(54) Title: A METHOD AND A SYSTEM TO ANALYZE AND TO PRESENT RELATIONS

[Continued on next page]
Title
A method and a system to analyze and present relations.

Technical field
The present invention pertains to a method and a system to analyze and present relations between a predetermined person in a first database, and at least one other person in at least a second database, which can be related to the predetermined person.

Background art
Personified presentations of a person's proximity of related selected persons in a given database is of great interest within criminology to illustrate for instance suspected offenders direct and indirect relations, and thus being able to show the probability that a person through e.g. friends or relatives has been able to exchange information for the purpose of committing a crime or impede the investigation of a crime.

Another interest concerns for example lending of a private person's property in order to give an individual possibilities to locate friends of friends that have items that they want to rent out like for instance a house, apartment or a car.

Further in games it is of interest to illustrate a person's relations in levels to winners.

The Swedish patent document published as SE 517 036 C2 regards a graphical illustration of wood composition through a previously unknown manner of presenting information graphically. SE 517 036 C2 regards a graphical illustration of wood composition through a previously unknown manner of presenting information about wood graphically, and was thus approved as a Swedish patent in accordance with the Guidelines for Examination in the EPO. Wherein, an exception is made for graphical presentations, which should be applicable to the present invention. See reply to Office Action of 1998-10-01 in PRV:s binder of SE 517 036 C2 for reference to the Guidelines.

Aforementioned is now possible in accordance with the present invention as it is described below with regards to present social media like for instance Facebook, LinkedIn and alike.

The international patent application WO 201 1/1437 A 1 describes how data about persons in a social network is compiled unitarily in e.g., a graphical table. The patent application does not describe how persons in a quick and reviewable manner are shown in a generated geometrical graph, but only trough a table or a tree diagram. For one who needs a quick overview regarding persons mutual relations such a presentation quickly becomes incalculable because it requires scrolling in table and a thorough search in a fast growing tree diagram in order to use the gathered information. This contributes to the great risk of missing valuable information that has been gathered in a manual search, which can have dire consequences for e.g. governments investigating persons.
Summary of the invention

The invention in accordance with the present description has as one of many tasks to present relations in layered levels between a predetermined person and other persons by utilization of i.a. social media in accordance with above mentioned examples where needed, yet not excluding other possible examples, which fall under the attached draft of claims.

The present invention is presented in one single graphical geometrical image a quick overview regarding people's mutual relations without a need to extract information from for instance a table, tree diagram or trellises. This provides a greater security and quicker overview when gathering information about persons, which could be vital to for example authorities. The present invention thereby solves i.a. the technical problem to gather information about groups of people in one single geometrical graph quicker and safer then what is currently possible. The Swedish patent document published as SE 517 036 C2 provides a graphical illustration of wood composition through a previously unknown manner of presenting graphical information about wood and was therefore approved as a Swedish patent in accordance with the Guidelines for Examination in the EPO. Wherein, an exception is made for graphical presentations, which should be applicable on the present invention. See, Office Action from 1998-10-01 in PRV.s file for SE 517 036 C2 for reference to the Guidelines.

Hereby, the present invention sets forth a method to analyze and present relations between a predetermined person in a first database, and at least one other person in at least one second database, which can be related to the predetermined person. The present invention sets forth in one embodiment the following method:

searching for information regarding the predetermined person's data with the aid of a computerized means with a screen, and an entering means from an electronic information place, wherein at least one of the information is automatically shown on the screen, and a command is entered via the computerized means in order to show the information on the screen;

searching after a predetermined person in a first database of registered persons;

analysis of the predetermined person's relation with other persons in at least one second database, which describes the relations between persons through the information place;

creating of a data file which contains the predetermined person's relations to other persons in levels; and

presentation of the data file's content on the screen via a graphical interface through generation of a presentation, which illustrates the predetermined person's relations
to other persons, through one of said levels in one single unitary layered geometrical graph, wherein the relations affect the predetermined person in at least one of a direct, and an indirect relationship presented in the levels, and wherein the presentation becomes quicker and safer then was previously possible.

Another embodiment in accordance with the present invention provides that the layered geometrical graph is comprised of circles or ovals with the predetermined person's identity and the direct relations identities within the inner circle or the oval's layer, and indirect relations with other persons identities within a second circle or oval layer, as well as the indirect relations relationships within a third circle or oval layer.

In one embodiment it is provided that the layered geometrical graph comprises squares or rectangles with the predetermined person's identity and the direct relations identities within the inner square or rectangle's layer, and indirect relations with other persons identities within a second square or rectangle layer, as well as the indirect relations relationships within a third square or rectangle layer.

Another embodiment provides that the second database is intended and adapted to social media or police relations.

In yet another embodiment it is provided that the predetermined person is included in the first database as randomly predetermined regarding a game/lottery.

Moreover, one embodiment comprises that the predetermined person is put in relation as a winner in a game and/or between other possible relations to persons that are winners in said game.

Furthermore, the present invention provides a system adapted to analyze and present relations between a predetermined person, and at least one other person in at least one database, which can be related to the predetermined person. Hereby, the present invention comprises;

- a computerized means with a screen and an entering means to search for information regarding the predetermined person's data from an electronic information place, wherein at least one of the information automatically is shown on a screen, and that a command is entered through the computerized means in order to show information on the screen;

- a first database adapted to searching after a predetermined person in a first database with registered persons;

- means adapted to analyze the predetermined person's relation to other persons in at least a second database, which describes relations between persons via the information place;

- means adapted to create a data file, which contains the predetermined persons relation to other persons in levels; and
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a graphical interface adapted to presentations of content in a data file on the
screen through a generator for one graphical presentation, which illustrates the predetermined
person's relations with other persons through said levels in one single unitary layered
graphical interface adapted to presentations of content in a data file on the
direct and an indirect relationship presented in levels, and wherein the presentation becomes
screen through a generator for one graphical presentation, which illustrates the predetermined
quicker and safer then was previously possible.

The other attached dependent system claims adhere to the dependent attached
person in at least one of a
direct and an indirect relationship presented in levels, and wherein the presentation becomes
method claims.

Brief description of the drawings

Henceforth reference is had to the attached drawings in the body of the text for
Fig. 1 illustrates a flow chart regarding the present invention;
a better understanding of the specified embodiments and the given examples, wherein,
Fig. 2 schematically illustrates one embodiment of a graphical presentation in
accordance with the present invention; and
Fig. 3 schematically illustrates a further embodiment of a graphical presentation
in accordance with the present invention.

Detailed description of preferred embodiments

The present invention has as one of many purposes to analyze a
specific/predetermined selected person's relations pertaining to other persons, by examining
if the person exists in the first database of registered predetermined persons. In a further
step it is examined whether the person's friends appear in a second database of registered
persons, by consulting one or several other databases with persons relations for instance
Facebook and/or LinkedIn as well as other similar databases for social networks and other
relationship databases. Thereafter it is examined if the person's friends of friends are present
in the database and so forth, until there are either no more levels of relations present in the
database or that the means of the present inventions has been programmed to stop after a
certain amount of levels. When the work of analyzing is finished the result is utilized to
graphically present the person's relations in levels, wherein the persons that have been
identified are shown as the closest relations in the levels. Even other relations can be shown
in the graphical presentation in one embodiment.

The present invention also presents in a single graphical geometrical image a
quick overview regarding people's mutual relations without needing to extract information
from for instance tables, tree diagram or trellises. This provides a greater security and a
quicker overview when gathering information about persons, which could be vital to for
example authorities. The present invention thereby solves among other the technical
problem to gather information about groups of people in one single geometrical graph
quicker and safer then what is currently possible. The Swedish patent document published
as SE 517 036 C2 indicates a graphical illustration of wood composition through a previously
unknown manner of presenting information graphically about wood and was therefore
approved as a Swedish patent in accordance with the EPO Guidelines.

Hereby, the present invention provides a method and a system to analyze and
present a predetermined person's distance in a first database with regard to the nearest
relations in one or several levels/layers/sectors through a second database of registered
persons. The levels in one embodiment are abstract in that a measurement does not occur
for people's relations as for instance distance of length between persons, but as geometrical
layers of friends and friends of friends etc., with an abstract distance.

When someone desires to determine how close a predetermined/selected
person relationally stands to one or several in a second database with registered persons,
he/she visits this information place. There, the person is automatically provided with
information on relations or by requesting through a command to receive information. The
predetermined person's relations are analyzed by comparing a number of persons in one or
several other databases e.g. Facebook, LinkedIn, police databases or a like, which describes
people's relations to each other. The result renders a file, which contains the predetermined
person's relations in phases to other persons and their relations to each other. After which,
the file is presented as a graphical interface, which illustrates the predetermined person's
relation to one or several other selected persons in a number of levels and their mutual
relations. The graphical interface can also illustrate persons that do not have a relation to the
predetermined person either direct or indirect.

Henceforth, the present invention illustrates in one embodiment where a
wanted person's known acquaintances are mapped via for example social media databases
or other relationship databases such as Facebook, LinkedIn and alike. The invention is not
limited to searching for wanted persons relations, but can also be utilized to for example the
following applications of relations between persons such as; dating, by meeting a
woman/man in for instance a bar and looking up which common relations they have or only
each others backgrounds, finances and insurances through ratings by costumers, by
determining which ratings the person's friends have in several phases; sales by mapping a
person's network or connection to other common acquaintances or to a sales person directly;
recruiting by finding new employees or headhunting; consulting; cultural events by for
instance inviting persons with similar interests and acquaintances; non-profit organizations
by recruiting members or invitations to voluntary work; genealogy; information gathering;
games; lotteries; rentals; in advertising through targeted messages to the right target groups
eemanated from acquaintances, and in other similar applications.

Herein, fig 1 illustrates a flowchart regarding the present invention. An inquirer
such as police/court or alike, about a predetermined person specified with identifying
assignments starts a search 120, through a computerized device such as has been previously described, in a first database of registered wanted persons after the predetermined person. In addition to suspected persons the predetermined person can be a person that for instance is a victim of a crime or one that is a witness. The next step in the flowchart indicates if the person is found in the first database or not, if the answer is yes then the search continues with an analysis 150 of the predetermined persons relations to other persons. If the answer is no, the search for a predetermined person is aborted or a new search is started.

In fig. 1 communication between different units, which belong to the flowchart, is illustrated in the shape of a single arrow in one-sided communication and in the shape of double arrows the units re-communicate the information.

When the predetermined person is found in the first database of registered persons an analysis 150 is started in the second database 170 about the predetermined person's relations to friends, friends of friends, friends of the predetermined person's friends of friends etc. the result of the analysis 150 in the second database 170 is transferred from the database 170 to the analysis part of persons relations 150, and a data file 180 is created with the predetermined persons friends, friends of friends, friends of the predetermined persons friends of friends etc.

Henceforth, one single unitary layered geometrical graphical presentation 190 is generated, which is illustrated on the computerized device's screen with the result in the data file 180, which is created with a predetermined person's relations to friends, friends of friends, and there relations to each other etc. The layered geometrical presentation can illustrate details about the predetermined person's relations to other persons in the shape of images of the persons, addresses, and any other data about the persons relations that is available in different layers of the geometrical graph with an internal geometrical area where the predetermined person is presented surrounded by his/her friends, and that the next layer which surrounds the first layer illustrates the same information about friends of friends as well as another layer, which surrounds the first and second layer that illustrates friends of the predetermined person's friends of friends etc.

In fig. 2 one embodiment of a graphical presentation is illustrated schematically in accordance with the present invention in the shape of layered circles 10, 12, 14. Where the first circle 10 comprises the predetermined person's data illustrated as a black frame as well as his/her friends' data as white frames with a black enclosure/frame. The second circle 12 illustrates friends of friends' data within its own circumference and the third circle 14 illustrates the predetermined persons friends of friends and their friends. In every layer it is the closest relation in the layer that is presented between persons in the layer.
Fig. 3 illustrates another geometrical layering in the shape of squares/rectangles 16, 18, 20, which render the same or similar relationship data as described in connection with fig. 2.

People's data/information can further be illustrated in different colors, symbols, markers/graphical patterns in the frames depending on how they are related to each other e.g. if they are relatives, winners of a game/lottery, friends that spent time in prison together, background, prior convictions and other possible relations between persons.

The present invention is not limited to the described embodiments and given examples herein but it is the attached patent claims, which provide further embodiments to a person skilled in the technical field.
Claims:

1. A method to analyze and present relations between a predetermined person in a first database (130), and at least one other person in at least one second database (170), which can be related to the predetermined person, characterized in that:
   - searching for information regarding the predetermined person's data with the aid of a computerized means with a screen, and an entering means from an electronic information place, wherein at least one of the information is automatically shown on the screen, and a command is entered via the computerized means in order to show the information on the screen;
   - searching after a predetermined person in a first database (130) of registered persons;
   - analysis (150) of the predetermined person's relation with other persons in at least one second database (170), which describes the relations between persons through the information place;
   - creating of a data file (180) which contains the predetermined person's relation to other persons in levels; and
   - presentation of the data file's content on the screen via a single unitary graphical interface through generation of a presentation, which illustrates the predetermined person's relations to other persons through one of said levels layered geometrical graph (10, 12, 14, 16, 18, 20, 190), wherein the relations affect the predetermined person in at least one of a direct, and an indirect relationship presented in levels (10, 12, 14, 16, 18, 20, 190), and wherein the presentation becomes quicker and safer than was previously possible.

2. A method according to claim 1, characterized in that the layered geometrical graph is comprised of circles or ovals with the predetermined person's identity and the direct relations identities within the inner circle or the oval's layer (10), and indirect relations with other persons identities within a second circle or oval layer (12), as well as the indirect relations relationships within a third circle or oval layer (14).

3. A method according to claim 1, characterized in that the layered geometrical graph comprises squares or rectangles with the predetermined person's identity and the direct relations identities within the inner square or rectangle's layer (16), and indirect relations with other persons identities within a second square or rectangle layer (18), as well as the indirect relations relationships within a third square or rectangle layer (20).

4. A method according to claim 1, characterized in that the second database (130) is intended and adapted to social media or police relations.

5. A method according to claim 1, characterized in that the predetermined
person is included in the first database (130) as randomly predetermined regarding a
game/lottery.

6. A method according to claim 5, characterized in that the predetermined
person is put in relation as a winner in a game and/or between other possible relations to
persons that are winners in said game.

7. A system adapted to analyze and present relations between a
predetermined person in a first database (130), and at least one other person in at least one
second database (170), which can be related to the predetermined person, characterized in
that it comprises;

- a computerized means with a screen and an entering means to search for
information regarding the predetermined person's data from an electronic information place
(120), wherein at least one of the information automatically is shown on a screen, and that a
command is entered through the computerized means in order to show information on the
screen;

- a first database (130) adapted to searching after a predetermined person in a
first database with registered persons;

- means adapted to analyzing (150) of the predetermined person's relations to
other persons in at least a second database (170), which describes relations between
persons via the information place (120);

- means adapted to create a data file (180), which contains the predetermined
persons relations to other persons in levels; and

- a graphical interface adapted to presentations of content in a data file on the
screen through a generator for a graphical presentation, which illustrates the predetermined
person's relations with other persons through said levels in one single unitary layered
geometrical graph (10, 12, 14, 16, 18, 20, 190), wherein the relations affect the
predetermined person in at least one of a direct and an indirect relationship presented in
levels, and wherein the presentation becomes quicker and safer then was previously
possible.

8. A system according to claim 7, characterized in that the layered
geometrical graph is comprised of circles or ovals with the predetermined person's identity
and the direct relations identities within the inner circle or the oval's layer (10), and indirect
relations with other persons identities within a second circle or oval layer (12), as well as the
indirect relations relationships within a third circle or oval layer (14).

9. A system according to claim 7, characterized in that the layered
geometrical graph comprises squares or rectangles with the predetermined person's identity
and the direct relations identities within the inner square or rectangle's layer (16), and indirect
relations with other persons identities within a second square or rectangle layer (18), as well as the indirect relations relationships within a third square or rectangle layer (20).

10. A system according to claim 7, characterized in that the second database (170) is intended and adapted to social media or police relations.

11. A system according to claim 7, characterized in that the predetermined person is included in the first database as randomly predetermined, wherein a random generator selects a predetermined person from the first database regarding a game/lottery.

12. A system according to claim 11, characterized in that the predetermined person is put in relation as a winner in a game and/or other possible relations to persons, as winners in said game.
Inquirer through a computerized device

Searching for a predetermined person

Database of registered persons

Registered?

Yes

Analysis of people's relations

No

New search or end

Created data file of a predetermined person's relation to friends, friends of friends etc.

Layered geometrical presentation of analyzed relations
**INTERNATIONAL SEARCH REPORT**

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Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:
  
  "A" document defining the general state of the art which is not considered to be of particular relevance

  "E" earlier application or patent but published on or after the international filing date

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  "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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**Date of the actual completion of the international search**

31-07-2014

**Date of mailing of the international search report**

01-08-2014

**Name and mailing address of the ISA/SE**

Patent och registreringsverket

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Form PCT/ISA/210 (second sheet) (July 2009)
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<td>Greene, Derek et al., &quot;Producing a Unified Graph Representation from Multiple Social Network Views, School of Computer Science &amp; Informatics, University College Dublin, February 18, 2013, [online], [url: <a href="http://arxiv.org/abs/1301.5809">http://arxiv.org/abs/1301.5809</a>]; whole document</td>
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International Patent Classification (IPC)

G06F 17/30 (2006.01)
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