

Support methods for chance discovery in human communication

Yoko Nishihara

Copyright (c) 2012 Yoko Nishihara All Right Reserved.

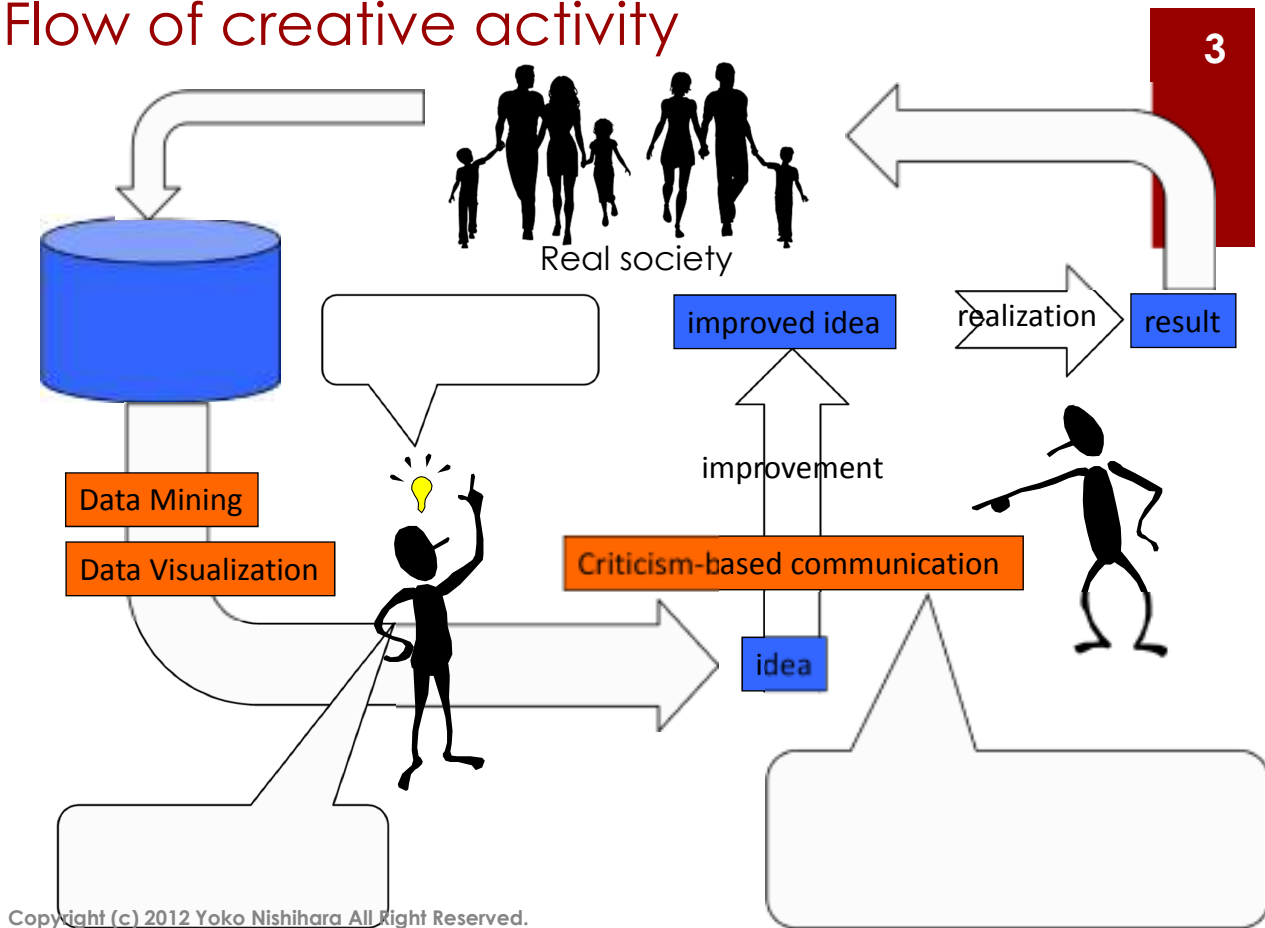
1

2

Creative activity

- **Creative activity**
 - Development of new commercial item
 - Academic research activity
 - etc.
- **In creative activities, human tends to communicate/interact with others and data for obtaining ideas.**
- **Communication/Interaction**
 - with others
 - with data

Flow of creative activity

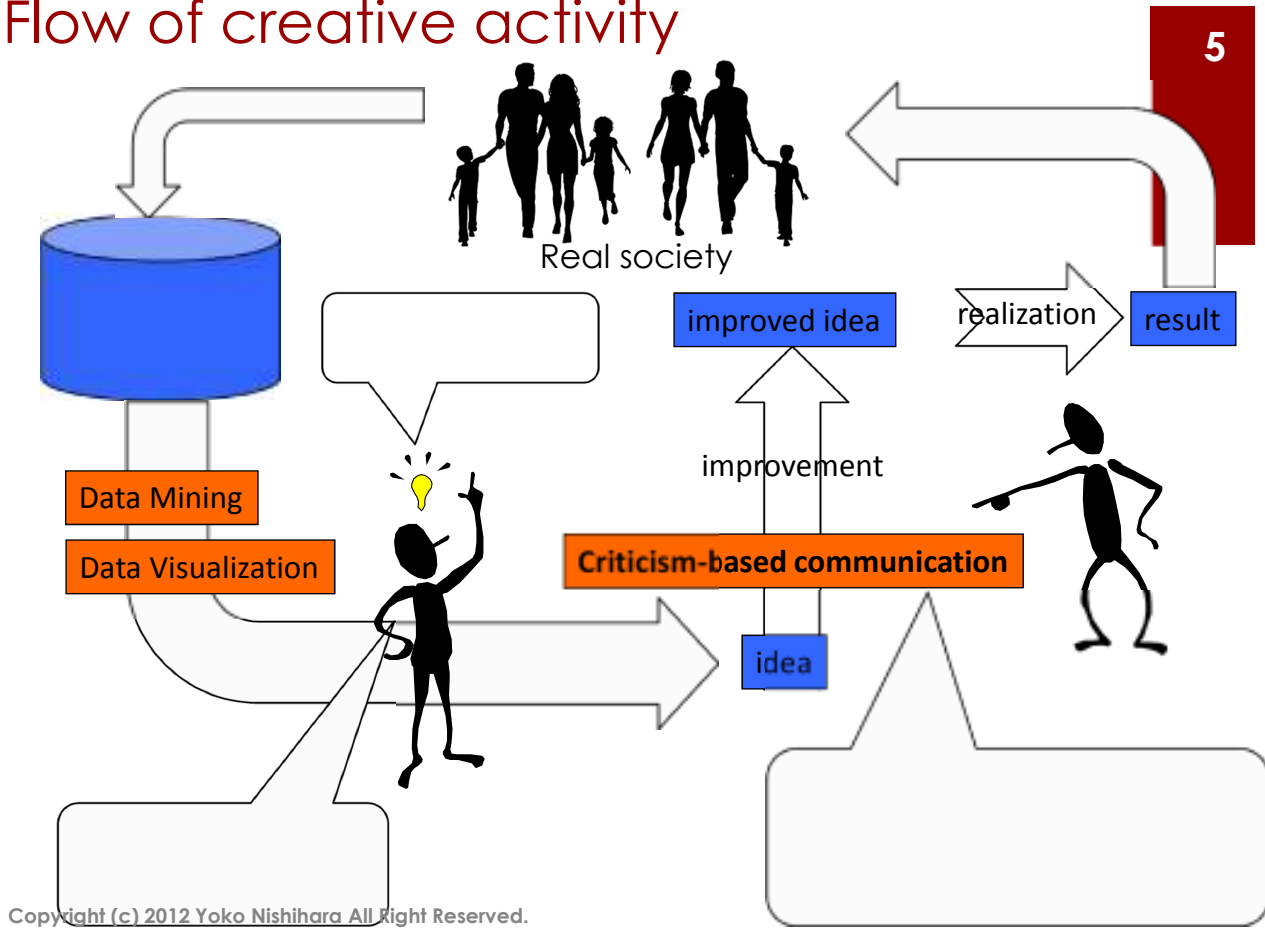


Merit of communication/interaction with human and data

4

- Not good parts of an idea are revealed and improved by communication/interaction with human and data.
- Communication with human
 - If many people examine an idea, a well-improved idea should be obtained.
- Interaction with data
 - If an idea is examined in many points, a well-improved idea should be obtained.

Flow of creative activity



Criticism-based communication

- Effects of negative utterances
- A model of criticism-based communication

6

Utterance types in conversational records

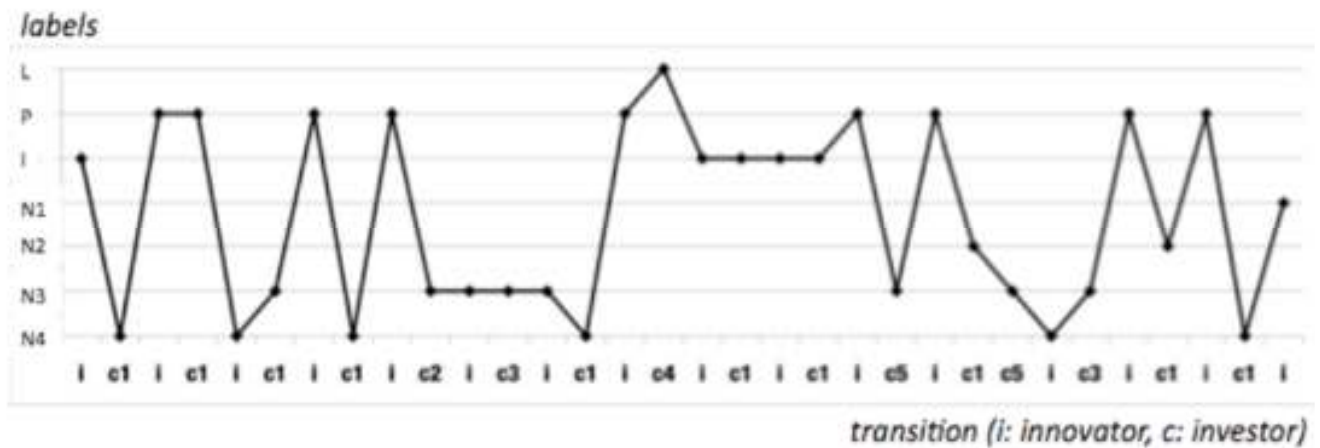
- Utterance types are identified by annotators.
 - Positive
 - Neutral
 - **Negative**
 - Laughing

Effect of negative utterances in combinatorial thinking game

Label	Player	Utterance
N1	Innovator	It is expected in education.
	Investor	Hmm.
N2	Innovator	I propose ... idea.
	Investor	I can not understand your idea because it is too innovative.
N3	Innovator	We can use all of the energy until the earth dies.
	Investor	What is the purpose for using the huge quantity of energy?
N4	Innovator	Though the idea has some difficulties, I propose this for you.
	Investor	Your idea about small computer does not consider the security of data. I am afraid of using such a computer.

Transition of positive/negative utterances for a **not-much** invested idea

9

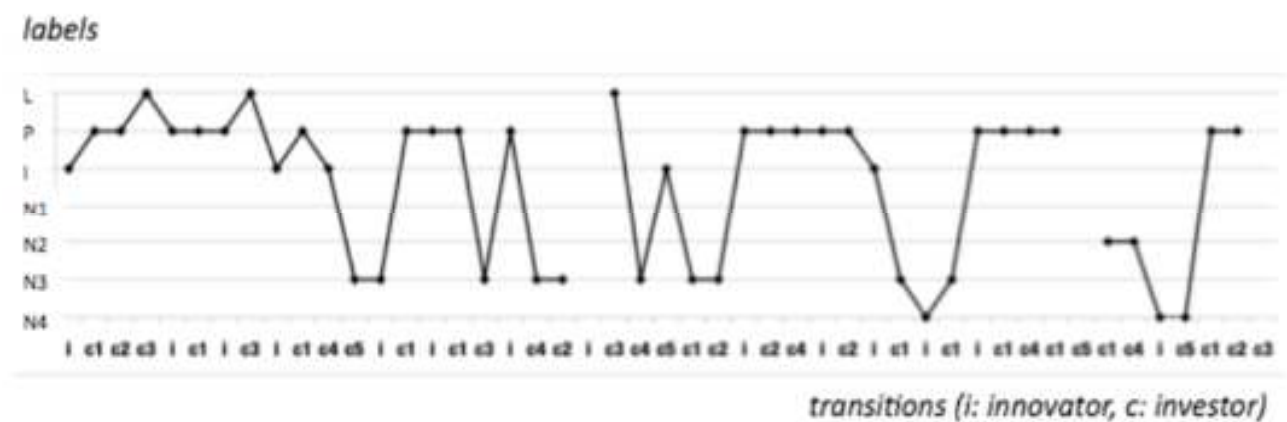


Copyright (c) 2012 Yoko Nishihara All Right Reserved.

2012/3/21

Transition of positive/negative utterances for a **much** invested idea

10



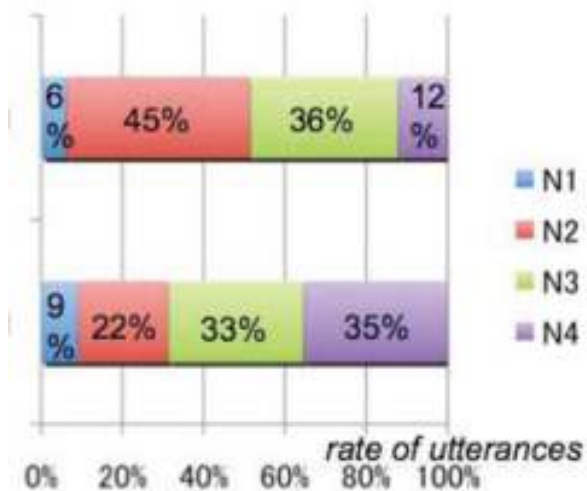
Copyright (c) 2012 Yoko Nishihara All Right Reserved.

2012/3/21

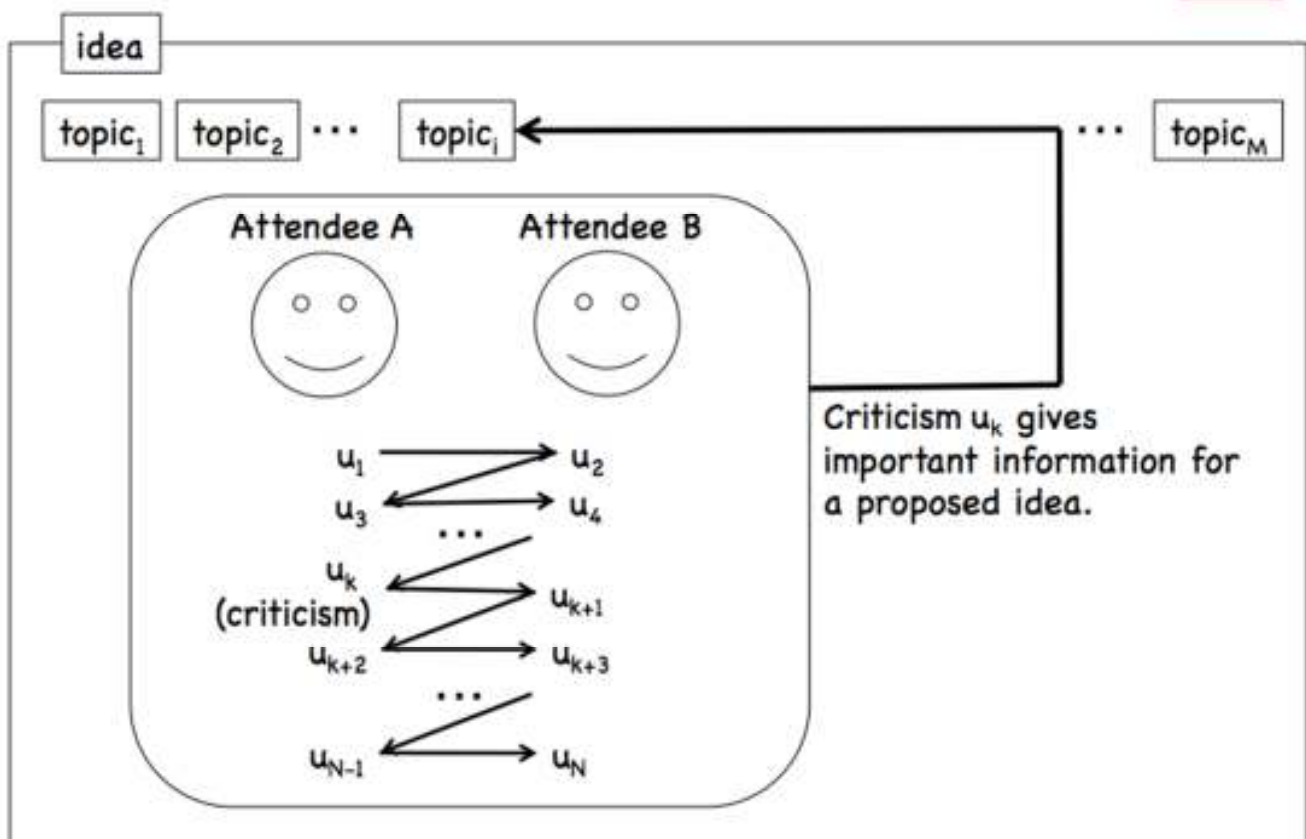
Rates of negative utterances for ideas

not-much invested idea

much invested idea



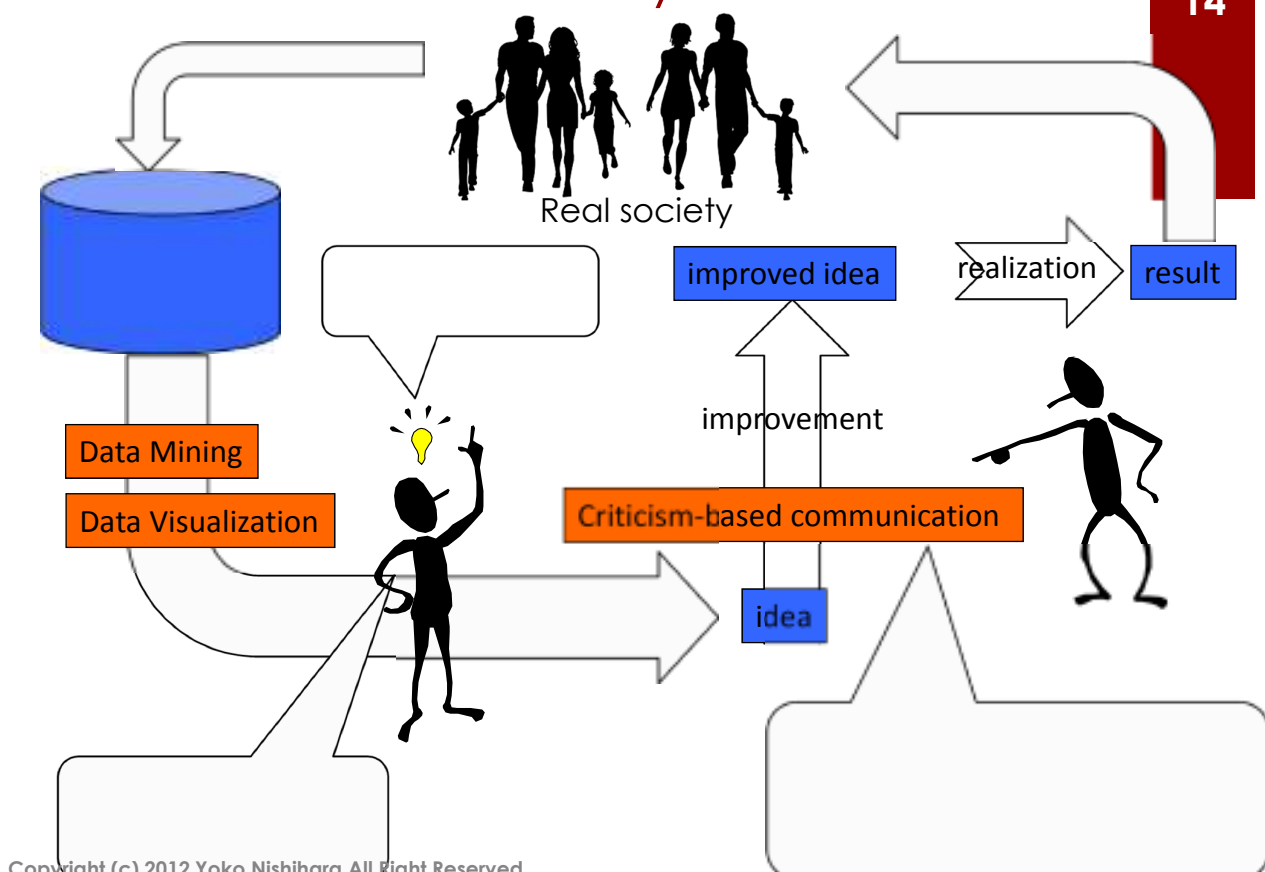
Criticism-based communication



13

idea before useful utterance	<ul style="list-style-type: none"> - New cloth made by transparent technique which has been developed based on VR. - Ambient environment is identified by color, light, and temperature. When the cloth output the same information, a person with the cloth acculturates with ambient environment.
useful utterance	Such a cloth is not necessary for ordinary people, is it?
idea after useful utterance	<ul style="list-style-type: none"> -Scenes where the cloth works effectively were proposed, then the idea was improved. -If a man with the cloth in school examination, he/she can monitor students and prevent them from cheat. -To observe rare animals closely -For deep cover operation by police

14



Interaction with data

- Discovering new criteria for classification of diseases by getting rid of stereotypes

Copyright (c) 2012 Yoko Nishihara All Right Reserved.

2012/3/21

6

new criterion for classification

http://www.igaku-shoin.co.jp/nwsprr/n2004dir/n2605dir/n2605_02.htm
より引用

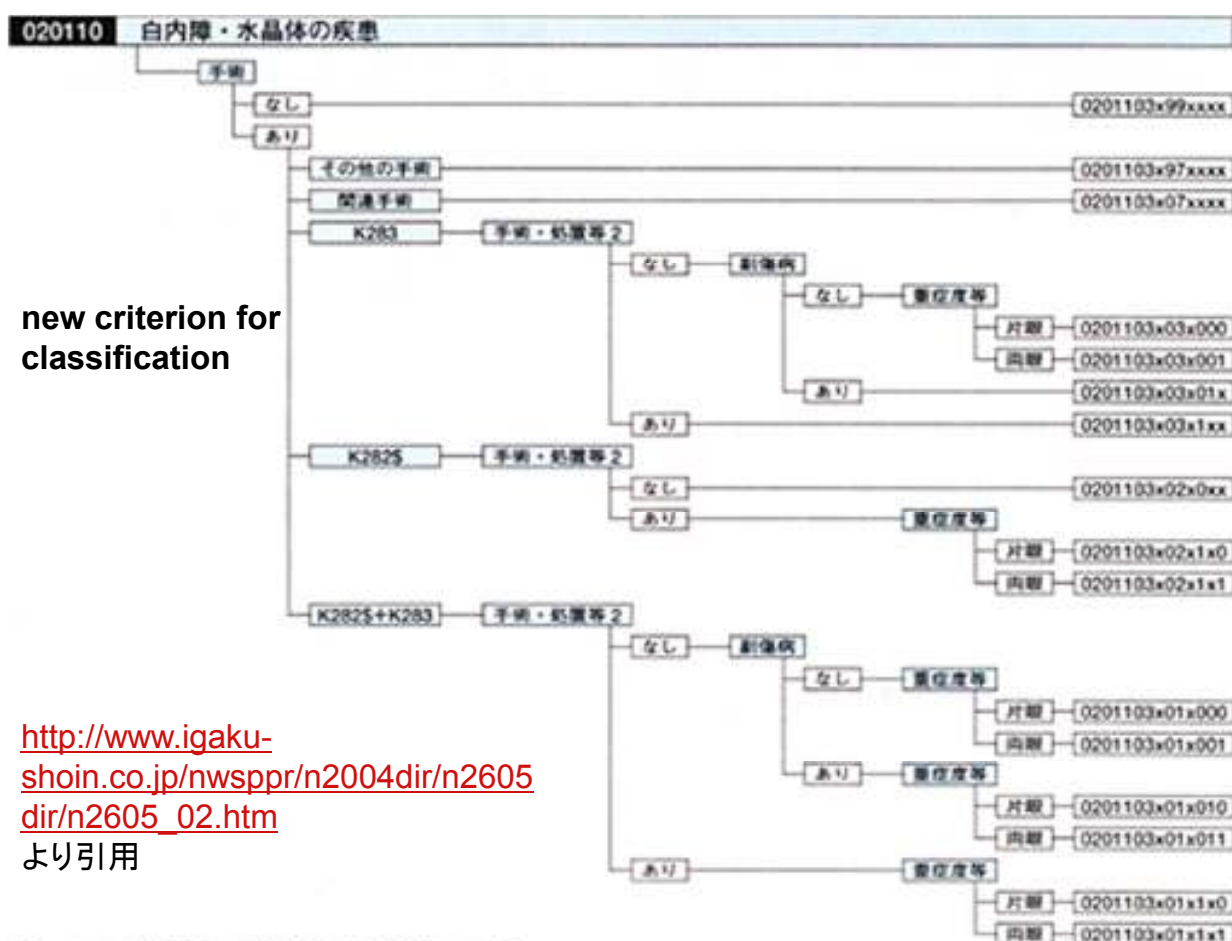


図1 DFCの樹形図の例(白内障・水晶体の疾患)

1/3/21

以下の単語をアナロジー（類推）に従って分類してください



20 disease names are classified into less than 5 categories.



2012/3/21
↑終了時にクリック

Labels for classified groups

18

- trial 1 : 眼球関連、視神経疾患、角膜関連、斜視、網膜関連
- trial 2 : 眼球関連、角膜関連、神経関連、網膜関連、眼瞼関連
- trial 3 : 眼底疾患、眼圧上昇疾患、視神経疾患、角膜疾患、眼位・眼球運動
- trial 4 : 治療必要なし、再発する疾患、治療困難な疾患、全身性の疾患、外眼部手術の適用
- trial 5 : 網膜関連、虚血性疾患、ブドウ膜炎関連、角膜関連、外部性疾患

以下の単語をアナロジー（類推）に従って分類してください

● 角膜ヘルペス

● ティエン角膜変性

● マイクーム腺梗塞

● 角膜真菌症

● 円錐角膜

● スティーブンス・ジョンソン症

● 麻痺性斜視

● 急性網膜壊死

● 原田病

● 牽引性網膜剥離

● コーツ病

● 閃輝性硝子体融解

● 網膜静脈分枝閉塞

● 網膜中心静脈閉塞

● posner-schlossman

● 後発白内障

● 地図状ぶどう膜炎

● 悪性リンパ腫

● 真菌性眼内炎

● 先天性緑内障

角膜の疾患

網膜の疾患

硝子体の病気

ブドウ膜の疾患

神経の疾患

2012/3/21
↑終了時にクリック

以下の単語をアナロジー（類推）に従って分類してください

● 角膜ヘルペス

● 急性網膜壊死

● 角膜真菌症

● 麻痺性斜視

● スティーブンス・ジョンソン症

● マイクーム腺梗塞

● 先天性緑内障

● ティエン角膜変性

● 真菌性眼内炎

● 後発白内障

● 悪性リンパ腫

● 原田病

● 牽引性網膜剥離

● コーツ病

● 閃輝性硝子体融解

● 網膜静脈分枝閉塞

● 網膜中心静脈閉塞

● posner-schlossman

● 円錐角膜

● 地図状ぶどう膜炎

次へ

慢性疾患

急性疾患

状態が余り変化

再発・寛解を繰り返す

2012/3/21
↑終了時にクリック

以下の単語をアナロジー（類推）に従って分類してください

慢性疾患

急性疾患

状態が余り変化

再発・寛解を

次へ

2012/3/21

↑終了時にクリック

22

Conclusion

- To obtain new ideas in creative activities, defects of an idea must be revealed and improved.
- A proposer of an idea tends not to notice defects.
- I have studied methods to support for noticing defects.