

One Theoretical Consideration on Significance of Dichotomy in Argumentation Education

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In argumentation education, the issues to be addressed are sometimes expressed in the form of dichotomy. This is often criticized as narrowing students' horizons and putting them off the consideration of more various options, and critics conclude that dichotomy should be discarded. However, they jumble different types of dichotomy. Thus, I sort the meanings of "dichotomy" depending on some thinkers like Trubetzkoy, and find that those who criticize dichotomy trigger the very polarization that they fear by too simple separation: dichotomy or not-dichotomy. Additionally, to conclude argumentation education practices using dichotomy (like debate) should be discarded is invalid even if dichotomy has negative aspects, so I make this point clear by referring to the nature of logics/argumentation and of education. From these theoretical considerations, this paper tries to determine the cause of wrong dichotomy in education and give some proposals and notions to solve it at last.

1. PROBLEM

In argumentation education, the issues to be addressed are sometimes established in the form of dichotomy which is typical of debate (for instance, "Japan should abolish the death penalty or not"). This is often criticized as narrowing students' horizon and putting them off the consideration of the third, fourth or more options (e.g. Isozaki 2006; Tomano 2017). As Conti (2013, 280) pointed out, many scholars (e.g. Johnson & Johnson 1994; Suzuki 2013^{*1}) conclude that debates should be discarded from this reason.

However, dichotomy is significant basis of logical thinking. According to Jacobson, dichotomy is the "child's first logical operation" (Jakobson & Halle 1956, 60). And it is the flame of thinking used in various fields, not in a specific area. Dascal (2008) expresses this fact by saying "dichotomies are ubiquitous". Thus, dichotomy in argumentation education is worth consideration.

In addition, today the worth has increased especially in Japan, because argumentation education has been introduced into public education. When the voting age was brought down to 18 in 2015, debate style activities were welcomed to let students have interests in politics and elections. In a couple of years, "Debate &

Discussion I" is made compulsory in high school English. Nevertheless, the discussions on dichotomy in argumentation education is messed up as we saw above and will see in the next chapter. Therefore, now we need to reconsider the concept of dichotomy and examine the criticisms on it.

To accomplish this goal, I set 2 questions in this paper: ① Are the criticisms of dichotomy we saw above to the point? ② Even if they are to the point, is it valid to conclude that dichotomy should be discarded?

2. APPROACH

Most of the existing studies to examine whether dichotomies have polarization effects are quantitative investigations (ex. Budesheim and Lundquist 1999; Felton et al. 2009). By contrast, this paper makes a theoretical consideration from the perspective of philosophy of education and argumentation. Of course, quantitative research is important, but in my opinion the theoretical basis has to be done before quantitative research. Were it not for the shared basis, we might criticize one another with our different definitions of dichotomy and end up with

collapsed communications. As D. Kuhn (1991, 5) described, “Without such a knowledge base, there exists no firm basis for judging the soundness or the effectiveness of educational programs designed to teach thinking skills.”

Actually, according to Yoshikawa (2018), the word “dichotomy” is used differently; used even in cases where it is suspicious that the two terms are really opposed. Then he tried to examine the concept of dichotomy, which was an important attempt. However, he classified and examined dichotomy with deficient reasoning: there was no citation that guarantees the trustworthiness of his study.

Conti (2013) is one study that deals with the very question this paper engages in, but he answered this question by focusing on the other features of argumentation activities. For instance, he insisted that experiencing both affirmative and negative sides in debate activities can minimize polarization effects and rather contribute to the de-polarization. Needless to say, this indication is appropriate and very important, but the nature of dichotomy itself isn’t examined in his paper.

To overcome the problems described above, I would like to consider dichotomy itself in a philosophical manner. Since it is too difficult, almost impossible, to review all dichotomies in various fields, my purpose isn’t to unify the definitions and to establish only one “true” dichotomy, but is to examine dichotomy used in argumentation education.

In chapter 3, I cope with the first question, ① “Are the criticisms of dichotomy to the point?” by taking advantage of knowledge in linguistics. In chapter 4, I answer the second question, ② “Even if so, is it valid to conclude that dichotomy should be discarded?” from the perspective of logic/argumentation and education. After that, I make a tentative suggestion to improve argumentation education in chapter 5.

3. ARE THE CRITICISMS OF DICHOTOMY TO THE POINT?

The dawn of dichotomy dates back to Plato and Aristoteles. Although at that time dichotomy was used to separate the genus into two species as we can see in *Physics*, now after the development of symbolic logic, it expresses the fundamental distinction in thought between position and negation (Baldwin 1911, 279). Then it has become a tool of philosophical thinking and ubiquitous owing to the big stream called

structuralism: Saussure established the dichotomy of signifiant and signifié in linguistics and Lévi-Strauss applied the flame of dichotomy to cultural anthropology (Hashizume 1988).

Their interests, however, did seldom lie in questioning what dichotomy is; rather, they focused on what is revealed by looking at something through the lens of dichotomy. Then people has come not to pay attention to what is meant by using the word dichotomy as we saw in chapter 1. Therefore, we need to make it clear.

3.1. Rethinking of what dichotomy is

Here is a clue to unravel the confusion that caused by using the word dichotomy differently. Trubetzkoy, a Russian linguist, made great work on the concept of Opposition in *Principles of Phonology* [*Grundzüge der Phonologie*] (published in 1969), which is convertible to the concept of dichotomy. He organized extensional meanings of Opposition by focusing on characteristics of phonemes. One of the most important extensions is the distinction of “privative Opposition” and “äquipollente Opposition”. The privative indicates the difference between A and not A, the unmarked [merkmallos] and the marked [merkmaltragend] (figure 1)*², whereas the äquipollente indicates the difference between A and B (figure 2).

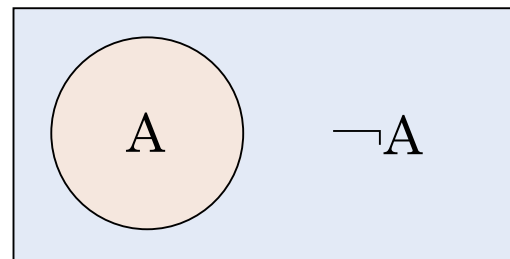


figure 1) privative Opposition

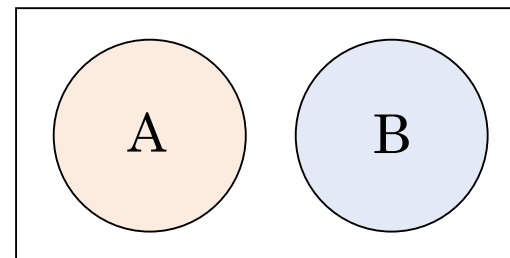


figure 2) äquipollente Opposition

Also, he referred to the distinction between digital differences and analogue ones. He called dichotomy whose difference is analogue “gradualle Opposition” and distinguished it from privative Opposition, whose difference is digital.

This distinction has something common with Bergson and Deleuze's argument. They separated the discrete and the continuous and warned us not to mix them up (Deleuze 1966)^{*3}. For instance, it makes sense to give an answer for the proposition "The average distance between the sun and the earth is about 150 million kilometers" by choosing true or false (Wrenn 2019, 157-159). This is a privative Opposition and there is no gradation between true and false. In contrast, if we are shown viridian and aquamarine and asked "Are these colors blue or green?", it is difficult to answer.

3.2. Inevitability of dichotomy

Now we understand the some differences among those which are called dichotomy, we can answer the first question, "① Is the criticism of dichotomy to the point?" The main claim of the criticisms is that dichotomy makes us overlook third, fourth or more options.

To tackle this question, we need to understand the next point: To some propositions we cannot avoid giving an answer Yes/No or True/False as we saw in the example of the distance between the sun and the earth. The questions discussed in argumentation education have such nature. One of the purposes of argumentation education is to develop problem-solving and decision-making skills (Sanaga 2001). In order to practice decision-making, we have to let students decide to do / not to do a certain action as training. In fact, the policy-making style is often used in debate, discussion, mock election and other argumentation education activities (e.g. Mori 2004, 52; MEXT 2018).

Based on Guilford's classification of our ways of thinking, which differentiate 2 external groups of thinking—the convergent and the divergent (Guilford 1959, 469-479)—, arguments can be separated to problem-solving arguments and creative arguments (Kato & Maruno 1996, 90)^{*4}. The convergent is parallel to problem-solving arguments, and the divergent is to creative ones. When we give students questions to practice decision-making in argumentation education, they need to answer "do" or "not do", which is privative Opposition with no gradation.

Let me take a proposition that Japan should abolish Citizen Judge System as an example. On this theme, there are many and various opinions like "We should remove sex crimes from the system", "Jury System is superior as an alternative", and "I have no idea, so support the

status quo for the present." On one hand, there is gradation. On the other hand, it converges to the binary in that we have to answer the question "Should we abolish the system?" and decide to repeal of the Citizen Judge Act or not in practice. "Jury System is superior as an alternative" belongs to "Yes", and "We should remove sex crimes from the system" and "I have no idea, so support the status quo for the present" belong to "No". We must make a decision by the deadline, that is unavoidable. In short, dichotomy is inevitable when we make decisions.

From the examination of dichotomy above, we can notice that what we call dichotomy include some different types of dichotomy and that we have to make sure not to mix them up. The rebuttal to the criticisms of dichotomy in argumentation education is summarized in the next sentence. Those who criticize dichotomy, thinking that it causes polarization, mix up different types of dichotomy and trigger the very polarization that they fear by too simple separation: dichotomy or not-dichotomy.

4. IS IT VALID TO CONCLUDE THAT DICHOTOMY SHOULD BE DISCARDED?

As we saw, the criticisms of dichotomy in argumentation education is not to the point in that critics mix up different types of dichotomy. Then we can cope with the second question: ② "Even if the criticism is to the point, is it valid to conclude that dichotomy should be discarded?" Let me announce that the answer is NO in advance. Then I'd like to see the reasons from two perspectives: form the perspective of argumentation (4.1.) and of education (4.2.).

4.1. The nature of argumentation

Some critics insist that dichotomy polarizes our thinking and should be discarded because they believe the issues in reality cannot be divided into dichotomy with ease (for example, Kodama (2012) mentioned this claim by reviewing statements and discourses in politics). Certainly, when we vote someone in elections, issues seem so compounded that we have difficulty in making decisions.

However, concluding that dichotomy is useless and should be discarded from this reason sets the perspective of logics and argumentation at defiance. The significance of logics and argumentation cannot always be explained by itself; its significance becomes clear when we

understand its nature as a tool. Hurley & Watson (2018, xxii-xxiii) compared studying logics to going to the gym to train the muscles. Though we do not do something with treadmills or bench presses in our daily life, we go to the gym and use such machines to train our muscles. It is because doing so is necessary for other activities or preserving our health. This characteristic is common with logics and argumentation. In studying natural science, economics, and humanities, or in setting an alarm at 8 a.m. in order to arrive at school in time for the morning class, logics and argumentation are essential as foundation.

This is applicable not only to logics and argumentation as a whole, but also to dichotomy as a part of logics and argumentation, because dichotomy is a fundamental and ubiquitous logical operation as Jakobson and Dascal explained (chapter 1.). Even in the example of elections, we are making decisions in the form of dichotomy for each issue at last (3.2.). When we take this instrumental nature of logics and argumentation into consideration, to insist that dichotomy, a logical operation, be discarded since there are many cases unable to be divided into dichotomy with ease in reality is not valid.

4.2. The nature of education

Education is a package of plural programs. It is composed of many kinds of activities that is extended in both “length” (chronological extent) and “width” (extent of variety).

From the point of the “length”, we need to understand that the level of contents is raised gradually. For instance, the Archimedes’ constant is regarded as the clear number “3.14” in elementary schools in Japan⁵. This is wrong, because π is not 3.14 but an infinite decimal (3.141592...). However, we do not determine to discard the approximation due to the fault. This arrangement is accepted because elementary school students are thought to be too young to understand the character expression in mathematics. Such considerations can be seen in various areas. The world where there is no friction and resistance is a fantastic story because everything causes friction and such assumption never comes true in reality. But it helps beginners of physics to concentrate on understanding the pure connection between falling motions and gravity by laying other obstructive and complicated concepts aside.

From the point of “width”, we need to understand the complementary relationship with

other subjects. In education after childhood, the fact is that separate programs are developed and held by subjects (Kimata 2018), so we have to catch the whole image of education. For example, teaching the history of the mother country is sometimes criticized for encouraging the ethnocentrism (Kato 2007), but this negative aspect will not lead immediately to the conclusion that teaching the history of the mother country should be stopped. The conclusion can come only after examining alternatives to weaken the disadvantage (for instance, to write various theories on textbooks and to teach the world’s history in parallel) and comparing the disadvantage with the advantage of teaching the history of the mother country.

In short, we need consider the process of development of students and the curriculums as a whole. We must not decide to discard something without such consideration.

5. DISCUSSIONS

5.1. A suggestion by reviewing action research

As described in chapter 3 and 4, the criticisms are not to the point. In the critics’ argument, the premise is “in some classes dichotomy is used wrongly” and the conclusion is “using dichotomy is wrong”, which is a typical fallacy called “cherry picking”⁶.

However, it is true that there are some classes where students engage in wrong form of dichotomy, like asking “Which do you choose for pet, dog or cat?” To such practices, the criticisms of dichotomy make sense in that they drop other options. The question is *équipollente* Opposition (meaning “A or B”) and there exist potentially C, D or more options like rabbit, hamster... etc. Excluding those options and presenting just dog and cat is also a typical fallacy called “false dilemma”⁷.

We had better avoid the fallacy by presenting all available options in propositions to be argued. To do so, we need to inquire into the cause of fallacious practices in school.

In my opinion, one possible cause is textbooks on argumentation education. Many textbooks indicate standards that the propositions to be argued should meet. For example, Konishi, Kanke and Collins (2012, 23-25) propose seven standards like “easy to research” and “the conditions on the proposition won’t change until finishing the arguments”. So do argumentation education textbooks in US. The textbooks that

Hansen (2007, 69) lists up as the most appropriate for preparing debate classes show the standards for the proposition, but all the textbooks do not say that the propositions have to avoid omission of additional options (Huber & Snider 2005, 14-18; Snider & Schnurer 2006, 79-86). This standard is obvious in logics, but because of its obviousness it is not written in textbooks, and fallacious practices in school might be born.

Even English argumentation education textbooks are so, much more are Japanese ones because its history in Japan is not so long as in America. Furthermore, the textbooks have more significance in Japan since Japanese teachers don't have much experience to teach and/or to be taught argumentation, and what they can rely on might only textbooks.

The fact that not telling to avoid omission of additional options causes wrong classes using fallacious dichotomy is suggested by the action research. Miyawaki (2019) let her students make proposition to be argued by giving them six standards that the propositions should meet and some examples of propositions^{*8}. All of the examples avoided omission of additional options, but the standards the teacher showed didn't include it as a norm. The result was all of the propositions students made caused false dilemma like "Is it good or bad to listen music while studying?" and "Do you like Western music or Japanese music?" Nevertheless, after the teacher noted that propositions should be the form of "Should or not?" or "Is A better than B?", which could avoid omission of additional options, the students reformed the propositions and circumvented the fallacy even though they were studying argumentation for the first time.

This research suggests that we should mention the need to avoid omission of additional options in the textbooks and we can keep away from wrong dichotomy by doing so.

5.2. Warnings

Nonetheless, concluding that such logically fallacious themes should be extinct is premature. Somehow the propositions like "Do you like Western music or Japanese music?" may have advantages that ones avoiding omission of additional options do not have.

One example that intimates that we get benefits by fallacious dichotomy is the division of significant/non-significant in statistics. P-value, which is continuous, is classified into significant or non-significant depending on the

lowness of the value. Though this operation has fallacious problems and the controversy has continued for a long time, we have to accept the fact that the division of significant and non-significant has helped arguments on statistics go on smoothly. In short, we must not decide to discard something without checking the advantages of it and balancing them against the disadvantages. This indication overlaps 4.2.

What is important is, not to conquer all practices with the one standard that seems to be absolutely true, but to use different and various standards properly to the purposes of education and to take advantage of them. Since there is no only one truth anymore, we need to establish the basis that as many of us as possible can share by making consideration philosophically, as Perelman explained (Perelman 1977=1980, 226-227).

5.3. Limitations and future issues

In the end of this chapter, I'd enumerate the limitations and the future issues of this paper.

I worked on the concept of dichotomy itself, but it was difficult to make clear the connections of dichotomy and each argumentation education activity (like discussion, debate) for want of space.

When it comes to considering the cause of fallacious practices in school, I mentioned the standards taught to students as a possible cause, but yet there must be other causes. It is needed to identify the plural causes and to examine the weights of them.

I wrote "we need consider the process of development of students and the curriculums as a whole" in the last part of chapter 4, but I could not get involved in examining the concrete contents to be taught in detail. To consider the connection of the nature of argumentation and the purposes of education, it would be needed to make a reference to psychology where the process of development of logical thinking is studied.

It is just an excuse, but I could not much research as had expected because COVID-19 made libraries close for a long time and the heavy rainfall in Kyushu area delayed materials flow. The conditions seem to be getting better little by little, so I'd like to make more efforts for the next thesis.

6. CONCLUSION

Dichotomy has been criticized. The fact is that the criticisms fall into fallacies by jumbling different types of dichotomies and causing the very polarization that the critics fear by simple separation: dichotomy and not-dichotomy. According to the nature of logics/argumentation and education, it is too premature to conclude that practices using dichotomy should be discarded. As I referred in chapter 1, the significance of argumentation education is getting greater, so we need to make more reconsiderations on dichotomy which is the fundamental logical operation like this paper.

NOTES

- *1. Kan (Hiroshi) Suzuki is the former Vice Minister of Education, Culture, Sports, Science and technology in Japan.
- *2. The classification of the unmarked and the marked is made up of the divisions of voiced and unvoiced, rounded and unrounded, and so forth. He indicates that these sorts of Opposition is not only for but also able to be applied to the general.
- *3. This distinction is said to be a reworking of the idea introduced by the mathematician G. B. Riemann, who is famous for the Riemann Hypothesis (Ansell-Pearson & Mullarkey 2002, 2).
- *4. Problem-solving arguments aim to reach the goal concerned with a certain problem. Creative arguments don't have such a goal and are held to find more perspective and possibility.
- *5. The approximation varies from 3, 3.1, 3.14 to 22/7 depending on the countries, but almost all textbooks let students school use the approximation in elementary and "π" appears in junior high school (National Institute for Educational Policy Research 2009, 71-202).
- *6. Cherry picking is the fallacy of pointing to individual cases that seem to confirm a particular position and ignoring the other cases. The expression "cherry picking" is said to come from picking up only ripest and healthiest cherries.
- *7. False dilemma is a fallacy in which all relevant possibilities are not considered in an either-or situation.
- *8. The standards are (a) Both affirmative and negative side, (b) Both sides have enough and similar amount of arguments, (c) Easy to research, (d) One sentence, (e) Questioning the need of the action or value, (f) Pay attention to the agent of the action in the proposition. The examples are

"Every healthy adult should donate blood", "Doraemon should go back to the future" and other three propositions. (Doraemon, the robot came from 22nd century, is a character in Doraemon, which is a famous Japanese manga drawn by Fujiko F. Fujio.)

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