

WHAT IS CLAIMED IS:

1. A knowledge extracting apparatus for extracting knowledge information from an electronic document,
5 comprising:

an information receiving section for receiving the electronic document;

a knowledge extracting section for extracting a
10 | concept from the electronic document, based on a target
word to extract the knowledge information and a clue word
| to extract the knowledge information, and forming knowledge
information in which the concept thus extracted and the
target word are associated with each other;

a storage section for storing the knowledge
15 | information thus extracted;—and

an information analysis section for, after the
knowledge information is stored, analyzing a new the
electronic document newly received by the information
receiving section, based on the knowledge information
20 | stored in the storage section;—

~~2. The knowledge extracting apparatus according to
claim 1, comprising:~~

an electronic document searching section for searching
25 | for the concept or the target word included in the new
electronic document;

a knowledge-registration-concept extracting section
for, when a prescribed number or more of the concepts are
described in the new electronic document as a result of the
30 | searching by the searching section, extracting the concept,
and when a prescribed number or more of the target words
are described in the new electronic document, extracting

the knowledge information associated with the target word from the storage section;

an evaluation section for evaluating a magnitude or a fluctuation of numerical information associated with the target word or the concept extracted by the knowledge-
5 registration-concept extracting section; and

a certainty factor update section for updating a certainty factor which is an evaluation value indicative of a relationship between the concept and the target word
10 according to thea magnitude of the numerical information, a direction of the fluctuation, or a magnitude of the fluctuation of the numerical information. ~~and~~

2. The knowledge extracting apparatus according to
15 claim 1, comprising:

a knowledge update section for asking a user to make a judgment when the certainty factor is less than a prescribed value and deleting a relationship between the concepts being selected in response to an instruction from
20 the user.

3. The knowledge extracting apparatus according to
claim 1, wherein:

the clue word has an intensity which is set in
25 advance; and

the knowledge extracting section forms knowledge information associated with the intensity of the clue word, the concept thus extracted, and the target word.

30 4. A knowledge extracting apparatus for extracting knowledge information related to stock transactions from pieces of distributed news information, comprising:

an information receiving section for receiving the pieces of news information;

an information selecting section for selecting news information including economic terms from the pieces of news information thus received;

a knowledge extracting section for extracting the knowledge information from the news information thus selected;

a storage section for storing the knowledge information thus extracted;—and

an information analysis section for, after the knowledge information is stored, analyzing all the pieces of news information received by the information receiving section, based on the knowledge information stored in the storage section;—

~~5. The knowledge extracting apparatus according to claim 4, wherein:~~

wherein the knowledge extracting section includes:

a share-price-fluctuation evaluation word judging section for judging whether or not the news information thus selected includes a share-price-fluctuation evaluation word to evaluate a share price fluctuation;

a group definition word judging section for judging whether or not the news information includes a group definition word to define a group name of an issue when the news information includes the share-price-fluctuation evaluation word as a result of the judgment;

a group name extracting section for extracting a group name from the news information based on the group definition word when the news information includes the group definition word as a result of the judgment;

an issue extracting section for extracting an issue including a company name and a securities code from the news information when the news information includes the share-price-fluctuation evaluation word as a result of the judgment by the share-price-fluctuation evaluation word judging section;

an element extracting section for extracting a share-price-fluctuation element from the news information when the news information includes the share-price-fluctuation evaluation word as a result of the judgment by the share-price-fluctuation evaluation word judging section;

a combination forming section for combining the group name, the issue, and the share-price-fluctuation element thus extracted so as to form the knowledge information; and

a writing section for writing the knowledge information thus formed into the storage section, ~~wherein:~~

wherein the knowledge information is information including the group name, the issue, and the share-price-fluctuation element, or information including first information constituted by the group name and the issue and second information constituted by the share-price-fluctuation element.

56. The knowledge extracting apparatus according to claim 45, wherein:

the knowledge extracting section further includes:

an element-expression clue word dictionary storage section for storing a clue word to an expression of the share-price-fluctuation element, information indicative of a direction of the share price fluctuation, and information indicative of an intensity of the share price fluctuation in association with each other; and

a section for searching the element-expression clue word dictionary based on the share-price-fluctuation element thus extracted and giving respective pieces of searched-out information indicative of a direction and an intensity of the share price fluctuation, to the share-price-fluctuation element.

| 67. The knowledge extracting apparatus according to claim 4, wherein:

10 the information receiving section adds a time stamp to the news information when receiving the news information;

 the knowledge extracting section extracts event information including an expression indicative of a predetermined target from the news information thus selected, and performs a writing process of wiring the event information thus extracted and a time stamp into the storage section as the knowledge information; and

 the expression indicative of the predetermined target is a company name expression indicative of a company name of an issue or an expression indicative of a noun just before a group definition word to define a group name of the issue.

| 78. The knowledge extracting apparatus according to claim 4, wherein:

25 the knowledge information has a hierarchical structure constituted by broader-concept information and narrower-concept information; and

 the storage section stores evaluation information, and a certainty factor indicative of how much the narrower-concept information belongs to the broader-concept information,

the knowledge extracting apparatus comprising:

an evaluation section for calculating an evaluation value based on evaluation information associated with the broader-concept information and the narrower-concept information, extracted from the evaluation information; and

a certainty factor update section for updating the certainty factor based on the evaluation value.

10 | 89. The knowledge extracting apparatus according to claim 45, wherein:

the storage section further stores evaluation information and a certainty factor indicative of how much the issue included in the knowledge information belongs to the group name,

15 | the knowledge extracting apparatus comprising:

a checking section for checking the group name included in the news information;

20 | an extracting section for extracting an issue from the knowledge information based on the group name checked by the checking section to be included in the news information;

an evaluation section for calculating an evaluation value based on the evaluation information associated with the issue; and

25 | a certainty factor update section for updating the certainty factor based on the evaluation value.

30 | 90. The knowledge extracting apparatus according to claim 78, comprising:

a knowledge update section for deleting knowledge information including the narrower-concept information and

the broader-concept information from the storage section when the certainty factor is less than a prescribed value_T.

1041. A non-transitory computer readable medium
5 which stores a program to be used in a knowledge extracting section for extracting a concept from a distributed electronic document, which knowledge extracting section includes a storage section, the program causing the knowledge extracting apparatus to function as:
10 an information receiving section for receiving the electronic document;
a knowledge extracting section for extracting a concept from the electronic document, based on a target word to extract the knowledge information and a clue word
15 to extract the knowledge information, and forming knowledge information in which~~associated with~~ the concept thus extracted and the target word are associated with each other;
a storage section for storing the knowledge
20 information thus extracted;~~and~~
an information analysis section for, after the knowledge information is stored, analyzing a new~~the~~ electronic document newly received by the information receiving section, based on the knowledge information
25 stored in the storage section;
an electronic document searching section for searching for the concept or the target word included in the new electronic document;
a knowledge-registration-concept extracting section
30 for, when a prescribed number or more of the concepts are described in the new electronic document as a result of the searching by the searching section, extracting the concept,

and when a prescribed number or more of the target words are described in the new electronic document, extracting the knowledge information associated with the target word from the storage section;

5 an evaluation section for evaluating a magnitude or a fluctuation of numerical information associated with the target word or the concept extracted by the knowledge-registration-concept extracting section; and

10 a certainty factor update section for updating a certainty factor which is an evaluation value indicative of a relationship between the concept and the target word according to the magnitude of the numerical information, a direction of the fluctuation, or a magnitude of the fluctuation of the numerical information.

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1112. A non-transitory computer readable medium which stores a program to be used in a knowledge extracting apparatus for extracting knowledge information related to stock transactions from pieces of distributed news information, which knowledge extracting apparatus includes a storage section, the program causing the knowledge extraction apparatus to function as:

20 an information receiving section for receiving the pieces of information;

25 an information selecting section for selecting a piece of news information including economic terms from the pieces of news information thus received;

30 a knowledge extracting section for extracting the knowledge information from the news information thus selected and writing the knowledge information into the storage section;—and

an information analysis section for, after the knowledge information is written, analyzing all the pieces of news information thus received by the information receiving section, based on the knowledge information thus stored in the storage section;

wherein the knowledge extracting section includes
a share-price-fluctuation evaluation word judging
section for judging whether or not the news information
thus selected includes a share-price-fluctuation evaluation
word to evaluate a share price fluctuation;

a group definition word judging section for judging
whether or not the news information includes a group
definition word to define a group name of an issue when the
news information includes the share-price-fluctuation
evaluation word as a result of the judgment;

a group name extracting section for extracting a group
name from the news information based on the group
definition word when the news information includes the
group definition word as a result of the judgment;

an issue extracting section for extracting an issue
including a company name and a securities code from the
news information when the news information includes the
share-price-fluctuation evaluation word as a result of the
judgment by the share-price-fluctuation evaluation word
judging section;

an element extracting section for extracting a share-
price-fluctuation element from the news information when
the news information includes the share-price-fluctuation
evaluation word as a result of the judgment by the share-
price-fluctuation evaluation word judging section;

a combination forming section for combining the group name, the issue, and the share-price-fluctuation element thus extracted so as to form the knowledge information; and

a writing section for writing the knowledge information thus formed into the storage section:

wherein the knowledge information is information including the group name, the issue, and the share-price-fluctuation element, or information including first information constituted by the group name and the issue and second information constituted by the share-price-fluctuation element.

1213. The non-transitory computer readable medium according to claim 1112, wherein:

the knowledge information has a hierarchical structure constituted by broader-concept information and narrower-concept information; and

the storage section stores evaluation information and a certainty factor indicative of how much the narrower-concept information belongs to the broader-concept information,

the program causing the knowledge extracting apparatus to function as:

an evaluation section for calculating an evaluation value based on evaluation information associated with the broader-concept information and the narrower-concept information extracted from the evaluation information; and

a certainty factor update section for updating the certainty factor based on the evaluation value.

1314. A knowledge update apparatus comprising:

a storage section for storing knowledge information having a hierarchical structure constituted by broader-concept information and narrower-concept information, evaluation information of the knowledge information, and a
5 certainty factor indicative of how much the narrower-concept information included in the knowledge information belongs to the broader-concept information;

an evaluation section for calculating an evaluation value based on evaluation information associated with the
10 broader-concept information and the narrower-concept information, which evaluation information is extracted from the evaluation information; and

a certainty factor update section for updating the certainty factor based on the evaluation value.

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| 14~~15~~. The knowledge update apparatus according to claim 13~~14~~, wherein:

the storage section stores an update rule of the certainty factor, and

20 the certainty factor update section judges whether or not the certainty factor is updated based on the evaluation value and the update rule.

| 15~~16~~. The knowledge update apparatus according to
25 claim 13~~14~~, comprising:

a knowledge update section for updating the knowledge information based on the certainty factor.

| 16~~17~~. A non-transitory computer readable medium
30 which stores a program to be used in a knowledge update apparatus including a storage section for storing knowledge information having a hierarchical structure constituted by

broader-concept information and narrower-concept
information, evaluation information of the knowledge
information, and a certainty factor indicative of how much
the narrower-concept information included in the knowledge
5 information belongs to the broader-concept information,
which knowledge update apparatus updates the knowledge
information, the program causing the knowledge update
apparatus to function as:

an evaluation section for calculating an evaluation
10 value based on evaluation information associated with the
broader-concept information and the narrower-concept
information, extracted from the evaluation information; and
a certainty factor update section for updating the
certainty factor based on the evaluation value.