CA-pseudocontrol

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December 10, 2014

Abstract

Many phenomena are described by Schrödinger equations. Qualitative control is one of the most important problems. We define CA-pseudocontrol and discuss mainly education. In the usual mathematics we cannot solve the problems without any assumptions. We set a goal, the concept of maximizing the problem solving ability. Through the discussion, we also prove the Learning Principle.

Discussion 1. Intuitively, education is an action of the educator to the learner to realize the desired society. The corresponding time/ the complement of the corresponding time is intuitively empty or with an interior point. The mathematical description of it will be the control of a solution of the equation.

Term 2. (CA-pseudocontrol)
Consider the equation (cf. [?])
\[ i\frac{\partial}{\partial t}\Psi = (\hat{H} + F)\Psi. \]
A CA-pseudocontrol is a trying to realize a solution in the target range giving conditions.

Discussion 3. Intuitively, the time a person assesses/does not assess somebody is empty or with an interior point. The mathematical description will be the control, that is, an assessment will be a trying to realize the desired society by controlling the learners giving conditions to educators.

Term 4. A CA-pseudoassessment is a CA-pseudocontrol.

Discussion 5. Intuitively, in the desired society, difficult problems are solved appropriately. Intuitively as a goal, to maximize the problem solving ability of the society is important.

Definition 6. Let \( D' \subset \mathbb{R}^{3N'} (N' \leq N) \) be a region where the substances 1, 2, ..., \( N' \) are in the desired states. The substances 1, 2, ..., \( N' \) has a high problem solving ability for the input set \( S \) if each element of \( S \) is staying in \( D' \times \mathbb{R}^{n-3N'} \) for \( T_0 \leq t \leq T_1 \) (\( T_0 < T_1 \)). A solution \( \Psi(t) \) is staying in \( D' \times \mathbb{R}^{n-3N'} \) for \( T_0 \leq t \leq T_1 \) if
\[ \int_{D' \times \mathbb{R}^{n-3N'}} |\Psi(t)|^2 dx \sim 1 \] (\( T_0 \leq t \leq T_1 \)).
Remark 7. Trying to maximize the problem solving ability of the system is rephrased as trying to stabilize the system.

Discussion 8. As a goal of CA-pseudoassessment, we select trying to maximize the problem solving ability of the system. The following is stated intuitively. By the identity theorem, it may be very good that we select as an exam authentic assessment to keep the existing problem solving ability of the society, authentic assessment (papers) to increase the problem solving ability of the society and considering the social backgrounds of the learners to increase the ability. Note that, by the identity theorem, authentic assessment cannot be replaced with inauthentic assessment.

Remark 9. Intuitively, it is good to control the learner appropriately getting the information of them in detail.

Discussion 10. The following is stated intuitively. Explanation is not good as an education method because it confuses people having different knowledge as backgrounds, or people take a meaning of a word differently.

Discussion 11. (Learning Principle) The brain structure changes as long as it is different from the input. If the inputs have patterns, then the corresponding patterns are constructed in the brain structure.

Suggestion 12. The following is stated intuitively. It is effective as an education method to control the outputs of learners in the target range by giving a characteristic input, observing the outputs of the learners and giving another characteristic input if necessary. Educators are expected to demonstrate both the right things and the wrong things. (cf. The experiment in [?]) As characteristic inputs, to induce a conflict, to repeat accessing the memory, to experience the real things, to do by oneself and to do CA-pseudoeexercise are effective. (The identity theorem) It is also effective to instruct the out-of-school life of the learners to keep the result of the learning.

Example 13. The following is stated intuitively. We consider the teaching of argument. The contents to teach are deep, possibly intuitive expert knowledge, physical ways of thinking, the concept of definition (CA-concept), logical ways of thinking and ways of using intuitive interpretations. The real problems are effective. e.g. Question: Do people sense different colours seeing the same thing? Answer: The colour a person senses varies as the time does. But healthy people will sense almost the same colour. (Schrödinger equation) Question: Make a teaching project of argument. As a lifestyle, we should have the learners think logically in this sense. (The identity theorem)

Suggestion 14. The following is stated intuitively. It is effective to instruct the learners by teaching experiences and examples to analyze their states, to demand appropriate teaching, to do appropriate methods of learning and keeping the learning result and to find another good method.
Discussion 15. The following is stated intuitively. As a characteristic input, one that promotes the learner to acquire the patterns is effective. Thus, by the identity theorem, experiencing the controlled real things and facing conflicts are effective. Finding aspects is finding differences and to find a difference a learner should know the target real things and other controlled real things.

Discussion 16. The following is stated intuitively. Argument does not go well if we use CA-social concepts carelessly. We take ethics as actions of CA-pseudocontrol with their goal maximizing the problem solving ability of the society, e.g. patriotism and improving the world to the desired state.

Discussion 17. Our definition and goal of ethics are intuitively interpreted as developing the society, pursuit of happiness, denial of selfish murder, considering scientifically, denial of selfish crime and delinquency, pursuit of art and sport, keeping one's health, keeping moral etc.

Discussion 18. The following is stated intuitively. If a person etc. is stable for an input, then he/she stabilizes the others. If the variety of the brains in the society is large, there are many such inputs. Hence the society is stabler and has a high problem solving ability.

Discussion 19. The following is stated intuitively. Educational methods related with readiness often make the variety of the brains in the society small.

[Acknowledgments]
We are helped by the following people.
Takayuki Nakamori, Dimitri Kartsaklis.

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