight (W) as ordinate. The origin in the graph shows that, when the difference is zero (0), the weight is zero (0). If the difference increases in a positive direction, the weight also increases linearly in the positive direction. Generally, if the difference increases in the negative direction, the weight increases linearly in the negative direction.

[0035] The definition of the weight will be described below. The attribute matching degree calculating section 9 calculates a matching degree of each broadcasting file stored in the program content storing section 5 constituting the broadcast program storing section 1; that is, it judges whichbroadcasting file stored in the program content storing section 5 matches a present situation given in the present attribute value storing_section 7. Even when the matching degree of the broadcasting program is high, it is not always run and whether the broadcasting program is run or not depends on how often the broadcasting program is to be run. For example, even if the broadcasting program matches the present situation given in the present attribute value storing section 7, when the user has to hear or see the same broadcasting program three or four times a day, he/she may grow tired Therefore, if the broadcasting program has been run many times recently, it should be handled as the broadcasting program having a lowmatching degree even if it actually has a high matching degree.

[0036] In the case of a broadcasting program which has not been run recently due to its low matching degree, if the interval between broadcasts of the broadcasting program is too large compared with its interval between broadcasts ordinarily scheduled to be run, in order to show consideration for the sponsor of the broadcasting program, it should be handled as the broadcasting program having a high matching degree even if it actually has a low matching degree. The broadcasting interval considering section 11 provides a weight to relatively increase or decrease the matching degree. The weight could be simply assigned if any broadcasting program is allowed to have a uniform interval between broadcasts; however, an average interval between

broadcasts differs actually for every broadcasting program. For example, if a broadcaster makes a contract with a sponsor that a CM is to be run in exchange for high advertisement fees, the interval between broadcasts of the CM is shorter compared with those of other CMs which are contracted to be run in exchange for low advertisement fees. Also, in this case, a high weight may be assigned to such a program to handle it as an important broadcasting program when the interval between broadcasts of programs is decided.

[0037] In the graph showing the relationship between weights and time as shown in Fig. 3, the relationship can be expressed by an equation "W=aT", where "a" is agradient. However, the relationship may be expressed by formats other than a straight line. For example, the graph in Fig. 4A shows that, as an average interval between broadcasts increases, a weight rapidly increases, or graphs in Fig. 4B show that, as the interval between broadcasts increases or decreases, the weight increases or decreases stepwise. Selection of these graphs depends on applications and operations of broadcasting to be performed.

[0038] Thus, according to the first embodiment, the difference between the date and/or time when a broadcasting program was run the last time and the present date and/or time is compared with the interval between broadcasts scheduled to be run. If the above difference is smaller than the interval value, the weight having a negative value corresponding to the difference is output and if the difference is larger than the interval value, the weight having a positive value corresponding to the difference is output.

[0039] The present date/time storing section 13 shown in Fig. 1 can be implemented by a clock ordinarily used. The time to be stored in the present date/time storing section 13 can be counted based on a clock from a clock oscillator mounted in a program processor composed of a CPU (Central Processing Unit) used to run the broadcasting program. To exactly count the current date and/or time, a cesium oscillator can be used in the clock oscillator.

[0040] The broadcasting interval considering section 11 shown in Fig. 1, by using values fed from the previously broadcast time storing section 3, from the present date/time storing section 13 and from the broadcasting interval storing section 4 as input values, calculates the weight of each attribute value (that is, each program) stored in the broadcasting program storing section 1 in accordance with rules stored in the broadcasting interval considering rule storing section 10 and multiplies the obtained weight by values fed from the attribute matching degree calculating section 9 and then stores the result in the matching degree storing section 6.

[0041] The programregenerating section 12 compares all the matching degrees of broadcasting programs corresponding to all attribute values stored in the matching degree storing section 6 and takes out one of the broadcasting programs stored in the program content storing section 5 which has the highest matching degree in the matching degree storing section 6 and then regenerates it. The program content storing section 5 has various types of files including an image file, voice file or the like.

[0042] By configuring as above, a CM can be run a minimum number of times at a specified interval, which is guaranteed to the sponsor, even when the CM would not meet tastes of the users or would not be fully suitable to conditions of time and/or places on the user side. That is, according to the embodiment, the CM is stored in advance in a database. The attribute value assigned to the CM is read from the present attribute value storing section 7. The above attribute value is compared with the attribute value read from the attribute value storing section 2 to calculate the matching degree of the CM in the attribute matching degree calculating section 9 in accordance with matching degree rules. The broadcasting interval considering section 11 having received the calculated matching degree of the CM calculates the weight of the CM based on data fed from the previously broadcast time storing section 3 and from the broadcasting interval storing section 4 in accordance with broadcasting interval considering rules stored in the broadcasting interval considering rule storing section 10. A value obtained by integrating the matching degree fed by the attribute matching degree calculating section 9 and the weight calculated in the broadcasting interval considering section 11 re input to the program regenerating section 12 as the matching degree of a present commercial film and also stored into the matching degree storing section 6. The program regenerating section 12, the input matching degree exceeds a predetermined threshold value, regenerates a broadcasting program so that data on the commercial film can be incorporated into an ordinary broadcasting program. The CM is run in a manner that it is inserted into the broadcasting program by a time sharing method or, that the CM, by changing frequency bands, is incorporated into image data or voice data of the broadcasting program. By this method, the commercial film satisfies requirements of both the user and the sponsor.

[0043] According to the device and method of the embodiment, a CM can be run a number of times that a broadcaster has contracted with a sponsor to run and an interval between broadcasts which has been guaranteed to the sponsor can be assured. This allows the broadcaster to guarantee broadcasting of the CM at an individual audience level to the sponsor. In the case of televisions or radios, only a method presently available to know how the CM is recognized by an audience is to use an audience rating calculated using a sample population.

[0044] According to the present invention, since WWW, satellite digital broadcasting, ITS (Intelligent Transportation System) broadcasting or the like are used, the device and method assure that a CM reaches one hundred percent of an individual audience, which

can provide a great benefit to a sponsor.

[0045] While programs with CMs are broadcast through satellite digital broadcasting systems, terrestrial digital broadcasting systems, the Internet or other broadcasting media, regardless of wired or wireless systems, as illustrated in Fig. 5, by delivering a CM related to sports when a user is practicing a sport, a CM related to shopping when a user is going for shopping by a car, a CM related to a restaurant when a user is going to take a meal by a car, great effects of the CM can be obtained. Moreover, by delivering CMs, not randomly, but in accordance with TPO (Time, Place and Occasion) conditions on a user side, CMs being beneficial and useful to an individual user can be possibly run, which provides advantages not only to users but also to sponsors.

Second Embodiment

[0046] Configurations of a broadcasting program regenerating device 25 shown in Fig. 6 are same as those shown in Fig. 1 except a new broadcasting interval considering rule storing section 20 and a recent broadcasting average interval storing section 23.

[0047] The recent broadcasting average interval storing section 23 is a section adapted to store an average interval between broadcasts of broadcasting programs which have been run recently. A recent date/time includes, for example, "past one week" and the recent broadcasting average interval storing section 23 stores a number of times of broadcasting a broadcasting program for the past one week. Then "one week" is divided by a number of times to calculate the average interval between broadcasts of the broadcasting program. The average interval between broadcasts of each broadcasting program is stored in the recent broadcasting average interval storing section 23.

[0048] The new broadcasting interval considering rule storing section 20 compares a value output from the recent broadcasting average interval storing section 23 with a value output from broadcasting interval storing section 4. According to rules of calculation stored in the new broadcasting interval considering rule storing section 20, if the value from the recent broadcasting average interval storing section 23 is smaller that that from the broadcasting interval storing section 4; for example, when the value fromthe recent broadcasting average interval storing section 23 is "every two days" and the value from the broadcasting interval storing section 4 is "every three days", that is, if a frequency of recent actual broadcasting is higher than that of intervals between broadcasts scheduled to be run, a weight having a negative value corresponding to a difference is assigned to a broadcasting program, while if the value from the recent broadcasting average interval storing section 23 is larger than that from the broadcasting interval storing section 4; for example, when the value fromthe recent-broadcasting average interval storing section 23 is "every three days" and the value from the broadcasting interval storing section 4 is "every two days", that is, if a frequency of recent actual broadcasting is lower than that of intervals between broadcasts ordinarily scheduled to be run, a weight having a positive value corresponding to the difference is assigned to a broadcasting program.

[0049] Figure 7 is a graph showing a relationship between a difference in a date/time TT between a value in the recent broadcasting average interval storing section 23 and a value in the broadcasting interval storing section 4 and weights WW. The difference in the date/time TT is plotted as abscissa and the weight WW as ordinate. An original point in the graph shows that the value in the recent broadcasting average interval storing section 23 is equal to a value in the broadcasting interval storing section 4, when the weight WW is zero (0). If the value in the recent broadcasting average interval storing section 23 increases more in a positive direction compared with the value in the broadcasting interval storing section 4, that is, when the frequency of actual broadcasting is lower than that of scheduled broadcasting; for example, the value in the recent broadcasting average interval storing section 23 is "three days" and the value in the broadcasting interval storing section 4 is "once every two days", the weight WW increases in a positive direction. If the value in the recent broadcasting average interval storing section 23 increases more in a negative direction compared with the value in the broadcasting interval storing section 4, that is, when the frequency of actual broadcasting is higher than that of scheduled broadcasting; for example, the value in the recent broadcasting average interval storing section 23 is "two days" and the value in the broadcasting interval storing section 4 is "every three days", the weight WW increases in a negative direction.

[0050] The meaning of the weight WW will be described below. As in the case of the first embodiment, if an average interval between broadcasts of a recent program is larger than that between broadcasts scheduled in advance to be run, a weight WW is assigned in a positive direction so that the number of times of broadcasting the broadcasting program is increased, while, if the average interval between recent broadcasts of the broadcasting program is smaller than that between broadcasts scheduled in advance to be run, the weight WW is assigned in a negative direction so that the number of times of broadcasting the broadcasting program is decreased.

[0051] This causes a matching degree of the broadcasting program being broadcast frequently more than designated to be made lower and the matching degree of the broadcasting program being broadcast less frequently than designated to be made higher. Thus, the broadcasting program is selected so that number of times of broadcasting is matched to a designated level as a whole.

[0052] As shown in Fig. 7, the relationship between weights WW and date/time TT can be expressed by an

equation "WW = bTT", where "b" is a gradient. However, as in the case of the first embodiment, the relationship may be expressed by formats other than a straight line. For example, the graph in Fig. 8A shows that, as the average interval between broadcasts increases, weight WW rapidly increases or the graph in Fig. 8B shows that, as the interval between broadcasts increases or decreases, weight WW increases or decreases stepwise. The selection of these graphs depends on applications and operations of the broadcasting programs to be performed.

Third Embodiment

[0053] Configurations of a broadcasting program regenerating device 35 shown in Fig. 9 are same as those shown in Fig. 1 except an addition-type broadcasting interval considering section 31. The addition-type broadcasting interval considering section 31 calculates weights using an output value from a previously broadcast time storing section 3 and an output value from the broadcasting interval storing section 4 as input values in accordance with rules stored in a broadcasting interval considering rule storing section 10 and outputs a value obtaining by adding a resulting weight to an output value from an attribute matching degree calculating section 9. Unlike in the case of the first embodiment, in the third embodiment, an obtained weight value is added to the output value output from the attribute matching degree calculating section 9. If the weight value is multiplied as in a case of the first embodiment, since a positive value is given to the weight value to a program which has not been run with a frequency exceeding scheduled interval between broadcasts depending on states of intervals, the weight broadcasting value obtained by multiplication becomes positive. However, a weight having a negative value is always assigned to a broadcasting program which has not been run with the frequency exceeding scheduled intervals between broadcasts. For example, even when a program is highly matched to states of a user and is surely beneficial to the user, if a date/time of the broadcasting program broadcast the last time is smaller than designated broadcasting interval, a weight having a negative value is assigned to the broadcasting program and an overall matching degree of the broadcasting program becomes smaller than that of a broadcasting program which has not been broadcast recently and which has a low matching degree. If this relationship is expressed by an equation, a final matching degree equals an output from the attribute matching degree calculating section 9 multipled by weight value. An aim of the third embodiment is to solve this problem. In the third embodiment, the relationship can be expressed as follows:

[0054] Final matching degree equals output from the attribute matching degree calculating section 9 plus weight value.

[0055] As is apparent from the equation, even if the weight value is negative, so long as the weight value is smaller than the output value from the attribute matching degree calculating section 9, the final matching degree does not become negative. Thus, the above problem can be solved.

[0056] In Fig. 9, a system is shown which is composed of an input section 32 having a control board, a CPU 34 to control selection of broadcasting interval guaranteed-type programs, operations of broadcasting program regenerating device 35 and others, a storage mediumdriver 33 to drive a storige medium 37 used to store a database base for the selection of broadcasting interval guaranteed-type programs and for the broadcasting program regenerating device 35 and related broadcasting programs and a display 36 to display data, characters and images under the control of the CPU 34. By mounting such the storage medium 3 as above, amounts of CMs to be stored can be increased. By storing the database or programs for the selection of the broadcasting interval guaranteed-type program and for the broadcasting program regenerating device 35, the CMs can be run effectively. To implement operations described above, related software is read from the storage medium 37 and read into the CPU 34. Necessary data read from the storage medium 37 is fed to a broadcasting program storing section 1 when the broadcasting programs and CMs are broadcast. Data or programs stored in the storage medium 37 may be installed into other personal computers having similar CPUs to achieve a broadcasting system of the present invention. A program used for selection of the broadcasting interval guaranteed-type program and for operations of the broadcasting program regenerating device 35 can be stored into the storage medium 37 through control of the CPU 34. A similar system as shown in Fig. 9 can be mounted to a device of Figs. 1 and 6 in a same manner.

[0057] As described above, according to the present invention, CMs can be run a number of times that a broadcaster has contracted with a sponsor to run and an interval between broadcasts which has been guaranteed to the sponsor can be assured. This enables the broadcaster to guarantee broadcasting of CMs at an individual audience level to the sponsor. In a case of present televisions or radios, only a method presently available to know how CMs are recognized by an individual audience is to use an audience rating calculation based on a sample population. Since WWW, satellite digital broadcasting, ITS broadcasting or the like are used, the device and method of the present invention assure that CMs reach 100% of an individual audience, which can provide great advantages to the sponsor.

[0058] Moreover, by delivering CMs, not randomly, but inaccordance with TPO conditions on a user side, CMs being beneficial and useful to an individual user can possibly be run, which can provide benefit not only to users but also to sponsors.

[0059] It is apparent that the present invention is not limited to the above embodiments but may be changed

and modified without departing from the scope and spirit of the invention.

Claims

1. A broadcasting program providing apparatus for delivering a broadcasting program in a manner that broadcasting matches momentarily changing requirements in terms of time, place and kind of information to be supplied on a user side in

a case of a driver operating a moving automobile, said broadcasting program providing apparatus characterized by comprising:

a broadcasting program storing section (1) to store a plurality of broadcasting programs containing an attribute value storing sectionn (2) to store attribute values of said broadcasting programs, a previous broadcast time storing section (3) to store a date and/or time when said broadcasting program was last run, a broadcasting interval storing section (4) to store the interval between broadcasts of said broadcasting program ordinarily scheduled to be run, a broadcasting interval storing section (5) to store contents of said broadcasting programs and a matching degree storing section (6) to store calculated matching degrees fed from a broadcasting interval considering section (11) for every said broadcasting program;

a present/current attribute value storing section (7) to store a current/present state expressed by at least one attribute value;

a matching degree rule storing section (8) to store a method for calculation of a matching degree used when an attribute value stored in said present attribute value storing section (7) is compared with an attribute value of each broadcasting program stored in said attribute value storing section (2);

an attribute matching degree calculating section (9) to calculate said matching degree using a value output from said present attribute value storing section (7) and a value of each broadcasting program output from said attribute value storing section (2) as input values in accordance with said method of calculation of matching degrees stored in said matching degree rule storing section (8) and to output a result;

a current/present date/time storing section (13) to store a current/present date and/or time;

a broadcasting interval considering rule storing section (10) to store a method for calculating a weight in which a difference between a date and/or time for previous broadcasting of a broadcasting program and a date and/or time for present broadcasting of said broadcasting program is compared with a value output from said broadcasting interval storing section (4) for every broadcasting program and, if said difference is smaller than said value from said broadcasting interval storing section (4), a weight having a negative value corresponding to said difference is assigned to said broadcasting program, while, if said difference is larger than said value, a weight having a positive value corresponding to said difference is assigned to said broadcasting program;

a broadcasting interval considering section (11) to calculate a weight using a value output from said previous broadcast time storing section (3), a value output from said present date/time storing section (13) and a value output from said broadcasting interval storing section (4) as input values in accordance with a calculation rule stored in said broadcasting interval considering rule storing section (10) and to output a value obtained by multiplying said calculated weight by an output from said attribute matching degree calculating section (9); and

a program regenerating section (12) to select a broadcasting program having the largest matching degree out of values stored in said matching degree storing section (6) contained in said broadcasting program storing section (1) and to regenerate said broadcasting program.

2. The broadcasting program providing apparatus according to Claim 1, characterized in that a format to express said attribute value is the same in between said present attribute value storing section (7) and said attribute value storing section (2).

3. The broadcasting program providing apparatus according to Claim 1, characterized in that said attribute value storing sectionn (2) stores said attribute values which express types of commercials and/or content, time and place.

4. The broadcasting program providing apparatus according to Claim 1, characterized in that said present attribute value storing section (7) stores a present state expressed by at least one kind of a pair of an attribute and its attribute value.

5. The broadcasting program providing apparatus according to Claim 1, characterized by comprising a recent broadcasting average interval storing section (23) contained in said broadcasting program storing section (1), which is mounted instead of said previous broadcast time storing section (3), to store an average interval date and/or time between broadcasts of each said broadcasting program which has been run recently and a new broadcast-

ing interval considering rule storing section (20), which is mounted instead of said broadcasting interval considering rule storing section (10), to store a method for calculating a weight in which an average interval date and/or time between broadcasts of a broadcasting program which has run recently is compared with an interval value output from said broadcasting interval storing section (4) and, if said average interval date and/or time between broadcasts of said broadcasting program which has run recently is smaller than said interval value output from said broadcasting interval storing section (4), a weight having a negative value corresponding to said difference is assigned to said broadcasting program, while, if said average interval date and/or time between broadcasts of said broadcasting program which has run recently is larger than said interval value output from said broadcasting interval storing section (4), a weight having a positive value corresponding to said difference is assigned to said broadcasting program.

6. The broadcasting program providing apparatus according to Claim 1, characterizedbycomprisinganaddition-type broadcasting interval considering section (31), which is mounted instead of said broadcasting interval considering section (11), to calculate a weight using a value output from said previously broadcast time storing section (3), a value output from said present date/time storing section (13) and a value output from said broadcasting interval storing section (4) as input values in accordance with rules stored in said broadcasting interval considering rule storing section (10) and to output a value obtained by adding said calculated weight to an output from said attribute matching degree calculating section (9).

7. A broadcasting program providing method for delivering a broadcasting program in a manner that broadcasting is matched to momentarily changing requirements in terms of time, place and kind of information to be supplied on a mobile body side, said broadcasting program providing method characterized by comprising steps of:

storing a plurality of said broadcasting programs each being handled as a set with an attribute value stored in an attribute value storing sectionn (2), with a date and/or time when a corresponding broadcasting program was last run stored inaprevious broadcast time storing section (3), with an interval between broadcasts of said broadcasting program ordinarily scheduled to be run stored in a broadcasting interval storing section (4), with a content of said broadcasting program stored in a broadcasting interval storing section (5) and with a matching degree stored in a matching degree storing section (6);

storing a current/present state of said mobile body expressed by at least one kind of a pair of an attribute of said broadcasting program and its attribute value in a present attribute value storing section (7);

storing, in a matching degree rule storing section (8), a method for calculation of a matching degree used when a value stored in said present attribute value storing section (7) is compared with a value of each broadcasting program stored in said attribute value storing section (2) contained in said broadcasting program storing section (1);

calculating, in an attribute matching degree calculating section (9), said matching degree using a value output from said present attribute value storing section (7) and a value output from said attribute value storing section (2) as input values in accordance with said method of calculation of matching degrees stored in said matching degree rule storing section (8) and outputting the result;

storing a current/present date and/or time in a present/current date/time storing section (13);

storing, in a broadcasting interval considering rule storing section (10), a method for calculating a weight in which the difference between a date and/or time of previous broadcasting of a broadcasting program and a present date and/or time is compared with a value output from said broadcasting interval storing section (4) for every broadcasting program and, if the interval between broadcasts of said broadcasting program actually run is larger than the interval between broadcasts of said broadcasting program ordinarily scheduled to be run, a weight having a negative value corresponding to said difference is assigned to said broadcasting program, while, if said interval between broadcasts of said broadcasting program actually run is smaller than said interval between broadcasts of said broadcasting program ordinarily scheduled to be run, a weight having a positive value corresponding to said difference is assigned to said broadcasting program;

calculating, in a broadcasting interval considering section (11), a weight using a value output from said previous broadcast time storing section (3), a value output from said present date/time storing section (13) and a value output from said broadcasting interval storing section (4) as input values in accordance with said calculation rule stored in said broadcasting interval considering rule storing section (10) and, outputting a value obtained by multiplying said calculated weight by an output from said at-

tribute matching degree calculating section (9); storing calculated results fed from said broadcasting interval considering section (11) for every broadcasting program in a matching degree storing section (6) contained in said broadcasting program storing section (1); and selecting, in a program regenerating section (12), a broadcasting program having the largest matching degree out of values stored in said matching degree storing section (6) contained in said broadcasting program storing section (1) and regenerating said broadcasting program.

8. The broadcasting program providing method according to Claim 7, characterized by comprising steps of storing an average interval date and/or time between broadcasts of a broadcasting program which has run recently by using a recent broadcasting average interval storing section (23) contained in said broadcasting program storing section (1), which is mounted instead of said previous broadcast time storing section (3), and of storing, by using a new broadcasting interval considering rule storing section (20), which is mounted instead of said broadcasting interval considering rule storing section (10), a method for calculating a weight in which an average interval date and/or time between broadcasts of a broadcasting program which has run recently is compared with a value output from said broadcasting interval storing section (4) and, if said average interval date and/or time between broadcasts of said program which has run recently is smaller than said value output from said broadcasting interval storing section (4), a weight having a negative value corresponding to said difference is assigned to said broadcasting program, while, if said average interval date and/or time between broadcasts of saidbroadcasting programwhich has run recently is larger than said value output from said broadcasting interval storing section (4), a weight having a positive value corresponding to said difference is assigned to said broadcasting program.

9. The broadcasting program providing method according to Claim 7, characterized by comprising steps of calculating, by an addition-type broadcasting interval considering section (31), which is mounted instead of said broadcasting interval considering section (11), a weight using a value output from said previous broadcast time storing section (3), a value output from saidpresent date/time storing section (13) and a value output from said broadcasting interval storing section (4) as input values in accordance with rules stored in said broadcasting interval considering rule storing section (10) and outputting a value obtained by adding said calculated weight to an output from said attribute matching degree calculating section (9).

10. A broadcasting program providing apparatus for delivering a broadcasting program in a manner that broadcasting matches momentarily changing requirements in terms of receiving conditions on a user side, said broadcasting program providing apparatus characterized by comprising:

a broadcasting program storing section (1) to store a plurality of broadcasting programs each being handled as a set with an attribute value, a date and/or time when said broadcasting program was last run, the interval between broadcasts of broadcasting said programs ordinarily scheduled to be run, a content of said broadcasting program and with a matching degree to said attribute;
a present attribute value storing section (7) to store a present attribute value expressing a current/present attribute of said broadcasting program;
a matching degree rule storing section (8) to store a method for calculation of said matching degree used when a value output from said present attribute value storing section (7) is compared with an attribute value stored in said broadcasting program storing section (1);
an attribute matching degree calculating section (9) to calculate said matching degree using a value output from said present attribute value storing section (7) and a value output from said broadcasting program storing section (1) as input values in accordance with rules stored in said matching degree rule storing section (8);
a broadcasting interval considering rule storing section (10) to store a method for calculating a weight in which the difference between a date and/or time of previous broadcasting of a broadcasting program and a current/present date and/or time is compared with a value output from said broadcasting interval storing section (4) for every broadcasting program and, if said difference is smaller than said value from said broadcasting interval storing section (4), a weight having a negative value corresponding to said difference is assigned to said broadcasting program, while, if said difference is larger than said value, a weight having a positive value corresponding to said difference is assigned to said broadcasting program;
a broadcasting interval considering section (11) to calculate a weight using a value output from said previous broadcast time storing section (3), a value output from saidpresent date/time storing section (13) and a value output from said broadcasting interval storing section (4) as

input values in accordance with said calculation rule stored in said broadcasting interval considering rule storing section (10) and to output a value obtained by multiplying said calculated weight by an output from said attribute matching degree calculating section (9);
a matching degree storing section (6) contained in said broadcasting program storing section (1) to store calculated results fed from said broadcasting interval considering section (11) for every broadcasting program; and
a program regenerating section (12) to select a broadcasting program having the largest matching degree out of values stored in said matching degree storing section (6) contained in said broadcasting program storing section (1) and to regenerate said broadcasting program.

11. A broadcasting program providing apparatus for delivering a broadcasting program in a manner that broadcasting matches momentarily changing requirements in terms of receiving conditions on a user side, said broadcasting program providing apparatus characterized by comprising:

a broadcasting program storing section (1) to store a plurality of broadcasting programs each being paired with an attribute value, a date and/or time when said broadcasting program was run last, an interval between broadcasts of said broadcasting programs ordinarily scheduled to be run, contents of said broadcasting program and with a matching degree to said attribute;
an attribute matching degree calculating section (9) to calculate a weight of an attribute value of a present broadcasting program by comparing the difference between a date and/or time when said broadcasting program was broadcast last time and a present/current date and/or time;
a broadcasting interval considering section (11) to output a value obtained by multiplying the matching degree between said attribute value of said present broadcasting program and said attribute value of said broadcasting program run last by said weight.

12. The computer-readable storage medium storing programs and data used to implement a broadcasting program providing method for delivering a broadcasting program in a manner that broadcasting matche s momentarily changing requirements in terms of time, place and kind of information to be supplied on a mobile body side, said broadcasting program providing method comprising steps of:

storing a plurality of said broadcasting programs each being handled as a set with an attribute value stored in an attribute value storing sectionn (2), with a date and/or time when a corresponding broadcasting program was run last time stored in a previous broadcast time storing section (3), with an interval between broadcasts of said broadcasting program ordinarily scheduled to be run stored in a broadcasting interval storing section (4), with a content of said broadcasting program stored in a broadcasting interval storing section (5) and with a matching degree stored in a matching degree storing section (6);
storing a present state of said mobile body expressed by at least one kind of a pair of an attribute of said broadcasting program and its attribute value in a present attribute value storing section (7);
storing, in a matching degree rule storing section (8), a method for calculation of a matching degree used when a value stored in said present attribute value storing section (7) is compared with a value of each broadcasting program stored in said attribute value storing sectionn (2) contained in said broadcasting program storing section (1);
calculating, in an attribute matching degree calculating section (9), said matching degree using a value output from said present attribute value storing section (7) and a value output from said attribute value storing sectionn (2) as input values in accordance with said method of calculation of matching degrees stored in said matching degree rule storing section (8) and outputting the result;
storing a present date and/or present time in a present date/time storing section (13);
storing, in abroadcasting interval considering rule storing section (10), a method for calculating a weight in which a difference between a date and/or time of previous broadcasting of a broadcasting program and a present date and/or time is compared with a value output from said broadcasting interval storing section (4) for every broadcasting program and, if the interval between broadcasts of said broadcasting program actually run is larger than the interval between broadcasts of said broadcasting program ordinarily scheduled to be run, a weight having a negative value corresponding to said difference is assigned to said broadcasting program, while, if said interval between broadcasts of said broadcasting program actually run is smaller than said interval between broadcasts of said broadcasting program ordinarily scheduled to be run, a weight having a positive value corresponding to said difference is assigned to said broadcasting program;

calculating, in a broadcasting interval considering section (11), a weight using a value output from said previous broadcast time storing section (3), a value output from said present date/time storing section (13) and a value output from said broadcasting interval storing section (4) as input values in accordance with said calculation rule stored in said broadcasting interval considering rule storing section (10) and, outputting a value obtained by multiplying said calculated weight by an output from said attribute matching degree calculating section (9); storing calculated results fed from said broadcasting interval considering section (11) for every broadcasting program in a matching degree storing section (6) contained in said broadcasting program storing section (1); and

selecting, in a program regenerating section (12), a broadcasting program having the largest matching degree out of values stored in said-matching degree storing section (6) contained in said broadcasting program storing section (1) and regenerating said broadcasting program.

FIG.1

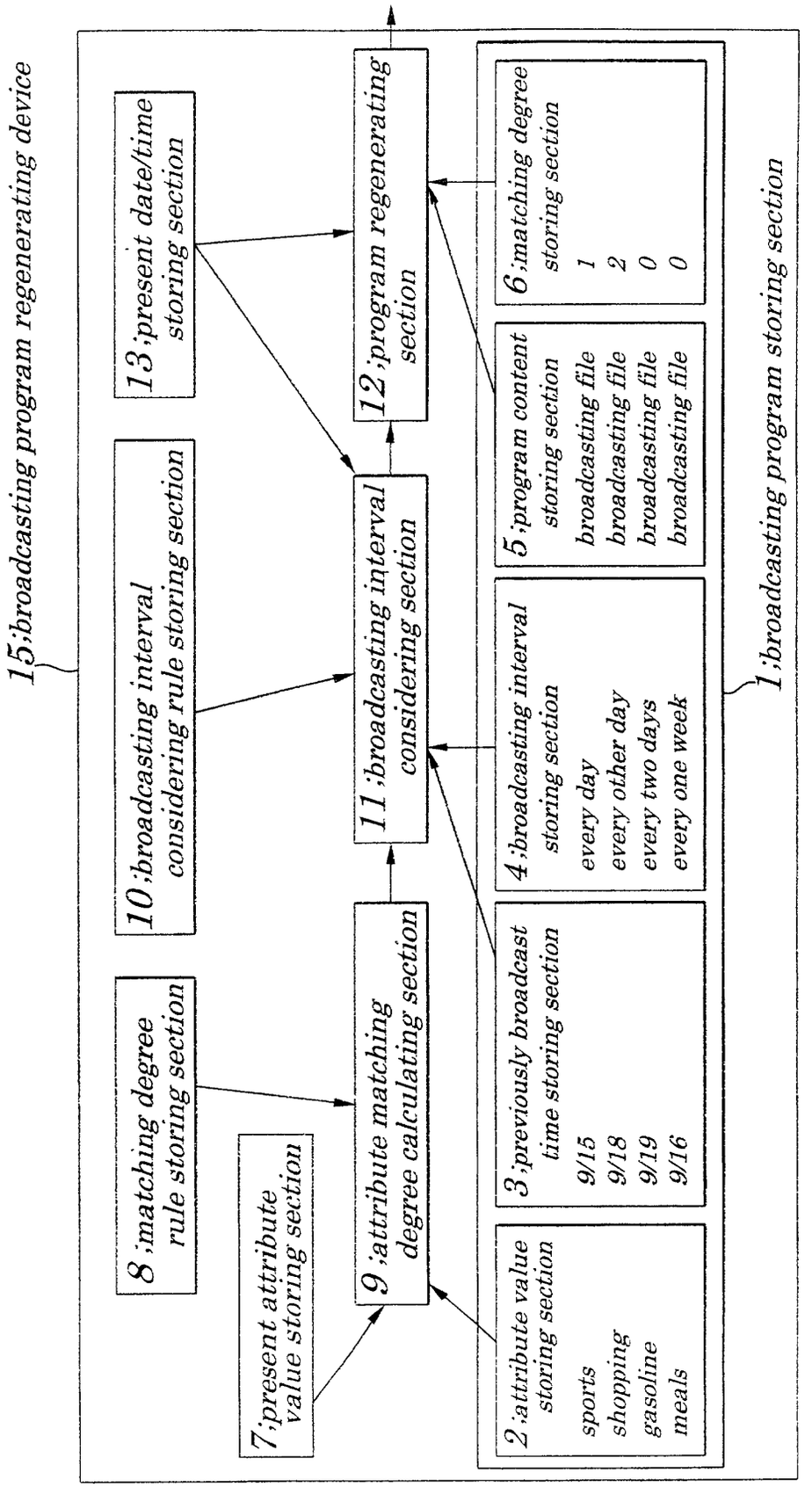

15;broadcasting program regenerating device
1;broadcasting program storing section
2;attribute value storing section
sports
shopping
gasoline
meals
3;previously broadcast time storing section
9/15
9/18
9/19
9/16
4;broadcasting interval storing section
every day
every other day
every two days
every one week
5;program content storing section
broadcasting file
broadcasting file
broadcasting file
broadcasting file
6;matching degree storing section
1
2
0
0
7;present attribute value storing section
8;matching degree rule storing section
9;attribute matching degree calculating section
10;broadcasting interval considering rule storing section
11;broadcasting interval considering section
12;program regenerating section
13;present date/time storing section

FIG2

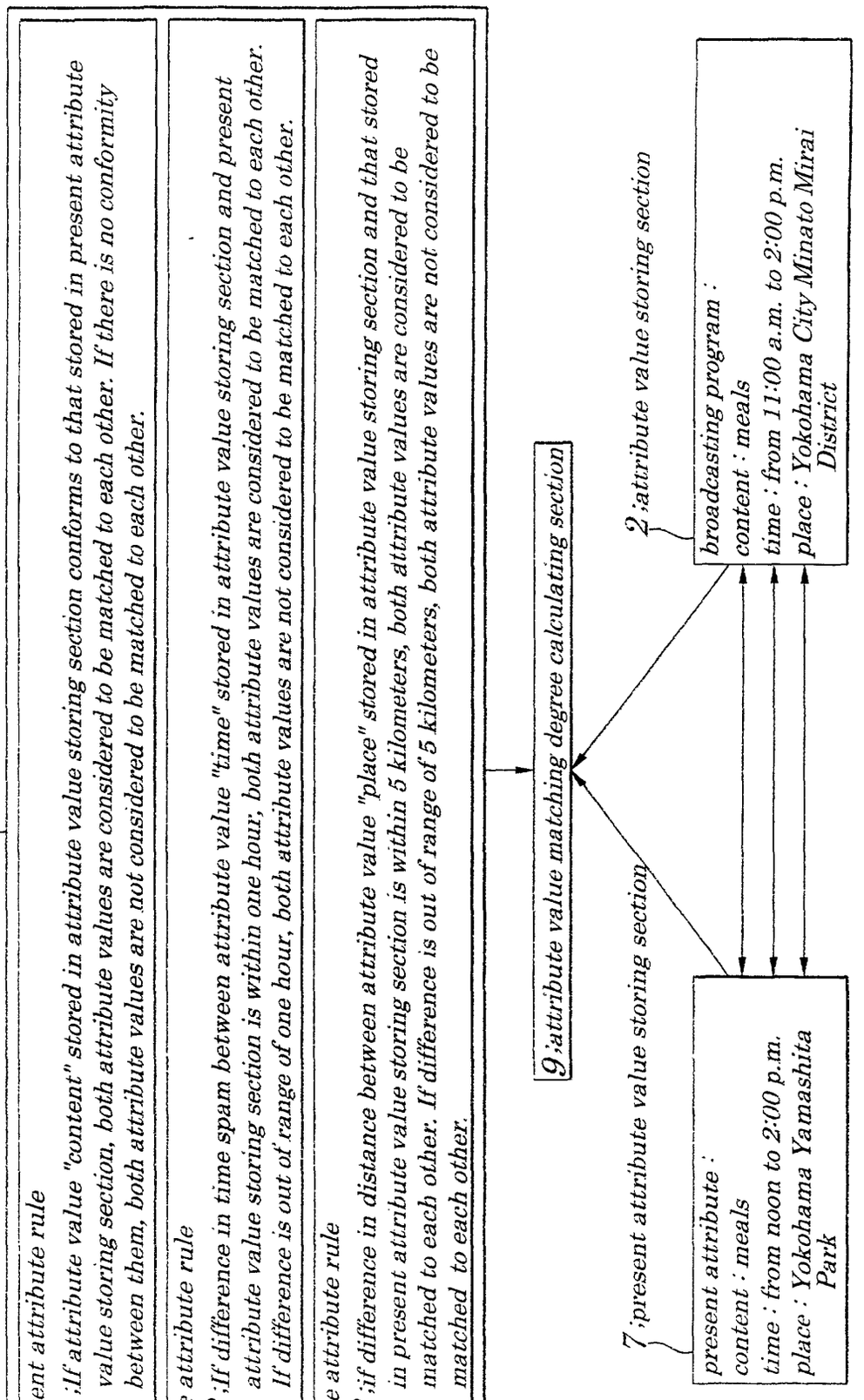
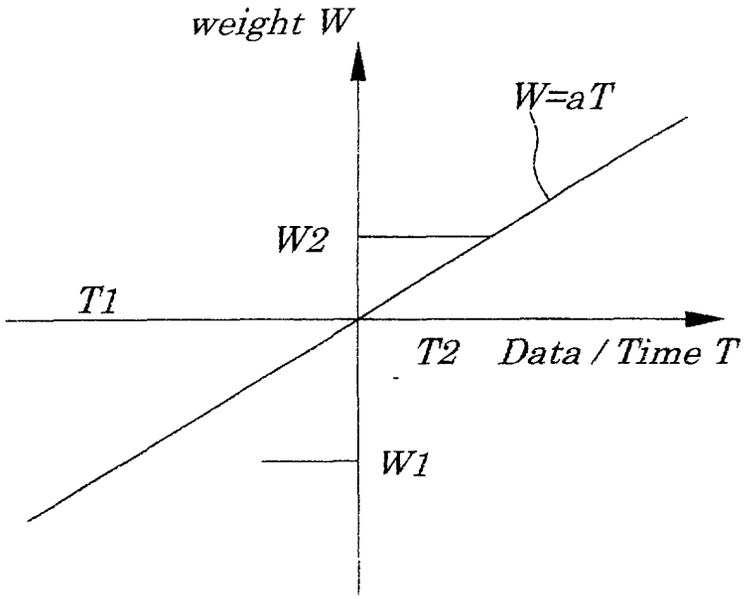

8 ;matching degree rule storing section
content attribute rule
81 :If attribute value "content" stored in attribute value storing section conforms to that stored in present attribute value storing section, both attribute values are considered to be matched to each other. If there is no conformity between them, both attribute values are not considered to be matched to each other.
time attribute rule
82 :If difference in time spam between attribute value "time" stored in attribute value storing section and present attribute value storing section is within one hour, both attribute values are considered to be matched to each other. If difference is out of range of one hour, both attribute values are not considered to be matched to each other.
place attribute rule
83 :if difference in distance between attribute value "place" stored in attribute value storing section and that stored in present attribute value storing section is within 5 kilometers, both attribute values are considered to be matched to each other. If difference is out of range of 5 kilometers, both attribute values are not considered to be matched to each other.
9 ;attribute value matching degree calculating section
7 ;present attribute value storing section
present attribute :
content : meals
time : from noon to 2:00 p.m.
place : Yokohama Yamashita Park
2 ;attribute value storing section
broadcasting program :
content : meals
time : from 11:00 a.m. to 2:00 p.m.
place : Yokohama City Minato Mirai District

FIG.3



T;{(value in present date / time storing section 13 - value in previously broadcast time storing section 3) - value in broadcasting interval storing section 4}

T1 ;date / time before next scheduled broadcasting date / time after date / time broadcast the last time.

W1;weight having negative values.

T2 ;date / time elapsed since next scheduled broadcasting date / time broadcast the last time.

W2;weight having positive values.

FIG. 4A

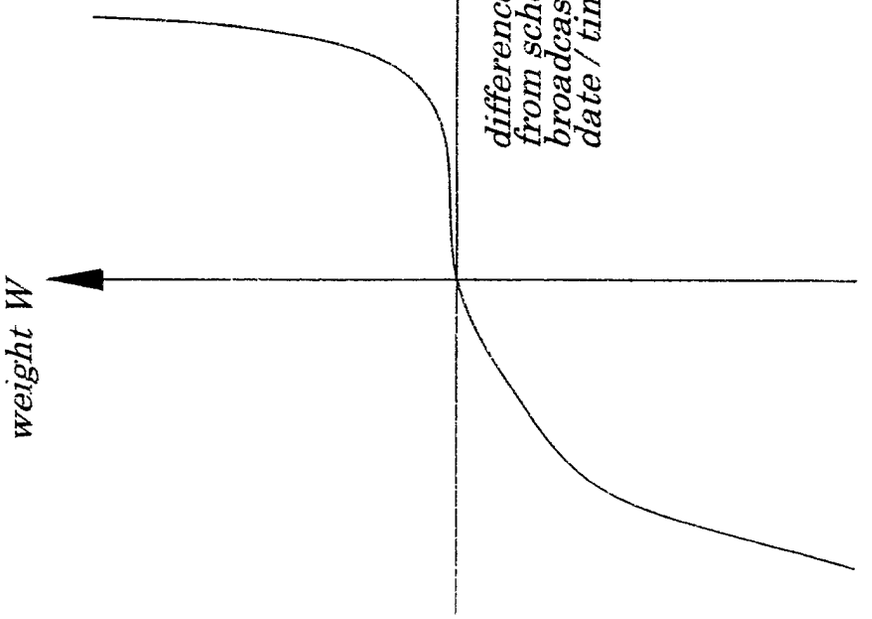

weight W
difference "T" from scheduled broadcasting date / time

FIG. 4B

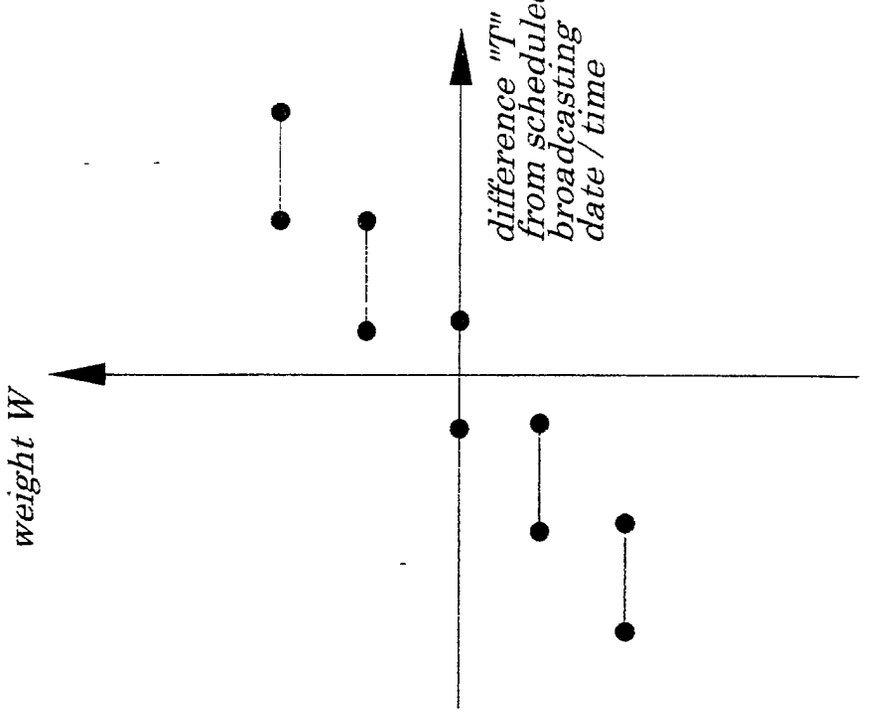

weight W
difference "T" from scheduled broadcasting date / time

FIG.5

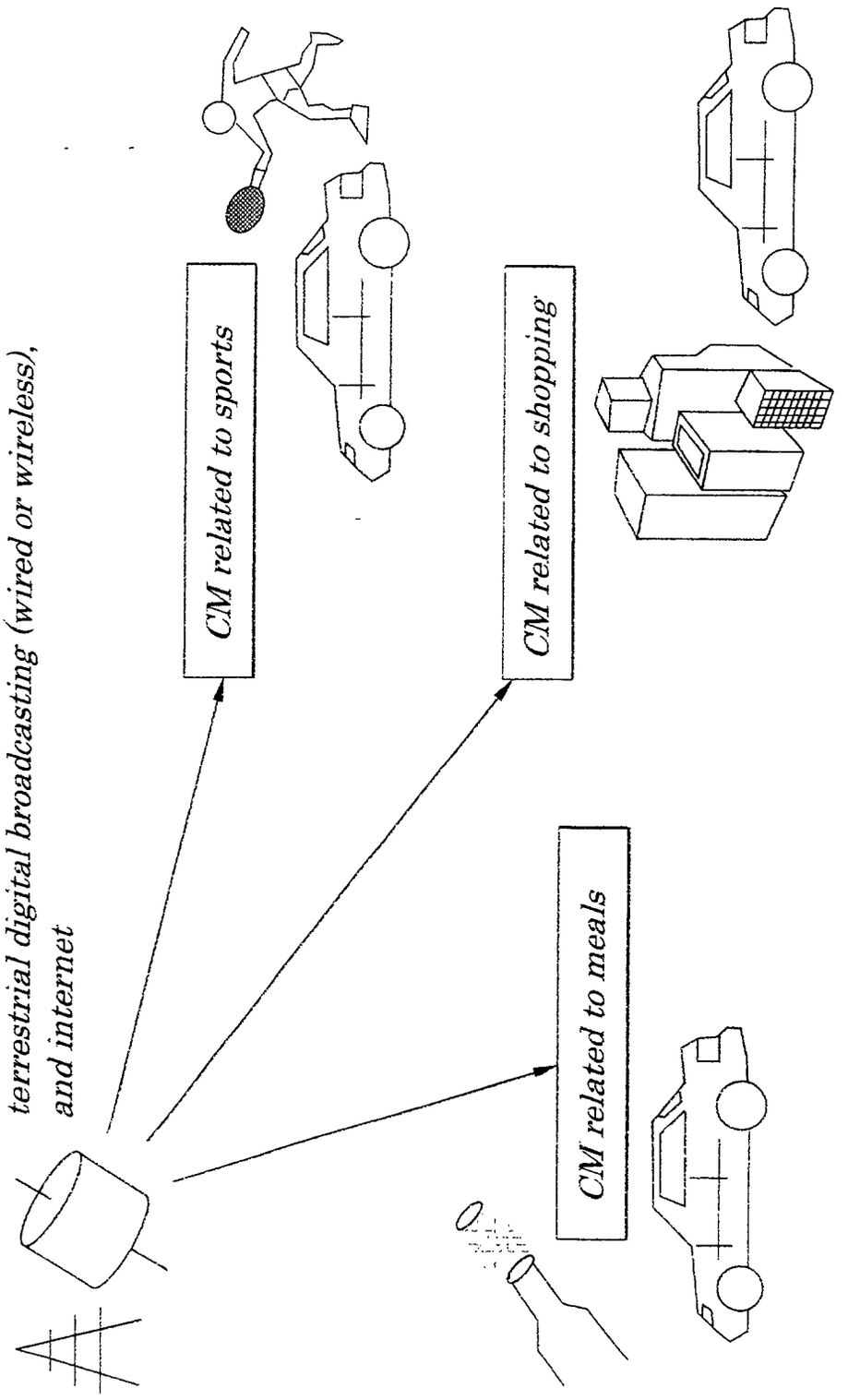

satellite digital broadcasting,
terrestrial digital broadcasting (wired or wireless),
and internet
CM related to sports
CM related to shopping
CM related to meals

FIG.6

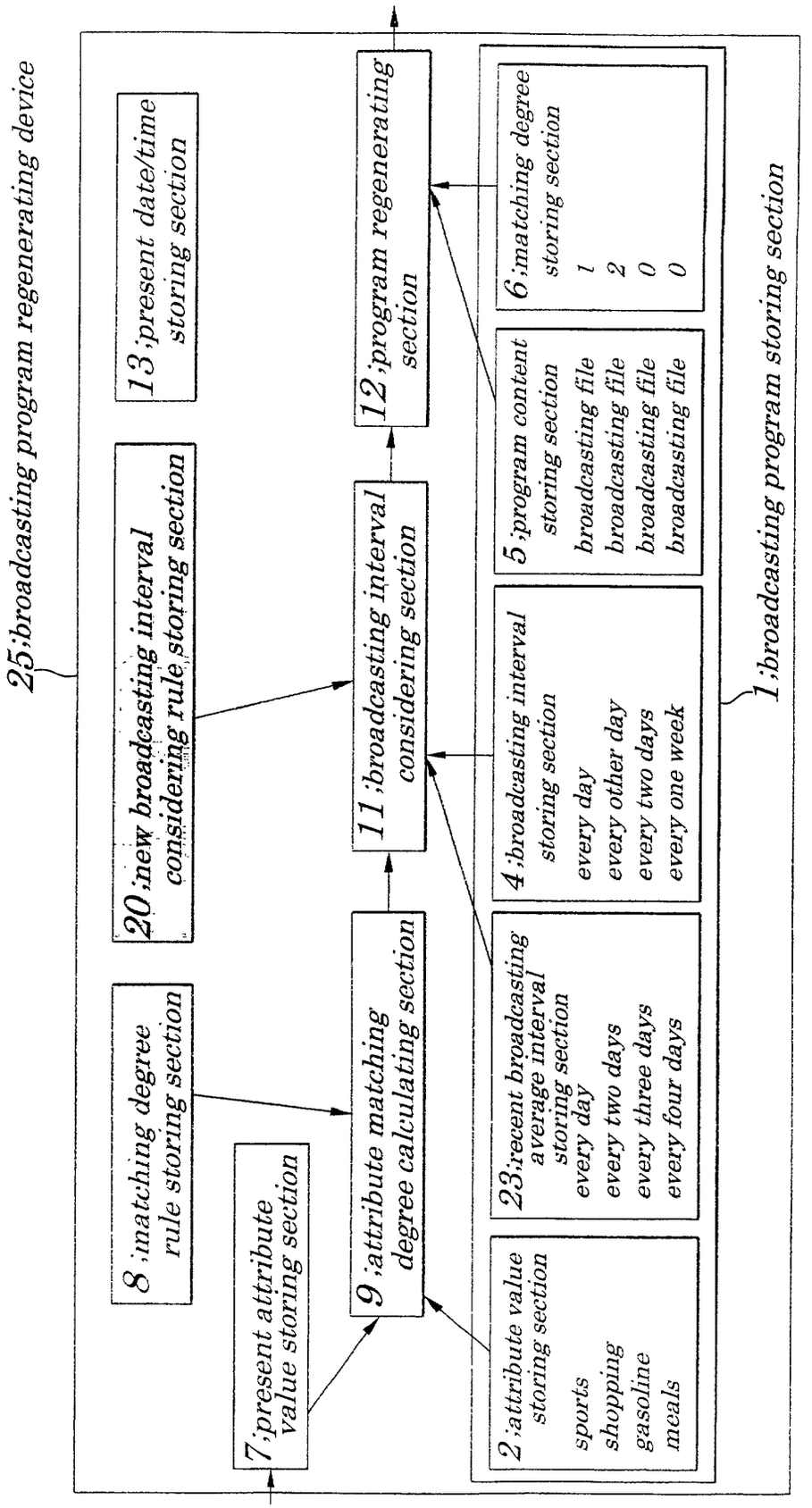
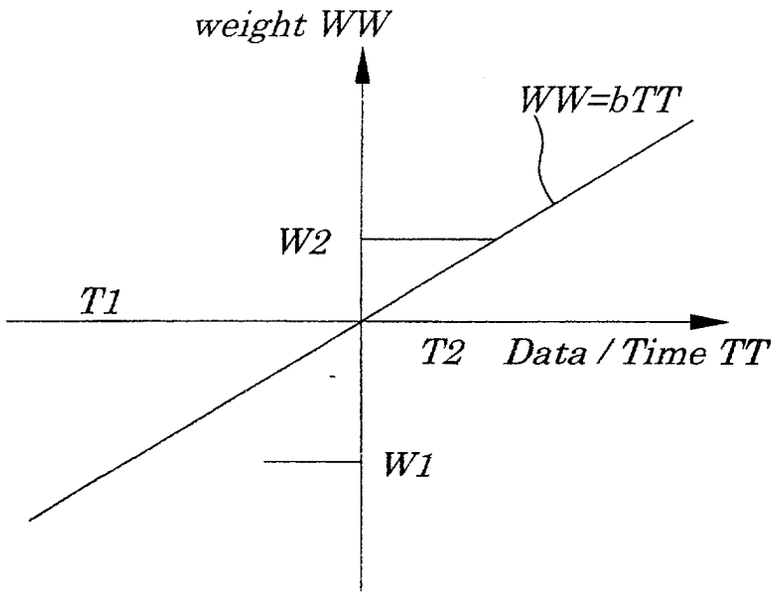

25;broadcasting program regenerating device
1;broadcasting program storing section
2;attribute value storing section
sports
shopping
gasoline
meals
4;broadcasting interval storing section
every day
every other day
every two days
every one week
5;program content storing section
broadcasting file
broadcasting file
broadcasting file
broadcasting file
6;matching degree storing section
1
2
0
0
23;recent broadcasting average interval storing section
every day
every two days
every three days
every four days
7;present attribute value storing section
8;matching degree rule storing section
9;attribute matching degree calculating section
11;broadcasting interval considering section
12;program regenerating section
13;present date/time storing section
20;new broadcasting interval considering rule storing section

FIG. 7



TT;(value in recent broadcasting average interval storing section 23 -value in broadcasting interval storing section4).

T1 ;date / time before next scheduled broadcasting date / time after date / time broadcast the last time.

W1;weight having negative values.

T2 ;date / time elapsed since next scheduled broadcasting date / time broadcast the last time.

W2;weight having positive values.

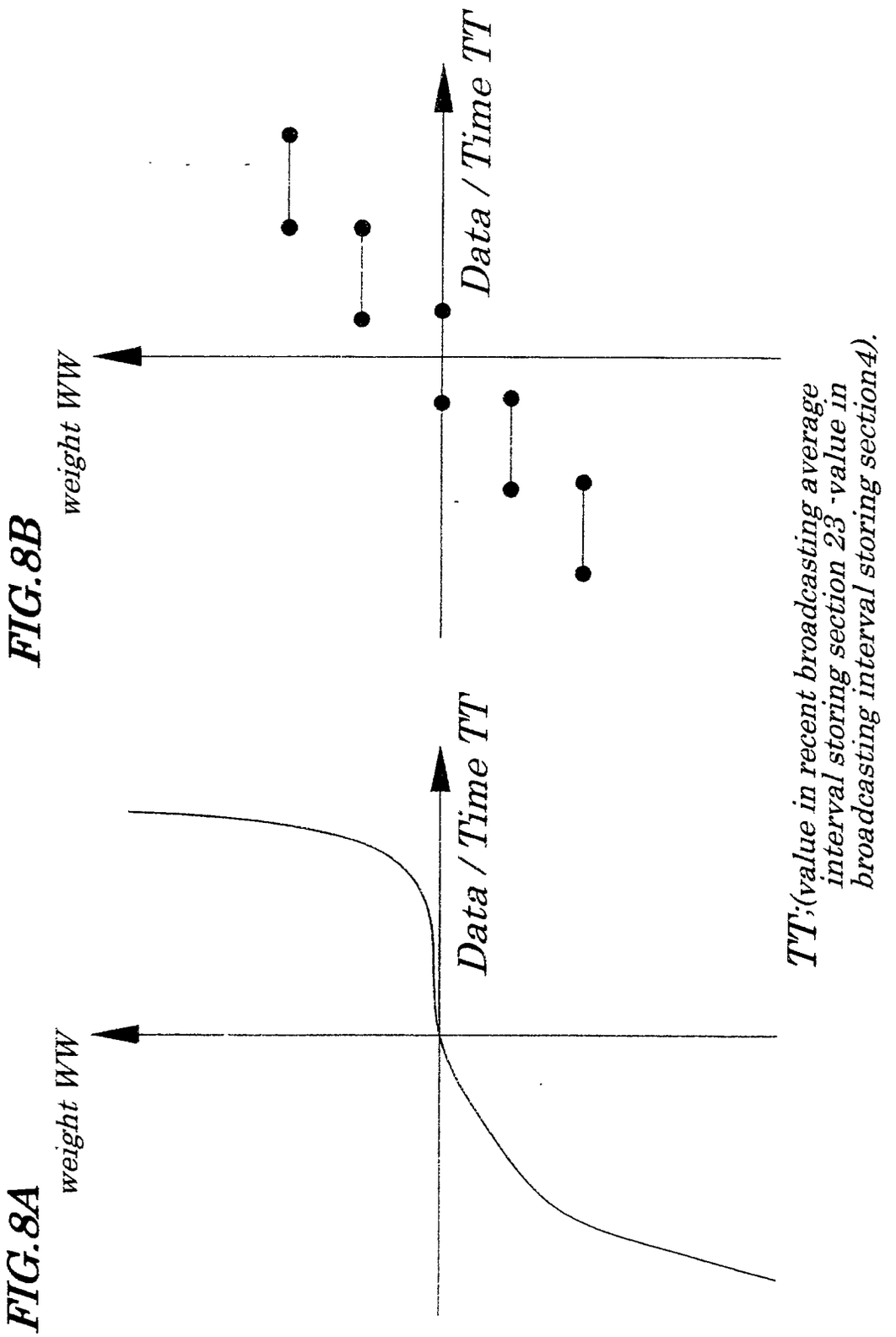
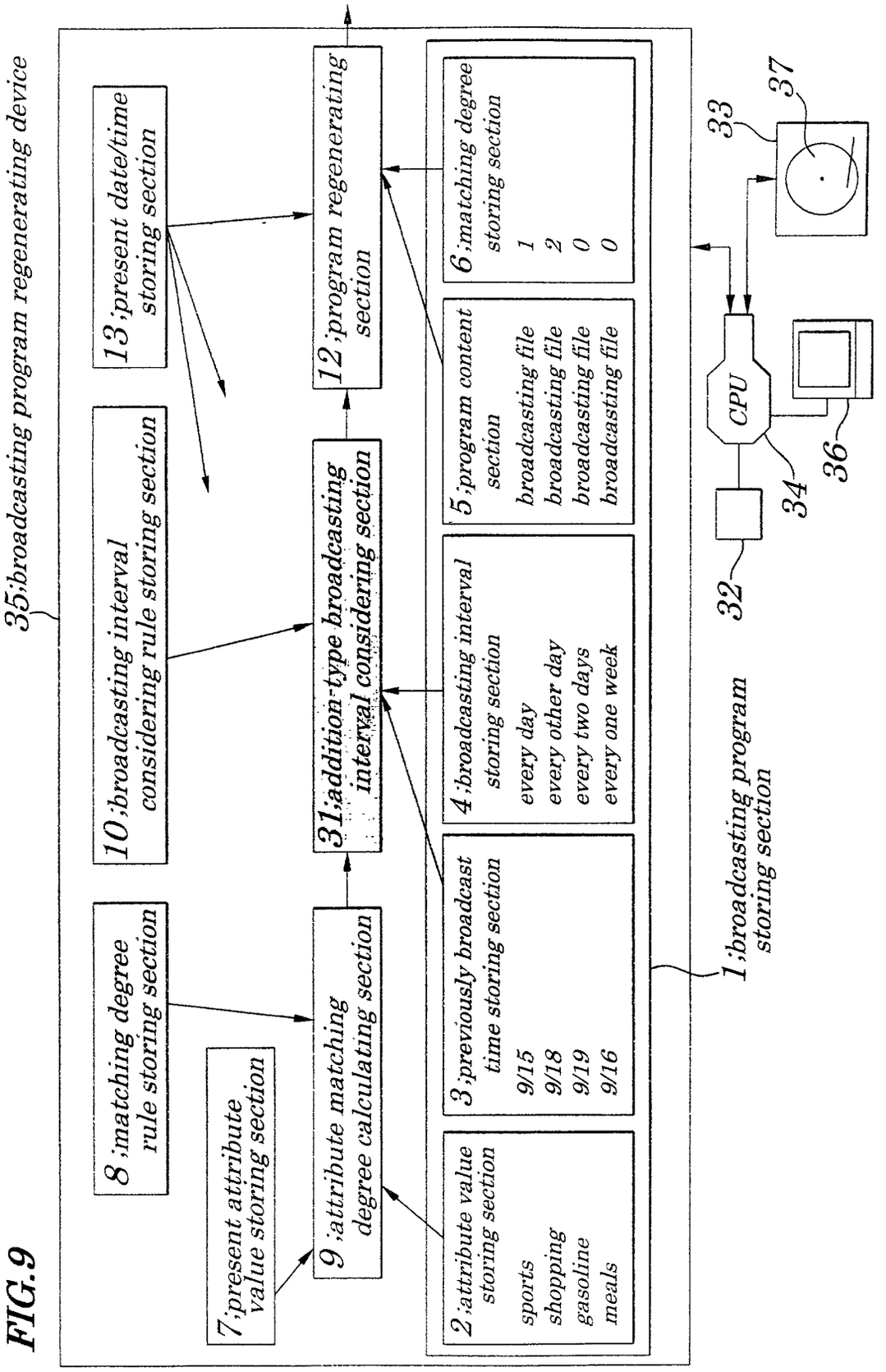


FIG.8A
weight WW
Data / Time TT
FIG.8B
weight WW
Data / Time TT
TT;(value in recent broadcasting average interval storing section 23 -value in broadcasting interval storing section4).

FIG.9


35;broadcasting program regenerating device
8 ;matching degree rule storing section
10 ;broadcasting interval considering rule storing section
13 ;present date/time storing section
12 ;program regenerating section
7;present attribute value storing section
9 ;attribute matching degree calculating section
31;addition-type broadcasting interval considering section
2 ;attribute value storing section
sports
shopping
gasoline
meals
3 ;previously broadcast time storing section
9/15
9/18
9/19
9/16
4 ;broadcasting interval storing section
every day
every other day
every two days
every one week
5 ;program content section
broadcasting file
broadcasting file
broadcasting file
broadcasting file
6 ;matching degree storing section
1
2
0
0
1;broadcasting program storing section
32
34
CPU
36
33
37