

Why should Linguistic and Cultural Diversity be Important?:

An Aspects for Learning the Significance of Biocultural Diversity

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For discussing today's worldwide issues, we could find and actually face one of the most important concepts, "diversity". It does not solely mean 'the diversity of natural environment', but also 'the diversity of human activities' including the way human lives, traditional cultures, and so forth.

The conservation of linguistic and cultural diversity has actively been argued related to the relationship of nature and human beings. For instance, Luisa Maffi is one of those who argues this issue. She explains the importance of linguistic diversity in global environmental protection by means of an investigation of correlations between linguistic diversity and biological diversity. Furthermore, she nowadays applies linguistic diversity into cultural diversity to examine comprehensive conservation of biocultural diversity and promotes practical actions.

To protect biological, linguistic, and cultural diversity, conservation activities are apparently significant, and the activities have to be passionately promoted in terms of a current situation of global environment and maintenance of our livelihood depending heavily on the diversities. Yet, these diversities may not be discussed enough and controvertible in some points; especially for the significance and the necessity of the first two diversities. In terms of biological diversity, some grounds can be found including scientific aspects that organic-relationships and interdependences are indispensable for nature environmental maintenance. However, a basic discussion of an importance of linguistic and cultural diversity can still be examined. This problem may be concerned with what have to be recognized as insufficiency from a viewpoint of the education of this matter. It should be required a "raison d'être" of linguistic and cultural diversity to judge it rationally and intellectually.

So the purpose of this paper is. It is no doubt that biological diversity is considered to be important and necessary. It is because any nature on the earth could not be sustained without coexistence and cooperation of plants, animals, and various kinds of living things. Nevertheless, the discussion on linguistic and cultural diversity is not always in the same situation. Today's human activities seem to go back and forth in opposite directions. On one hand, the activities have leaned towards more of "civilization" or "modernization" brought on by scientific and technological progression. It is sure that civilization and modernization offer people a commodity, a comfort, and a convenience for their life. On the other hand, it is also true that human activities tend to incline to "protection of diversity" valued by traditions. Then, some questions are surged about the two notions, "civilization" and "protection of diversity". Could the two notions not be incompatible with each other? Or what does the importance of diversity mean from the very beginning of discussion? This is the point which we need to concern and discuss.

In this paper, approaching from epistemological aspects, we'll try to present one of the considerations for the issue concerning the importance and the necessity of linguistic and cultural diversity. First of all, the study focuses on the arguments of the diversity from Maffi and introduces some proofs on this problem. Secondly, some theories from linguists will be introduced, and interdependences of language and culture will be examined. Then, especially focusing on the "Sapir-Whorf Hypothesis" theorized by E. Sapir and B. L. Whorf, the study moves on to the discussion of linguistic roles related to cultural formations and transmissions. Finally, the study attempts to give a meaning of linguistic and cultural diversity by reconsidering and reaffirming the position of language and culture in the relationship between nature and human beings. We try to show some diagrams for clarifying the structure of the relationship.

The contents of this paper are as follows:

- I. Introduction (problématique)
- II. Biocultural Diversity by Luisa Maffi
- III. Interdependence of Language and Culture
- IV. Considerations from Sapir-Whorf Hypothesis
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- VI. Conclusion

Ideally, this paper could be an instructive model in the spread of the understanding of biocultural diversity.

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I. Introduction

For discussing today's worldwide issues, "diversity" becomes an important concept. For example, the year 2010 was the "International Year of Biodiversity" asserted by the United Nations, and "COP10", concerning the "Convention on Biological Diversity", was held in Nagoya followed by "COP11" held in India (in 2014). Biological diversity was actively discussed, the concept of which is imperative for the existence of human beings on one hand.

At the same time, on the other hand, the conservation of linguistic and cultural diversity is also actively argued related to the biological diversity. Luisa Maffi, an Italian linguistic anthropologist and the representative of Terralingua, is one of those who argues the issue. She explains the importance of linguistic diversity for a global environmental protection by means of an investigation of correlations between linguistic diversity and biological diversity. Furthermore, she nowadays applies linguistic diversity into cultural diversity to examine comprehensive conservation of biocultural diversity and promotes practical actions.

Likewise, Nettle and Romaine (2000) argue "the loss of linguistic and cultural diversity should be seen as an integral part of larger processes threatening biodiversity on earth. Because language plays a crucial role in the acquisition, accumulation, maintenance, and transmission of human knowledge concerning the natural environment and ways of interacting with it, the problem of language endangerment raises critical issues about the survival of knowledge that may be of use in the conservation of the world's ecosystems" (p. 27). Some policies, at an international, regional, and national level, which empower indigenous people and promote sustainable development, are the critical point for preserving local ecosystems which is essential to language maintenance. For the preservation of the global ecosystem where all local ecosystems intersect, the preservation of local ecosystems is necessary. Furthermore, for our own survival as a species for a long period of time, the healthy existence of the world's ecosystems and languages should be maintained and continued. They sum up, "we must view the earth's

languages as natural resources to be managed carefully, part of each group's rightful inheritance, and part of our collective human cultural legacy" (p. 177).

To discuss biological, linguistic, and cultural diversity conservation activities is important. Especially, the activities have to be passionately promoted in terms of a current situation of global environment and maintenance of our livelihood depending on the environment surrounding us. Yet, these diversities might not be discussed enough, and significance and necessity of the diversities are insufficiently founded. Those are thus still considerable issues if we ponder these diversities respectively. Nevertheless, in terms of biological diversity, some basic studies can be found including scientific aspects that organic-relationships and biological interdependences are indispensable for the maintenance of nature environment. However, an importance of linguistic and cultural diversity can still be examined.

Various languages and cultures on the planet represent their own identity, and different ways of living maintain various kinds of nature in each region. These discussions are plausible. Likewise, as this study will present, empirical and statistical studies which demonstrate that a region with affluent linguistic and cultural diversity has more biological diversity are reasonable. However, today's human activities seem to go back and forth in opposite directions. On one hand, the activities more toward on "civilization" brought by science and technological progressions, and on the other hand, the activities go to "protection of diversity" valued by various traditions in each region. Therefore, the question is *raison d'être* of linguistic and cultural diversity, and this is the point which we should regard and discuss.

In order to address these issues, it is necessary to have more fundamental discussions about linguistic and cultural diversity, including philosophical speculation to some extent. In this discussion, we need to examine some issues such as what linguistic and cultural diversity is, what the diversity has meant for the existence of human beings, and what it means now. From those perspectives, it is necessary to give a specific meaning to the need for linguistic and cultural diversity by civilizational point of view.

The purpose of this study is to consider these issues.

Yet, the study is not trying to reveal a practical problem of the diversity from international relationships or political and economical standpoints. Instead, approaching from epistemological aspects, the study aims to present one of the considerations for the issue concerning the necessity of the diversities. In the following sections, this study discusses current situations of linguistic and cultural diversity. At first, the study focuses on the arguments of the diversity from Luisa Maffi and introduces some proofs of its importance. Secondly, some theories from linguists will be introduced, and interdependences of language and culture will be examined. Then, especially focusing on “The Sapir-Whorf Hypothesis” theorized by Edward Sapir and Benjamin Lee Whorf, the study moves on to the discussion of linguistic roles related to cultural formations and transmissions. Finally, the study attempts to give a meaning of linguistic and cultural diversity by reconsidering and reaffirming the position of language and culture in the relationship between nature and human beings.

II. Biocultural Diversity by Luisa Maffi

Luisa Maffi, an Italian linguistic anthropologist, is one of the investigators who comprehensively promote the current issue of environmental protection on a global scale. She addresses the interrelationship between biological diversity and linguistic diversity specifically from the late 1990s, and as a result, she advocates conservation of biocultural diversity. She notably stresses “sustainability” as a basis of the controversy, and hence the basis of the argument is examined from some studies.

In the thesis, “Biocultural Diversity and Sustainability”, introduced in 2007, she reveals the structure that the human being is a separate entity existing outside of nature, and therefore, the human being has maintained the relationship by establishing a domination of nature. Then, she points out that some current problems of which we are facing (e.g., a massive extinction of species and conditions of their habitats’ are getting worse. Also, ecological systems are functionally deteriorated) are attributed to direct/indirect human active interventions to nature. She explains the importance of biocultural diversity as one of the solutions, and as a foundation, she mentions that “in the social sciences, the field of biocultural diversity

(Maffi, 2001a, 2005) – drawing from anthropological, ethnobiological, and ethnoecological insights about the relationships of human language, knowledge, and practices with the environment – takes as its fundamental assumption the existence of an “inextricable link” between biological and cultural diversity (Maffi, 2007, p. 267)”. As a matter of fact, these arguments appeared from the beginning of 2000s. In her thesis in 2002 with David Harmon, for instance, it was warned that a threat to biological diversity violates 6,000 languages in the world, and consequently “much of the cultural knowledge and wisdom, ways of life, and world views of its speakers also disappear” (Harmon & Maffi, 2002, p. 2).

Sadly, there are many statements that represent catastrophic situation of language death in the world. One estimation from linguistics shows that there are around 5,000–6,700 languages in the world today. However, at least half, if not more, will become extinct in the next century. Not only languages of the world, but also species could be gone by the turn of the next century (Nettle and Romaine, 2000). Trudgill (2001) mentions “what is much more certain is that this number is smaller than it used to be and is getting smaller all the time. In the last years of the twentieth century, languages are dying out without being replaced at an increasingly catastrophic rate” (p. 191).

Maffi insists that “knowledge”, accumulated by each culture, means experiential knowledge and wisdom of nature acquired through daily lives. As a matter of fact, from a fieldwork of Tzeltal people in Tenejapa, Mexico, she reports that traditional and behavioral knowledge is vanishing because the Western modern science has penetrated their lives. More specifically, the medical environment in Tenejapa are certainly improved by temporal clinics and periodical rounds offered by the government. Because of this convenient situation, the Tzeltal people gradually start to visit the clinics with relatively mild illness (e.g., fever, stomachache, or diarrhea). As a result, the people would not depend on natural medical herbs and traditional “indigenous knowledge”, and it would be lost as a generation transition (Maffi, 2000).

In fact, many research fields that include the perspective of indigenous knowledge point out the interrelationship

between linguistic and biological diversity. For example, a tropical area has wealthier biological diversities, and also has various kinds of minor languages.

However, these co-relationships have already been argued at the Rio Summit in 1992, and as the official records, validity of traditional knowledge is confirmed for a preservation of biological diversity (Rio Declaration, Agenda 21, Convention on Biological Diversity, 1992). As Maffi points out, the first controversies of close interrelations between biological, linguistic and cultural diversity go back to the international conference at Belem, Brazil in the 1988. After all, ethnological biology or ecology found in each region continues to be investigated, and the role of “indigenous knowledge”, especially an importance of its relationship with nature and environment, has been apparent. The traditional kind of knowledge is “about plants and animals, habitats, and ecological functions and relations, as well as about the low environmental impact, and indeed sustainability – historically and at present – of many traditional forms of natural resource use” (Maffi, 2007, p. 268).

The statement comprehends an important issue such as “sustainability”. Looking back in a history of human activities, human beings have taken root in a community and lived by using nature around them. This structure, in turn, can be thought and regarded as the idea that human beings have preserved biological diversity in various ways. What that means is, in other words, we have been faced, sometimes tamed, or sometimes continuously practiced the domestication and cultivation against “spontaneous” natural resources. At the basis of these implementations, there is traditional “indigenous knowledge”, which has developed under the consciousness of co-existence with nature. Therefore, it never depletes nature because the knowledge fundamentally consists of the relationship with nature, and hence sustainability can be preserved.

Thus, it is worth arguing about the significance of the diversity: biological, linguistic, and cultural diversity, and those relationships. Maffi exactly advocates this point and moreover continues to validate the importance of diversity conservation. She states, “the sum total and cumulative effect of the variety of local interlinkages and interdependencies between humans and the environment worldwide means that at the global level biodiversity and

cultural diversity are also interlinked and interdependent, with significant implications for the conversation of both diversities (Maffi, 2007, p. 268)”. To be summarized, taking the relationship of biological, linguistic and cultural diversity diversities into account, these diversities should comprehensively be dealt with in order to maintain sustainability of global environment which surrounds human beings.

As a consequence of this section, the study introduces Maffi’s definition of “biocultural diversity”. She determines,

Biocultural diversity comprises the diversity of life in all of its manifestations: biological, cultural, and linguistic, which are interrelated (and possibly coevolved) within a complex socio-ecological adaptive system. The above definition comprises the following key elements: 1. The diversity of life is made up not only of the diversity of plants and animal species, habitats, and ecosystems found on the planet, but also of the diversity of human cultures and languages. 2. These diversities do not exist in separate and parallel realms, but rather they interact with and affect one another in complex ways. 3. The links among these diversities have developed over time through mutual adaptation between humans and the environment at the local level, possibly of a coevolutionary nature (Maffi, 2007, p. 269).

III. Interdependence of Language and Culture

“Biocultural diversity”, advocated by Maffi, introduced in the previous section, is essentially derived from various fieldworks that demonstrate the interrelationship of biological diversity, linguistic and cultural diversity in a tropical area (i.e., the relationship of various kinds of minor languages and various ways of living). There is a basic thought that these diversities are essential to maintain sustainability of the earth and nature. Community-based linguistic diversity is especially important in terms of human activities. In this matter, Maffi (2007) states,

Proponents of this field argue that the diversity of life is comprised not only of the variety of species and cultures that have evolved on earth, but also of the variety of languages that humans

have developed over time. This approach also highlights the role of language as a vehicle for communicating and transmitting cultural value, traditional knowledge and practices, and thus for mediating human-environment interactions and mutual adaptations (p. 269).

From these statements, a different issue is proposed, which relates to the role of language. A mutual adaptation of human beings and environment is made possible by mediation of language. The “environment” means “nature” which surrounds human beings, and it specifically means “nature” which human beings confront with and recognize as an “object”. Here, language accomplishes the mutual adaptation of human beings and nature by transmitting cultural values, traditional knowledge and methods of living. If so, then, what kind of role does language play for human activities? Does the role solely remain as a function of transmission, or rather, because of the function, does language have a role as a part of human cultural formation in terms of a relationship with nature? These are significant issues in the study of linguistic and cultural diversity.

Relationships of language and culture have already been discussed in many ways. This study focuses on some works of the relationships and attempts to inquire into the relationships between them.

Fong (2006), for instance, mentions that “culture is the organization of individuals who share rules for production and interpretation of behavior” (Sherzer, 1987, paraphrased by Fong, p. 214), and “culture is a social system in which members share common standards of communication, behaving, and evaluating in everyday life” (p. 214). As she asserts, a norm as a boundary condition, which determines and transmits human activities, structures an organization as a cultural entity. She also refers to language as “a symbolic system in which meaning is shared among people who identify with one another” and “spoken language is a vehicle for people to communicate in social interaction by expressing their experience and creating experience” (Kramsch, 1998, paraphrased by Fong, p. 214).

According to Fong, a social system, which comprises a norm that prescribes a value to human activities, is culture. People are settled as a member of a cultural community by shared values, and language is “the symbolic system” when people share values in the same

community. In other words, language is an instrument that expresses human thought and behavior and transmits them in a cultural community sharing these “common” values. Also, when people use the “common” language as a medium, the “common” culture is transmitted. Especially, as she implies, “spoken language” is a tool that maintains communications and relationships between people in the same cultural community. Her arguments above point out the situation that culture and language interdepend on each other in a community, and she mentions “both written and oral languages are shaped by culture, and in turn, these languages shape culture” (Fong, 2006, p. 214).

For considering this relationship, Nettle and Romaine (2000) similarly mention that language, as the ultimate symbolic system, functions as a marker of group identity, along with other features such as dress, behavior patterns, religion, or occupation. They reason that language “conveys cultural content that preserves and transmits meanings and experiences shared by the group who use it”. They continue, “because a large part of any language is culture-specific, people feel that an important part of their traditional culture and identity is lost too when that language disappears” (p. 192). From these statements, the significant role of language in culture is demonstrated, and also it is reasonable to understand that each community has own distinctive language.

Likewise, according to Crystal, he quotes that language is broadly defined as follows: “every language is a temple, in which the soul of those who speak it is enshrined” (Holmes, (1860), ch.2, quoted in Crystal, (2000), p. 39). In his own paraphrases, “language underplays the dynamic role which everyone has as an active participant in their culture”. According to him, beside rituals, music, painting, crafts, and other forms of behavior, language plays the largest part of culture. Therefore, he concludes, “ultimately, to make sense of a community’s identity, we need to look at its language (p. 39)”. Here, the important role of language in each community is illustrated, which functions as a key to differentiate some communities from other communities.

An interrelationship of language and culture appears not only in these studies, but also Gay (2006) asserts the relationship between language and culture. She defines culture as “the rule-governing system that defines the

forms, functions, and content of communication” (p. 327), and characterizes language as follows: “the languages used in different cultural systems strongly influence how people think, know, feel, and do” (p. 328). People who belong to cultural systems use language as a communication tool demanded in the system, and the use of language simultaneously means to sustain the system. Thus, different peculiar languages are used in different cultural systems, and those languages form unique cultures. Which in turn means each culture shapes various languages as a means of communication in the system.

As these studies advocate interdependences of language and culture, Brown (2007) develops the argument of the relationships involving human thoughts and actions. Brown defines culture as “a way of life. It is the context within which we exist, think, feel, and relate to others”, and simply put, “it is the ‘glue’ that binds a group of people together” (p. 188). It might also become a template for both social and personal existence in terms of establishing a context of cognitive and affective behavior for each person. Then, people in a community, where they would share cognition and action, are tied up with “something shared” which forms the community. This coherence is guaranteed by culture.

Meanwhile, he advocates that culture is also “our continent, our collective identity... It governs our behavior in groups, makes us sensitive to matters of status”. It is also defined as “the ideas, customs, skills, arts, and tools that characterizes a given group of people in a given period of time” (Brown, 2007, p. 188). That is, people, “glued” by culture, self-restraint own thoughts and actions by selecting the culture, and for that reason, they are aware of a social existence as a community member defined by the culture. Then, people learn a way of thinking, sensitivity, and daily habit defined by the culture in which they live, and in turn, those human activities characterize a community as culture.

What kind of meaning, then, does language have in those cultures? For this question, Brown (2007) mentions “language is a way of life, is at the foundation of our being, and interacts simultaneously with thoughts and feelings” (p. 43). Thus, language becomes a way of life related to an existence of human beings, and at the same time, it prompts human consciousness by belonging

to the thoughts and feelings. That means, language nurtures human recognition, and those interdependences intertwine with human thoughts and feelings. Based on these language roles, he explains the relationship between culture and language as follows: “to be sure, culture is a deeply ingrained part of the very fiber of our being, but language—the means for communication among members of a culture—is the most visible and available expression of that culture” (Brown, 2007, p. 194). Moreover, he points out sometimes cultural patterns of cognition and customs are explicitly coded in language, and language and thoughts are interrelated by culture.

From a viewpoint of language as one of our very features, Dixon (1997) defines language as “the most precious human resource” (p. 116) and mentions that “language is the emblem of its speakers. Each language determines a unique way of viewing the world (p. 135)”, also, “each language encapsulates the world-view of its speakers – how they think, what they value, what they believe in, how they classify the world around them, how they order their lives” (p. 144). In other words, language as a symbol of ourselves determines and defines who we are because people grasp their world through the lens of their determined language, and each language has its own characteristics. Indeed, according to a recent report on endangered languages in the USA, “Each language still spoken is fundamental to the personal, social and... spiritual identity of its speakers. They know that without these languages they would be less than they are...” (Zepeda and Hill 1991, quoted in Dixon, 1997, p. 135-136).

From these discussions, culture is explicitly represented by language, means that language represents culture of a community, and human activity transmitted by this representation produces the thoughts and activities of people as an entity of a cultural community. Thus, it is reasonable to argue that language and culture maintain the mutual relationships. From the perspective of linguistic and cultural diversity, this correlation is legitimate because different people with different languages form different cultures, and also each culture is sustained by means of each language as a way of expression and communication in the culture.

IV. Considerations from Sapir-Whorf Hypothesis

For discussing the relationship of language and culture more closely, this study focuses on the theory of Sapir-Whorf Hypothesis. Edward Sapir and his disciple Benjamin Lee Whorf conceptualized this hypothesis, known as a theory of linguistic relativity. However, this study only discusses the hypothesis in terms of the relationship between language and culture putting aside the theory of linguistic relativity.

Simply mentioned, the theory hypothesizes that language, which each culture embraces, determines the way of thinking and habits of the culture. In other words, the hypothesis claims that human thoughts and behavioral patterns depend on the linguistic habits. For this reason, ways of thinking and behavioral patterns are different in different communities in which different languages are used. In this matter, Sapir (referred in Whorf 1956b) states as follows:

Human beings do not live in the objective world alone, nor alone in the world of social activity as ordinarily understood, but are very much at the mercy of the particular language which has become the medium of expression for their society... The fact of the matter is that the "real world" is to a large extent unconsciously built up on the language habits of the group... We see and hear and otherwise experience very largely as we do because the language habits of our community predispose certain choices of interpretation (p. 134).

The hypothesis implies that human thoughts and the way he/she understands the world by those thoughts depend on a linguistic structure used by the person. Sapir (1961) argues that "the gift of speech and a well-ordered language are characteristic of every known group of human beings" (p. 1), and also "language is a guide to 'social reality'" (p. 68). In this sense, Nettle and Romaine (2000) defines language as "a uniquely human invention" and mentions that "language is what has made everything possible for us as a species: our cultures, our technology, our art, music, and much more. In our languages lies a rich source of the accumulated wisdom of all humans... Each language has its own window on the world. Every language is a living

museum, a monument to every culture" (p. 14). Here, language characterizes every human being and society, and it is based on a notion of Sapir's, "every language is itself a collective art of expression" (Sapir, 1921, p. 240). As people practice and express language as a technique (in his term, "language as a collective art of expression"), the world in which each person belongs is formed.

If so, for every human being, how is language tied up with thoughts and form the world? For this question, Sapir (1921) mentions, "language and our thought-grooves are inextricably interwoven, are, in a sense, one and the same" (p. 232), and continues "languages are more to us than systems of thought-transference. They are invisible garments that drape themselves about our spirit and give a predetermined form to all its symbolic expression" (p. 236). The point here is, as this assertion indicates, that language predetermines expression formed in the mind before it is actually uttered. Language and cognition of people are basically bound up with each person, and when the human mind thinks a thing, it is already prepared implicitly by language in a bottom of the thought. Thus, thoughts are reflected by language, and also each person's language simultaneously affects other person's languages. Then, each person's thought effects and indeed depends on other person's thoughts, so language becomes a transmitter of our thoughts. In short, language of human beings is already embedded in a background of thoughts, and humans are led to understand a reality by the linguistic structure.

Then, one structure comes up when the relationship of language and culture is considered from the hypothesis. The structure is that, when a community uses language, the language essentially prepares human thoughts, and the thoughts determine human activities. Moreover, the thoughts, as a personal action or a personal utterance as a medium, are transmitted to other people and influence their thoughts. Thus, culture of a community is defined and formed by those processes, and hence, culture is determined and structured by language. This structure is in some ways an extreme logic, but the structure of the relationship of language and culture makes sense if we ponder the Sapir-Whorf Hypothesis. Indeed, it may not be denied that language and culture interdepend in a community in terms of transmission of language and

thoughts or culture, although it seems that the Sapir-Whorf Hypothesis somehow works at the bottom of the interdependence. From a different perspective, considering essential and fundamental meanings of the hypothesis, the hypothesis infers the structure that language determines human thoughts and actions, so culture is determined.

Many arguments are found in terms of this hypothetical statement. Chase (1956) mentions, for instance, “language is cardinal in rearing human young, in organizing human communities, in handing down the culture from generation to generation” (p. vi). It implies that linguistic roles are for cultural formations and transmissions. This thought may be connected with the Sapir’s ways of thinking that “the use of language in cultural accumulation and historical transmission is obvious and important. This applies not only to sophisticated levels but to primitive ones as well. A great deal of the cultural stock in trade of a primitive society is presented in a more or less well defined linguistic form” (p. 18). Yet, Sapir positions language more deeply in the core of culture because language has essential and primitive meanings.

Likewise, Whatmough (1957) apprehends one of the functions of language as to segregate and categorize an object from others, and therefore, language specifies an idiosyncratic and inherent culture. According to him, language is also a form of social behavior. What he explains is that “linguistic phenomena are conditioned by the social group, by circumstances which are socially determined – both the linguistic patterns of the community, and extralinguistic group habits” (p. 22). Here, he emphasizes that linguistic expressions and transmissions depend on a social community, and the community is a cultural community that is characterized by a circumstance formed from language and ‘extralinguistic habits’. Thus, not only language is one of the factors determining the community, but this ‘extralinguistic habits’ can also be the factor. Yet, what elements build this ‘habits’? Although he less obviously mentions, considering from the perspective of the Sapir-Whorf Hypothesis, those are language. Those are also possibly some thoughts that come before language is structured.

Additionally, Whatmough (1957) claims that linguistic expressions and transmissions maintain a relationship of a community and mentions that “it has been suggested that

language is a relation, or (better) a means of establishing and sustaining relations between members of a community, large or small – a village or hamlet, or on a world-wide scale” (p. 25). His arguments are similar with the previous discussion of interdependency of language and culture, but rather, this is one of the arguments in a transitional period of the Sapir-Whorf Hypothesis that language is the structural factor of social community and also the form of social activities.

V. Necessity of linguistic and cultural diversity – from the relationship of diversity of nature

In the previous sections III and IV, this study has discussed the relationship of language and culture because this relationship is an important factor to examine a necessity of linguistic and cultural diversity. Premised on the Sapir-Whorf Hypothesis, which tells us that language determines human thoughts and behaviors so culture is determined, this study takes languages as a basis to consider the linguistic and cultural diversity. It is inevitable that the study has not enough evidence to support the hypothesis. Yet, if language and culture are considered as a collective value as the previous section discussed (i.e., language and culture interdepend on each other), the argument is not so different. This section will discuss the diversity from the relationship of human and nature because this study fundamentally started from “biocultural diversity” by Maffi and its basis of sustainability.

This study tries to see the relationship from a viewpoint of the Sapir-Whorf Hypothesis taken as a preposition.

First, two following propositions are set as hypotheses about human activities and culture:

Proposition 1: Human activities form culture
(and civilization)

Proposition 2: Human activities are fundamentally the result of confrontation with nature

Strictly speaking, before the discussion, very fundamental arguments (such as, “what culture is” or “what civilization is”) may be needed for the proposition 1, but here, it is presupposed that a formation of culture is achieved by a formation of community for people to live.

Then, proposition 1 is assumed on the condition that a culture of community of human beings is formed by their thoughts and behaviors of the culture. Similarly, human activities in the proposition 2 embed human thoughts and actions, and this proposition is literally true if these activities are fundamentally generated from a relationship with nature. For instance, all of clothing, food and housing are come from “a desire of living” when people confront with nature. Human beings maintain their lives not directly by the confrontation with nature, but also by devices and systems from primordial ages and sophisticatedly developed modern civilization because these convenient factors secure their livelihood against nature.

Then, proposition 3 comes up, which is based on the premise of the propositions 1 and 2:

Proposition 3: Culture of human beings is fundamentally the result of confrontation with nature

The point here is that what kind of nature do humans confront with in the process of a formation of culture. In spite of the fact that scientific investigates elucidate many aspects of nature, science developments, including technical developments (e.g., some sorts of tools or devices), keep finding new phenomena. It implies that science can only exhibit a part of nature, which in turn infers that it never clearly articulates a whole figure of nature. This means that there may be / are some parts of nature which human beings have not seen yet. Therefore, they have been forming culture by confronting the part of nature that they are able to see or grasp.

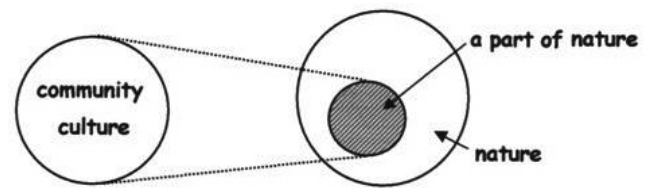
From this consideration, then, the proposition 3 should be rewritten as proposition 3’:

Proposition 3’: Culture of a community is fundamentally the result of confrontation with a part of nature that the community can perceive

Then, culture of a community originates from the result of human activities against a part of nature (i.e., the part which nature shows us). If the culture is considered

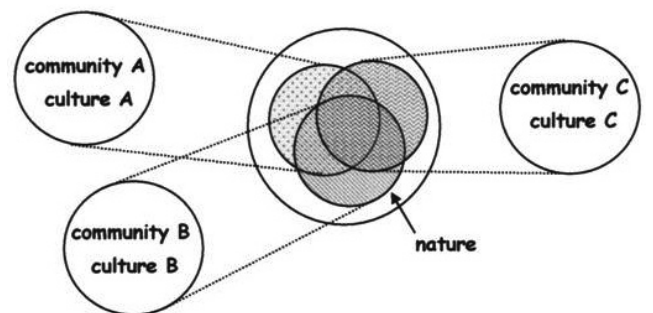
as a set in which human activities are collected, the set corresponds with a part of nature that the community can grasp. In other words, considering the culture as a domain (as a “set” in mathematical term) where human activities of the community are put together, it can be considered as a mapping from the domain onto nature (Fig. 1). Then, proposition 4 is submitted:

Proposition 4: Human culture corresponds with a part of nature projected by human activities



[Figure 1]

As mentioned above, if the culture of the community is formed from confronting and grasping a part of nature, a different community could form its own distinctive culture by the same process. Therefore, each culture of each community should have different projection of a mapping onto nature, and even though they may have some intersections, the projections are not always in accord with each other (as shown in the Fig. 2).



[Figure 2]

The figure 2 implies that different communities form and have their own different cultures by means of seeing and grasping different and various parts of nature. Here, the figure provides a possibility to consider the structure of cultural diversity. As each community confronts with its own part of nature, the different object or thing of each community results in various kinds of human activities of the community, and such diversity reflects on the formation

of the culture of each community. Thus, one of the ways to understand cultural diversity is come from or given by a viewpoint of the relationship of human activities with nature.

Then, it is important to consider the relationship between language and culture. As given in proposition 5, the study applies the Sapir-Whorf Hypothesis to the structure about the relationship between human culture and nature.

Proposition 5: Language determines human activities, so it determines human culture (the Sapir-Whorf Hypothesis)

N.B. For an evidence of the hypothesis, Whorf give the following examples:

- the case of Hopi (tense of verbs)
- the case of Eskimo (naming of snow) (whorf, 1956a, 1956c)

According to their discussions, human actions depend on the language people speak, and in this sense, it shows how language describes the real world. For instance, Whorf examines tense of verbs in the community of Hopi. The study describes Hopi has no tense of verbs, and verb forms are determined by time processes and conditions. The study also shows that not all people seize a notion of "time" in the same verb tenses of "past", "present", and "future". Rather, recognitions of human activities depend on each language they use, and in this point, language determines the real world.

Furthermore, in terms of the relationship between language and nature, Whorf investigates and points out Eskimo's naming of snow. Eskimo has several names to describe snow in a large number of proper names: such as "falling snow (snow flake)", "snow on the ground", "fluffy falling snow", "snow drifted in raws", "drifting snow", and so forth. These expressions are used in accord with the conditions or the situations of snow that they are faced with because the community of Eskimo is required to take appropriate actions for various conditions of snow. However, this does not solely mean that human activities determine language, rather, the first action or thinking of the action toward different conditions of nature

determines the way of activities of the community, and hence it determines the ways of cultural formation. In other words, language prompts the way of thinking when the community determines their actions from different conditions of snow (For the discussion of the hypothesis, Takatori (2013) argues more details on the study of Sapir and Whorf).

The reason why they have some distinctive words for snow could clearly be explained by Pinker's statement. He states "words are tied to reality when their meanings depend, as factive verbs do, on a speaker's commitments about the truth... They are not just about facts about the world stored in a person's head but are woven into the causal fabric of the world itself" (Pinker, 2007, p. 9). In this sense, Nettle and Romaine (2000) similarly advocates:

The vocabulary of a language is an inventory of the items a culture talks about and has categorized in order to make sense of the world and to survive in a local ecosystem... Because languages give individual names to concepts of cultural importance just as they mark certain distinctions in their grammars..., the many languages of the world are also a rich source of data concerning the structure of conceptual categories and a window into the rich creativity of the human mind (p, 60).

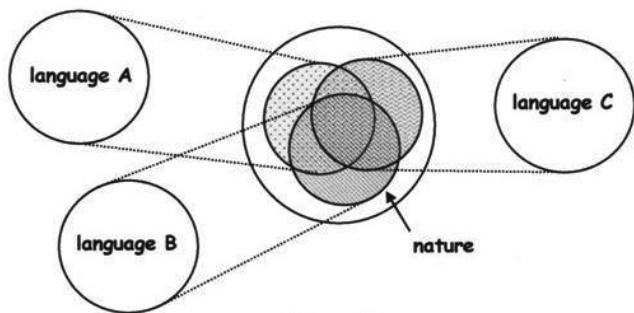
Simply mentioned, each unique culture is reflected in each unique language, and it is the language that tells us who we are because each language is the product of what we think.

Likewise, Crystal (2000) states "each language manifests a fresh coming-together of sounds, grammar, and vocabulary to form a system of communication which, while demonstrating certain universal principles of organization and structure, is an unprecedented event and a unique encapsulation of a world view" (p. 54). As indigenous communities relate and react to the many different circumstances in local environmental conditions, they have developed a very diverse set of responses in lifestyle. Here, he advocates, "it is language that unifies everything, linking environmental practice with cultural knowledge, and transmitting everything synchronically among the members of a community, as well as diachronically between generations" (p. 47). In

other words, each indigenous people connect their cultural knowledge to their languages reacting to a diverse natural environment.

From these discussions, each naming or a whole of each name as language is a very unique ingredient representing a unique perspective of the world and serves the formation of their culture through linguistic expressions and transmissions. Thus, this study treats language as a guide to consider cultural formations.

By applying proposition 5 to the structure of the relationship between culture and nature shown in the figure 1, a community recognizes their life by how they face with nature. For the community, the nature they face is a given part of whole nature, and their activities or behaviors toward nature are expressed by language. This expressed language, in turn, determines the community's activities or behaviors, and hence culture is formed. From the perspectives mentioned above, a set of community or culture in figure 1 is substituted with or replaceable to a set of language. Then, the structure shown in figure 2 should be transformed as: 'human culture corresponds to a part of nature projected by human language', or it can even be said that the visible part of nature is a projection of language of the community into nature. Figure 3 shows this structure



[Figure 3]

that different languages, generated by confronting with nature, are projected into different parts in nature.

Then, how does a community select language for the visible part of nature? The community confronts with nature, and the existence of the community includes a desire for living so the community thinks and selects language and behavior (this might be the fact at least in the beginning). Therefore, the language of the community, human activities, and culture engendered by the language enable the community to optimize the use of nature,

without destroying nature. That is, human activities were limited within the capacity of nature that the community has no desire to overcome. Thus, sustainable coexistence with nature is possible here. It is conjectured that language is dependent on the visible part of nature for a community, and also human activities prescribed by the language maintaining a coexistence with nature and promoting the use of nature within the range of the sustainability of nature.

Meanwhile, it is also an important issue that each community has its own visible and distinctive part of nature, and hence linguistic diversity corresponds with diversity of community as this study has shown. At the same time, diversity of communities' lifestyle depends on the visible part of nature and biodiversity that the community is able to access. Therefore, linguistic diversity represents attributions of nature of each community and determines cultural existence with respect to 'a capacity of nature', so that sustainability of nature is secured. This argument relates to the discussion of Maffi introduced in the chapter 2.

VI. Conclusion

As this study has discussed, biocultural diversity is indispensable for sustainability of nature and also for the earth. Consequently, it is said that subject of each community, regardless of language or culture of community, is a part of nature.

Human beings, accompanied by science and technologies, tend to think that they always have nature in their hands and develop their civilizations. This may connect to, in some ways, a notion that human beings are inclined to suppose they completely recognize and understand nature. If so, it has to say that perceptions of human beings against nature are monocultural. Human beings are never able to recognize all parts of nature even if they command science and technologies. Human beings have been wreaking various global issues like environmental problems as a result of an aggressive intervention toward nature and their misconceptions, "we have nature in our hands".

However, the previous figure 2 implies that there are some invisible parts of nature, which we cannot see, and this is the reason why linguistic and cultural diversity is

important and should be preserved. Although unlimited technological development may be one of the problematic issues we need carefully to look at, it is a different matter that some regions with various languages and cultures do not bask in modern civilization because of the conservation of their diversities. This issue has not discussed in this study, but the significance of preservation of diversity should be continuously argued.

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