Umwelt, milieu(x), and environment:
A survey of cross-cultural concept mutations

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Abstract

This essay explores the historical development of Umwelt and its links with related terms, such as environment, milieu(x), ambiens-ambiance, and circonstances, the latter of which are used by Jakob von Uexküll's predecessors to different ends in France. To observe the conditions in which the concepts of Umwelt, milieu, and environment have crossed the borders, this essay offers a narrative for each word derived from dictionary entries and articles in the encyclopedia of semiotics, and relates these materials to four surveys by Spitzer, Canguilhem, Aarsleff, and Sutrop. The process will basically reveal the loaded value of a word within its national and disciplinary boundaries. However, it is argued that, in making sense out of a discipline like Umweltforschung, it is neither sufficient nor wise to stay within the German boundary. As the travelling of a word has been more purposeful than simply accidental, the history of its routes can reveal its conceptual equivalents hidden in other linguistic, scientific, and cultural constructs, which go beyond the word equivalents compiled in the dictionaries. From the hindsight of the positive receptions of the concept of Umwelt by the French philosophers during the 1930s and 1940s, the essay alleviates the charged hostility against Taine's concept of milieu in Germany and brings forward the sense of biological harmony and equilibrium shared between Uexküll and his French predecessors.

Keywords: encyclopedia; historical semantics; structural semantics; extracoding; biology; system mutation.

1.   Starting from the *OED* and structural linguistics

The *Oxford English Dictionary* identifies *Umwelt* as a loanword from German, and defines it as 'environment' (*Umwelt*, Ger. = environment).[1]

As two linguistic signs, *Umwelt* and 'environment' are used in two different cultures but the equation mark between them creates a relationship of equivalence. In a conventional sense, the formation of equivalence presupposes that the objects on both sides share their properties and qualities and they can be transported to the other side without problem. By imposing an equation mark upon two linguistic signs rather than two objects, the dictionary entry exposes some problems that can be anatomized from the perspective of sign. After we further divide each sign into its signifier and signified, we will find that the signifiers on the two sides are not equivalent at all, while their concepts can be made similar if they function within the medium of translation. *Umwelt* can be substituted with 'environment' when it is transcribed by the concept that it evokes in the English culture. When an English speaker pronounces *Umwelt* in an ideal situation, he or she is supposed to replace it with 'environment' automatically. The sign relationship formed in this situation is more metaphorical than analogical. We can still detect another sign relationship when we keep the signifier *Umwelt* untranslated. In this situation, the mechanism of replacement is annulled and the concept that the signifier evokes is not subject to other alternatives except the ideal one designated by the dictionary. The concept of *Umwelt* will thus be much more restricted to its ideal English prototype; otherwise, the equation mark will collapse.

For the sake of methodical description, Ferdinand de Saussure (1857–1913) takes each natural language as an enclosed and static system. With the distinctions between signifier and signified, language and speech, syntagm and association, each system has been stratified into its phonological, lexical, syntactic, and semantic subsystems. The word *Umwelt* can be meaningfully divided as two morphemes: the prefix *um-* and the root *Welt*. From the Saussurian perspective, the two morphemes constitute a syntagm *in praesentia*, which conceals other associative terms *in absentia* (Saussure 1959: 123). The prefix *um-* evokes other prefixes, the number of which can be limited within the German system, but the root *Welt* as an acoustic image would evoke other terms *ad infinitum*. However, one is not allowed to coin any associations of *um* with those of *Welt*, since the lexical subsystem (the combination of morphemes) is constrained by the phonic and semantic subsystems. Thus, the terms *in absentia* that are lexically and semantically similar to *Umwelt* can be (a) *Umland*, (b) *Umraum*, (c) *Umgegend* and (d) *Umgebung*, while other terms like (a) *Vorwelt*, (b) *Nachwelt*, (c) *Unterwelt*, (d) *Gegenwelt* and (e) *Innenwelt* constitute another series that is lexically the same but semantically different from *Umwelt*. Taken as a lexical semantic unit, *Umwelt* is on the same horizon as the other words and they together form an interdependent chain of linguistic signs in the system. Nevertheless, due to the differences composed

by their sounds and meanings, they are in the meantime mutually exclusive and negative with one another (Saussure 1959: 115).

Roman Jakobson (1896–1982) identifies the dependencies and independencies, the similarities and differences among the linguistic signs as the code that internally binds the addresser and the addressee in the same language (Jakobson 1971: 54–55). Before one includes *Umwelt* in an utterance such as '*Jedes Tier besitzt seine eigene Umwelt*,' the speaker can shift among *Umwelt* and its relevant linguistic signs listed above. There is, on the other hand, an indefinite number of substitutes for *Tier*, as long as they are substantives. When it occurs that *Tier* and *Umwelt* are related on the same syntagm, a message or an idiolect is encoded and the meaning of this message has to be decoded against the totality of potential substitutes. The ability to devise a syntagm is linguistic, based on the socialized property of a language, while the ability to shift among the alternatives on the paradigm is metalinguistic, without which the interpretation and learning of a linguistic sign is impossible (Jakobson 1971: 60–61). Accordingly, it is the German code that distinguishes the value and signification of *Umwelt* from those of other linguistic signs. If one detaches *Umwelt* from its German communal setting, the word will lose its system of similarities and differences and its context of alignment and alternation.

In the light of Saussure's structural semantics, it is not appropriate to translate *Umwelt* as environment and the equivalents in other languages. The apparent reason is that these different languages do not share the same code. Furthermore, Saussure insists that the value of a linguistic sign cannot be translated, even though another linguistic sign in another language carries the same inflected form or meaning. The value is entirely attached to the environment where a linguistic sign finds its place (Saussure 1959: 116). Jakobson then indicates that a message will be fruitless and unaffected to the addressee if the addresser does not encode the message in the same language. Without the same code to bridge the fundamental equivalence between the addresser and the addressee, there would be no efficient communication (Jakobson 1971: 55; 1960: 358). It seems the systematic nature of Saussure's and Jakobson's methods stops us from exploring the receptions of *Umwelt* among the European languages. However, when we shift to the positions of other European languages, we have to admit that their lexical subsystems cannot stay the same before and after they address *Umwelt*. Acknowledging the facts of language contact and system mutation, we may take the registers of *Umwelt* in other languages as the interpretations of a new code that ideally affect their subsystems as a whole, no matter how fruitful or futile the changes have been.

2.   One historical project or several uneven communications

Unlike Saussure, who has analyzed the phonetic shifts, minimal semantic units, synonyms, and antonyms of each linguistic sign in its native environment, Leo Spitzer (1887–1960) advocates the shared Western civilization, in which all the European languages claim to find their ancestors in Greco-Roman legacy. Spitzer criticizes the compilations of dictionaries that force the European languages to stay within their borders as follows:

The attempt to explain French or English or German semantic developments only on the basis of the word-material collected in Littré, in the NED, in the *Deutsches Wörterbuch*, must necessarily lead to a fiasco, just as would the explanation of a Racine, a Shakespeare or a Goethe by the philosophy of their epochs alone. 'Romance philology,' 'Germanic philology,' 'English philology,' as these are currently taught, separately, and without any systematic consideration of their roots in (pagan and Christian) Antiquity, are meaningless techniques … All the modern histories, then, cooperate to ignore the history of the semantic word-family in question. There is today no European historical super-dictionary in sight, nor will the specialistic and nationalistic approach to lexicology (hardly likely to subside in our lifetime) allow one even to envisage such an ambitious, but alone satisfactory plan … The splitting up of a field which knew in former times of no national boundaries is, to say the least, anachronistic. (Spitzer 1948: 10–11)

The alternative viewpoint from Spitzer justifies the semantic and emotional stability latent among all the European languages. In his suprahistorical project that traces a word to the time in which we can find many pan-European movements, the history of languages is supposed to couple with the history of ideas at an international scale. Among the international circles, we are asked to observe how the change of concept in a certain word wins the most emotional appeal, 'colors' other words, and gradually attracts them into its 'orbit,' though they are used in different fields and languages (1948: 13). From this holistic perspective, Spitzer sees that a certain word may speak so much louder than others at certain times in history that it attracts them to echo its concept. However, there are also individually or nationally psychological reasons that resist the adoption of certain trendy words.[2] Practicing the idea of a suprahistorical project, Spitzer chains multiple signs like *milieu*, *ambiance*, *circonstances*, *environment*, and *Umwelt* in the same philological circle initiated by the Greek word, περιέχον (*periechon*) in the fifth century BC. These signs respectively take turns leading the formation of literary and scientific discourses in history, but together they form a corpus that is valued within the orbit of ancient *periechon*, which suggests love, protection, sympathy,

and harmony between the container and the contained (1942: 4–11, 206–218).

In contrast with Saussure's method, Spitzer's philological approach has overvalued the Greek prototype but devalued the later linguistic signs in their own specific systems. From Saussure's perspective, he justifies that neither the time nor ethnic unity would determine the value of a linguistic sign. Languages are constantly changing out of accidents and blind evolution. If the characteristic of a certain word persists through time, it may also disappear with time. A word that appears earlier and another that shows up later should be equally valuable in their respective languages. In this sense, it does not make much sense even if one traces the origin of a word back to Sanskrit (Saussure 1959: 215–232).

In addition to the problem of valuing one language over the others, one ideal concept over the other disagreeable ones, one origin over its mutations, Spitzer also tends to smooth out the gaps and controversies in the renaissance of ancient Greek culture and the development of scientific disciplines. Although Spitzer's historical semantics allows the signs to cross their national borders with the idea of attraction and expansion, it has ignored the 'loaded value' of a specific sign within its boundaries and the impact of 'system mutation' when the sign is forced to cross its national and disciplinary boundaries. To further engage the dissociation of a meaning or a concept from its original form and its combinations with other forms in other languages, we still need to come back to Jakobson's communication scheme, in which the addresser and the addressee's pragmatic situations can be localized.

Context 2

Message 1

Addresser ··· Addressee
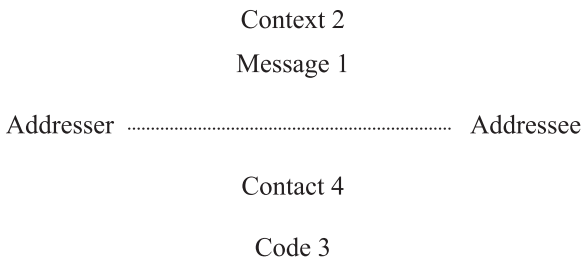
Contact 4

Code 3

Figure 1.   *Jakobson's communication scheme (1960: 353; the numbers indicate the sequential movement among the four elements).*

Departing from the mechanical and well-controlled model, Jakobson argues for the emotive potential in a message that overflows the programmed fluctuation from the addresser to the addressee (Sebeok 1991: 53; Bouissac 1998: 331). In the case of communication within the same

linguistic medium, Jakobson defines the poetic function of message as a result of its interactions with the context and the code; the former stabilizes the message with its referential function while the latter varies the message with its metalingual function (Jakobson 1960: 357; 1971: 55). By highlighting the emotive potential of the addresser, who can encode the message in many different ways within a context, Jakobson somehow constrains the conative potential of the addressee within the shared code and context with the addresser's. The addressee in this scheme is not allowed to deviate from the program set up by the addresser. In appropriating Jakobson's scheme for the following discussion of intercultural and interlingual communications, we ought to revise the shared code as two unevenly developed sets of code. From the position of the addressee, we may well refine the interpretations of a cultural unit as (a) overcoded, (b) undercoded and (c) creative abductions (Eco 1979: 129–142; 1984: 39–43).

3.   The metalinguistic function of code in pragmatic situations

Distinguishing itself from the logics of deduction and induction, which proceed either from the code to the message and stop at the decoded result or vice versa, the logic of abduction allows the addressee to return to his own code after he goes through the decoding process (Eco 1984: 40). The metalinguistic function of code in such circular inferential movement not only serves to substitute a sign for other signs but also enriches the code itself and gives rise to the production of new signs. The addressee can break away from the constrained coding system to the formation of his own discourse (or idiolect), in which he coins his own expression or renews the content plane of a sign with his interpretation of a message. The type of overcoding presupposes that the signs available within the addressee's culture have been so much loaded that they form their specific styles, rhetorics, and connotations. As a system like this addresses a sign, it is able to assign 'additional meanings' to the expression or to form 'analytic subcodes' according to its rule of expectation or ideology. It divides and penetrates into the macroscopic portions of a sign with its convention, but will produce an innovation accepted within the system (Eco 1979: 133–135). Nevertheless, the precondition for both undercoding and creative abduction is the lack of convention of a sign. The sign addressed is strange to the system, but the system still gathers its 'potential codes' by gradually learning from it (1979: 135–136). In the case of creative abduction, the rule of a foreign sign is challenged and revised. It declares the death of a previous code and the invention of a new one, which

governs a different worldview and scientific paradigm (1984: 42–43). Umberto Eco (1932–) has revised the function of code defined by Saussure and Jakobson with the three types of coding, categorized under 'extracoding' (1979: 136). In Eco's term, the code should not be limited within the mechanism of substitution just for establishing a stable equivalence with the addresser. The reality in pragmatic situations is that the addressee applies his various conditions of code to interpret the message and to form his own discourse.

We can carry on the differences among coding, decoding, transcoding, and extracoding after we examine the dictionary and encyclopedic entries about *Umwelt*. When an English speaker ignores the time and context of words, it does not make any difference to him to substitute *Umwelt* for (a) environment or its synonyms like (b) environs, (c) conditions, (d) surroundings, (e) area, (f) structure and (g) pattern, as long as these words have been preconceived in his language and fulfill the immediate demand of transcoding. However, *OED* decides to equate the two language systems upon an economic formula, *Umwelt* = environment = the outer world, in which the two English *definientia* arbitrarily reciprocate the concept among the three terms. The process of decoding and transcoding is finished and complete in this formula, but *OED* further provides the time and contexts that are supposed to help generate the formula. Observing *Umwelt* in the longer syntagms provided, we will find their designations or significations definitely not on the same horizon. The syntagms provided are reorganized chronologically as follows:

1. 'One suggestion which Heidegger undoubtedly intends to convey with *Umwelt* is of a world that is closest and most familiar to man. We shall paraphrase *Umwelt* by "the first and nearest world"' (Magda King, *Heidegger's Philosophy: A Guide to His Basic Thought*, 1964).[3]
2. 'The various species of ants are generally similar to the honeybee in their *Umwelten*' (E. O. Wilson, *Insect Societies*, 1972).
3. 'Modern ethnological conceptions are centrally concerned with representation in such mechanisms as releasers and imprinting, much of it deriving from the originating idea of the *Umwelt* first proposed by von Uexküll' (J. S. Bruner, *Beyond Information Given: Studies in the Psychology of Knowing*, 1974).
4. 'To break out of the circle of the *Innenwelt* into the *Umwelt* generates the inexhaustible quadrature of the ego's verifications' (Jacques Lacan, *Écrits*, translated by Alan Sheridan, 1977).

The guidebook writer in 1 and the translator in 4 both decide to keep *Umwelt* untranslated, while the scientists in 2 and 3 shift to the original

German term in their English writings about animal studies. It is apparent that the syntagms collectively align with the loaded value of *Umwelt* in its German system but debase the decoding and transcoding effort in the formula. *Umwelt* in Heidegger's *Being and Time* designates the world as seen and formed immediately by human beings. However, 2 presents *Umwelt* as the world being formed and shared among animals in nature and 3 highlights *Umwelt* as an original idea from Uexküll (1864–1944), which refers to the mechanism of releasing and imprinting in animals. A far more different type of *Umwelt* in 4 goes to the illusive world as formed by psychosis patients and children. In addition to 'the outer world' generalized in the formula, it shows that the English system is able to collect four more *definientia* for *Umwelt* as (a) the human world, (b) the animal world, (c) the sick world, and (d) the mechanism. Each *definiens* singly establishes full reciprocability with *Umwelt* in its specific context (Eco 1984: 52). However, in the meantime, the *differentia* hidden among the *definientia* disturb the English system as a whole. As soon as we start to interpret the differences among the definitions, the cracked pieces would lead us back to several conflicting discourses, and we will therefore expand the semantic networks in both English and German systems.

4.   The encyclopedic competence of dictionary and encyclopedia

The fracturing sound becomes louder as we check another dictionary, *German Loanwords in English* (*GLE*, Pfeffer and Cannon 1994), in which the source of *Umwelt* is given as the same year and context as *OED*'s (1964, *Philos.*), but the only provided syntagm refers to another different context. It says: 'The complex of edaphic, climatic, and biotic factors that acts upon an ecological community or organism and ult[imately] determines its form and survival.' This definition credits *Umwelt* as a term loaned from the science of ecology and designates it as 'the whole earth' where all the living beings survive. The paradox between the decoding formulas and the multiple discursive endeavors reveals the wide semantic spectrum of *Umwelt*, ranging from the subjective world to the objective outer world, from the reactive mechanism in human beings and animals to the complex of air, water, earth, and species. Although *OED* and *GLE* fail to distinguish the historical events responsible for the semantic shifts of *Umwelt* before the 1960s, they demonstrate 'the encyclopedic competence' of the English system in the 1960s and 1970s (Eco 1984: 74). When formally loaned into the English system at the time, *Umwelt* was learned as a philosophical and technical term in both human and natural sciences, which pursue the theoretical constructs of the inner world and the outer

world. After *Umwelt* becomes detached from its earlier German communal setting, it turns out to be a meaning trigger in the English system, evolving in the ongoing translation and interpretation projects in English.

While he collaborated with Sebeok during the 1970s and 1990s, Thure von Uexküll distinguished two levels of sign processes within the *Umwelt* cycle, the one elementary and the other complex (Bouissac and Sebeok 1987). The elementary sign process is further refined as the organizing signs (*Ordnungszeichen*) and the content signs (*Inhaltszeichen*), both of which function within the inner environment of a living being. The content signs are specifically located in a being's sense organs, which serve to translate the stimuli from the outside, while the organizing signs serve to perceive, locate, and orient the stimuli so that the being reacts properly to the physical world. The interaction between the two types of sign stratifies the specific structures of time, space, color, and sound for a being, each of which serve as a code, constituted by a range of subcodes. The rule of their interactions is governed by the program or the schema stored in the memory of the being, which constantly constructs complex signs out of elementary signs. Based on these hierarchically stratified signs, a biologist starts to question the meaning of a living being and to interpret its various functional circles in relation to its food, sex, enemy, and medium (the physical world where it survives). We are thus informed the analytic subcodes, the style and the concerns of Uexküll's *Umwelt* in retrospect, which were particularly defended by Thure against the penetration of other ideologies.

Although the English system fails to distinguish the historical semantic shifts of *Umwelt* before the 1960s, the *OED* sentence examples somehow conceal another episode of discourse formation during the 1920s and 1930s. It requires an intricate reconstruction of German and French texts so as to expose the harmony or disharmony of *Umwelt* across the border. On the surface, Heidegger, Uexküll, and Lacan formulated *Umwelt* from their respective scopes of phenomenology, biology, and psychoanalysis. The deeper we delve into the substrates, the more pathways or rhizomes we will discover among the three figures, their contemporaries of the same or different interests and those who had expressed their judgments of *Umwelt* in one way or another.

In order to find out and interpret the potential discourses, we may (1) pick up the Ariadne's thread offered by Thure and reach the center of Uexküll's work safe and sound. We may also (2) circulate within the German boundaries delineated by Heidegger's and Uexküll's contemporaries with our favored pathways. Nevertheless, the appearance of Lacan suggests that (3) we are forced to imagine a rhizomatic structure that does not distinguish the French from the German but expands across the

boundaries. In this structure, we will not feel constrained from moving by the threat of historical truth; we will rather, with the aid of literary truth, connect the French and German nodal points. The network we form will not distinguish the beginning from the end, the center from the marginal, and the inside from the outside. Inside the structure, we will be able to move freely from one point to another or return to the point itself. However, as soon as we start to locate upon one line, we will not be able to justify another line simultaneously. If we proclaim that we can form a unitary and consistent view of all the intersecting lines, we will run the risk of producing 'an ideological bias' of *Umwelt* for this concealed episode (Eco 1984: 80–84).

5. Translingual and transcultural communications

5.1.   *Milieu and Umwelt in the history of linguistics and sciences*

Despite the promising methodological foresight, we have to admit that French speakers have to worry about the interpretability of their given terms over *Umwelt* more than English ones. The loaded value of their given terms has stubbornly resisted an easy way out in the history of *franco-germanique* cultural crossings.

It is generally agreed that the term *milieu* in the French scientific communities traveled from mechanism to biology in the plural form (*milieux*) and from biology to sociology in the singular form. It is also believed that these scopes of using *milieu* as a critical tool, achieved respectively by Lamarck and Comte, form a different trajectory from Taine's for the latter's warm reception of mechanism and Darwinism (Spitzer 1942: 175–179; Canguilhem 2001: 7–10). Although both Comte and Taine advocated *milieu* in an abstract and universal sense, the philologist Spitzer claims that their discourses of rationalizing the relationship between men and their external worlds are at odds with each other. Spitzer concludes from their major passages that the semantic distinction between protection and destruction stands between them.

As quoted in Spitzer's survey, Comte, in his fortieth lesson on the unity of biology, revised the concept of *milieu* as the general environment (or society) that protects and enters into union with the development of a living being. *Milieu* in Comte summarized the multiple fluids [*milieux*], such as ether, water, air, and light, the elements that had been supposed to animate a being since Newtonian physics in the seventeenth century. On the other hand, Taine formulated environment as 'the accidental and secondary [folds],' 'the persistent and gigantic pressures,' and 'the external

pressure' that have checked the inner growth of beings.[4] Therefore, Spitzer claims Taine's *milieu* rather than Comte's as an appeal to the French Romantic novelists who depicted the environment as 'all-powerful' but 'mindless' force that eventually victimizes the characters (Spitzer 1942: 176–180). In addition, it was Taine's *milieu* that radiated far and wide among the European languages in the nineteenth century. Taine's *milieu* was loaned to German and used as a parallel form of *Umwelt*, while its concept demanded the coinage of indigenous terms, such as *medio* in Spanish, *ambiente* in Italian, *environment* in English and *keskkond* in Estonian (Kluge 2002: 940; Spitzer 1942: 212–218; Sutrop 2001: 455).

In terms of priority, *Umwelt* is a far later invention than *milieu*. *Milieu* was coined from the old French *midst* and the Latin substantives *medius* and *locus* in the Middle Ages, while *Umwelt* is said to be coined by a Danish poet, Jens Immanuel Baggesen (1764–1826), in one of his German poems, 'Napoleon. An Voß,' written in 1800 (Grimm and Grimm 1936; Kluge 2002; Spitzer 1942; Sutrop 2001). Sutrop, following Spitzer's investigation, identifies the necessity of using *Umwelt* as a spondee to fulfill the metrical numbers in a line of Homeric hexameter.[5] They indicate that Baggesen could have used other synonyms like *Umland*, *Umraum*, and *Umgegend*. However, the perfection of form weighed heavier than the meaning in Baggesen, and thus he had no choice but to invent a new word (Spitzer 1942: 207–208; Sutrop 2001: 455). Although Spitzer suggests the possibility that Goethe's use of *Umwelt* could have inspired the invention of the Danish *omverden*, which is said in other records to be an earlier invention than *Umwelt*, he still leaves the ambiguity about the origin of *Umwelt* by reinstating the medium of invention (in German) rather than the source of inspiration (Spitzer 1942: 207). Checking the text that Goethe is said to use *Umwelt* for the first time, I find that it appears only once, namely, in his *Italienische Reise*, published in 1816 (Goethe 1993: 25).[6] Notwithstanding the fact Goethe's journal was published (in 1816) far later than the period when he traveled and took notes (between 1786 and 1788), it is generally acknowledged that Goethe, after Baggesen, used *Umwelt* in 1816 (Grimm and Grimm 1936; Spitzer 1942; Sutrop 2001).[7]

Based on the occasions on which the two poets employ *Umwelt*, we can remark briefly that *Umwelt* was dear to the German Romantic poets at the turn of the nineteenth century, particularly in their travel writings. Moreover, the impact of Darwinism upon the German scientific body took an alternative route with another neologism, *Ökologie* (ecology), coined from *Ökonomie* (economy) and *Biologie* (biology) by Ernst Haeckel (1834–1919) in 1866. Spitzer suggests that *Umwelt* in the early success of Darwinism still remained much allied with the German Romantic tradition. The poetic and transparent quality of *Umwelt* had

protected itself from being contaminated by Taine's *milieu*, and Spitzer feels that its superiority has sustained well into the twentieth century (Spitzer 1942: 209–210). Nevertheless, *Umwelt* did not become a linguistic and theoretical object in Germany until the early twentieth century. From Sutrop's perspective, he claims Uexküll in particular as the philosopher that has transferred *Umwelt* from an 'everyday term,' used in the sense of landscape or surrounding nature, to a 'philosophical vogue word,' restricted within the scope of a philosophical inquiry of animal and human subjects (Sutrop 2001: 456).

5.2.   *Milieu and Umwelt in the discourses of poetry and biology*

We will find the competition between *milieu* and *Umwelt* even more positionally intense after we compare Spitzer's and Canguilhem's arguments about the word that genuinely attains the biological concept in the French system. In tracing the semantic shifts among *milieu(x)*, *ambiance*, and *circonstances*, Spitzer always returns to his trusted genus, *periechon*, to judge the division, loss, and recuperation of its properties among the species. Canguilhem, on the other hand, reads the scientific discourses methodically and identifies the reasons for their fossilization and mutation in history.

Despite the historical fact that the Roman poets resisted speaking Greek directly, Spitzer finds that the first variation of the concept of *periechon* happened during the Roman age. He finds in Catullus', Ovid's, and Cicero's works the frequent use of verbs like *ambire*, *amplecti*, *circumire*, and *circumfundere* in addressing the embrace of the ocean. From these verbs, we can distinguish two prefixes as *amb-* and *circum-*, the former means to embrace on both sides, both right and left, and the latter suggests a constant circulation. Spitzer argues that the prefix *amb-* should be a better representative than *circum-* to carry the loving and protective implication of *periechon*, though the denotations of *peri-* (first forward, then around) and *amb-* do not go together and the prefix *amb-* tended to be replaced by *circum-* in the historical development of Latin.[8] Without denying either of the two prefixes, Spitzer observes that the property of 'dynamic onrushing movement' of *periechon* was bequeathed to *circum-* while that of warm and loving protection to *amb-*. Neither of them could translate *periechon* fully but they both shared the properties of the Greek term (Spitzer 1942: 13).

From the works of medieval philosophers, Spitzer finds the image of an egg, which, as they say, is attributed to the Greek philosophers, like Anaximander and Aristotle. In the medieval summaries and interpretations of

the Greek texts, the oceanic and earthly image of *periechon* was compared to the eggshell. In addition, the medieval poets believed that it is the benevolent God who surrounds the sky, the earth, the air, the water, and the fire, which, as a whole, are bound together just like the different parts of an egg (Spitzer 1942: 19). The eggshell image can still be found among the Renaissance philosophers like Leonardo da Vinci (1452–1519); somehow, the shell was broadened to be the limit of the universe, with the yolk the center of the universe, which goes to the earth (1942: 6). The dynamism between the earth and the outer space was further complicated by Galileo Galilei (1564–1642), who used *aria ambiente* and *l'ambiente* to describe the stars. After the Renaissance, it was Isaac Newton (1643–1727) who explained *milieu* and *medium* as the elements from the outer space that flow into the earth (1942: 35–36). *Milieux* in this context stand for the multiple ethereal mediums that influence and penetrate into the earth. Spitzer laments over the dissolution of *periechon* at the hands of Newton as follows:

This περιέχον-*ambiens* has suffered peripeties … once the expression of sympathy and harmony between universe and man, it became, at the hands of Newton, a trivial stereotyped epithet applicable to any substance serving in an experiment … To the Greeks, it was space in which mankind was sheltered as in a receptacle, and in the Middle Ages, too, he lived within the confines of a walled-in, God-loved universe. These confines were dissolved forever by the science of the Renaissance. (Spitzer 1942: 198–199)

Because of Newton, the word *medium* became a fundamental term in physics, which refers to the light, sound, fluid, or color that animates a machine or an organic being. It not only shattered the walled-in and self-sufficient being of mankind but also transformed the meaning of *milieu* in the seventeenth century. The mechanical sense of *milieu* was later catalogued in d'Alembert and Diderot's *Encyclopedia*. In the twelfth century, *milieu* was coined for the highlight of 'the mid-point' that reaches either the margin in space or the extremity in time with equal distance, or 'the location' where we can find someone, something, or a city.[9] By appropriating *milieu* in the sense of *medium* (an influence from the outside), Newton endowed a technical and physically causal property to the former.

Milieu underwent a lot more semantic uncertainties when it was intersected by the discourses of physics, medicine, literature, biology, and natural history in the nineteenth century. When Claude Bernard (1813–1878) used this term, he had to distinguish between '*milieu intérieur* (*organique, interne, intime*)' and '*milieu extérieur* (*ambient, cosmique*).' In the controversy between the Goncourt brothers and Taine, the brothers also turned to 'the adjectives' in order to modify Taine's usage, such as '*un certain*

milieu favorable à l'emotion morale' and '*la nature ambiante*' (1863–1891; Spitzer 1942: 182–186). Upon finding the noun form of *ambiante* used by the Goncourt brothers (Edmund Louis Antoine Hout de Goncourt, 1822–1896; Jules Alfred Hout de Goncourt, 1830–1870), who devised '*l'ambiance des milieux*' in 1891 for the first time, Spitzer regains a sparkle for the recuperation of the ancient *periechon*.[10] With this instance, he proclaims that the Greco-Roman tradition was still preserved in the French poets. He concludes:

For, while as we have said, *ambiance* is a spiritual περιέχον, *milieu* is much more concrete, more earth[l]y, more bounde[d], than was that Greek term; thus neither quite represents the concept of περιέχον — a concept which perhaps is forever lost. But, of the two, it is *milieu* which comes the closest to our Greek word; and interestingly enough, it is in *milieu*, this newcomer into the orbit of περιέχον-*ambiens*, that is reflected that ancient idea of the 'shell' ... several centuries later the idea of the receptacle again returns, in the modified form of the biological *milieu* (*ambient*). And when the term was applied to mankind, this same idea was clung to, in spite of Taine, by the people and the poets: *l'habitant et la coquille, l'homme et le milieu*. (Spitzer 1942: 199)[11]

From this conclusive remark, we can find another division of properties of *periechon*, shared by *ambiance* and *milieu*. Following Spitzer, we learn that they both suggest a walled-in existence but *ambiance* has been superimposed with the spiritual love from God. However, it is rather confusing that Spitzer sets out to favor *amb-* as a consistent and harmonious line of *periechon* but he turns out to give the credit to *milieu*. He believes that the sense in which *milieu* had been used in the Middle Ages was revived in the discourse of biology in the nineteenth century and this development hopefully rejoined the conceptual stabilization of *periechon* achieved by *ambiance*.[12] In such a supra-historical project that always recycles the properties of an ancient term, a stunning problem is that Newton's and Taine's *milieu(x)*, though obviously influential across the time and boundaries, have been ultimately excluded from the French system.

Not proclaiming to take a philological approach, Canguilhem proposes an opposing observation about the occurrences of *milieu(x)* in the nineteenth century. He thinks none of the discourses of biology could stay clean from the influences of Newton's and Taine's *milieu(x)*. The revival of the original sense of *milieu* has to be postponed until the early twentieth century, the time when Uexküll redefined *Umwelt* for his unique purpose. Canguilhem reflects upon the complication as follows:

It is more due to Taine than Lamarck himself that neo-Lamarckian biologists in post-1870 France ... use this term [*milieu*]. They get the idea, in a sense, from

Lamarck, but the term as an abstract and universal one comes to them from Taine ... In short, even a summary history of the importation of the term 'milieu' to biology in the first years of the nineteenth century brings out the initial, strictly mechanistic use of the term. If the hint of an authentically biological acceptation and a more flexible usage appears with Comte, it immediately succumbs to the prestige of mechanics, an exact science that bases predictions on calculations. The theory of *milieu* appears clearly to Comte as a variant of the fundamental project that the *Cours de Philosophie positive* seeks to fulfill: the world first, then man; to go from the world to man. If the idea of the subordination of the mechanical to the vital is assumed, as *Le Système de Politique positive* and *La Synthèse subjective* later suggest [in the form of myths], it is nevertheless [deliberately] rejected [after due consideration]. (Canguilhem 2001: 7–8, 11)

Canguilhem makes it clear that the mechanic tradition of *milieux* since the seventeenth century still stubbornly occupied a place at the bottom of scientific discourses of the nineteenth century. In other words, he does not believe that the real biology appeared at the time, though Lamarck and Comte both attempted to alienate from mechanism and approach vitalism in their own ways. Mechanism and vitalism seem to be opposing camps in the nineteenth century, but Canguilhem does not find a big gap between them either. They both drew their ideas from the Aristotelian concept of animal-machine, which construes a living being as a built machine triggered by the forces from its medium, environment, or geographical location. Even though Lamarck proposed to define life as a collection of functions that transform and outlive life itself, the neo-Lamarckians decided to return to mechanism in the tradition of Newton and Taine. As a whole, Canguilhem thinks the various uses of *milieu(x)* in the nineteenth century cannot avoid the paradox of using the surrounding world to define the center of life. What is worse, he suggests that the symbolic connotation of *milieu* had been worn out in the crossings between vitalism and mechanism. Their numerous revisions of or regressions back to the mechanical sense had emptied out the content of *milieu(x)*. *Milieu* became nothing but 'a pure system of relationships without supports' and it evoked nothing other than 'a position indefinitely denied by exteriority.' From this perspective, we find Spitzer's optimism about *milieu* and his binary distinction between destruction and protection fail to uncover the consumed *milieu(x)* in the French system. Canguilhem's closer look into the scientific discourses reveals the potential perspective to subscribe Lamarck, Comte, and Taine under Newton.

Canguilhem indicates further that we should not ignore the alternative terms that the so-called biologists have adopted in their discourses. The terms like *circonstances*, *ambiant(e)*, and *ambiance* appear in their rationales as well, which, on the one hand, avoid the tumults of *milieu(x)* and,

on the other, offer a clue to access the controversy between Lamarck and Darwin, between naked vitalism and evolutionism. In this alternative discourse, *circonstances* is the target term that is translated as 'conditions' or 'circumstances' in the English system. Even though the philosophers have created confusions for *milieu*, they never used *circonstances* and others to designate the center of life. 'A sphere or a circle' is the precondition for such terms like *circonstances*, *ambiant(e)*, and *ambiance*. They presuppose a circle, from which a living being starts to radiate and expand. Based on the distinction between the uncertain transmission (like *milieux*) and the centrifugal radiation, Canguilhem declares the preservation of a 'symbolic value' in *circonstances*, etc. (1989: 134; 2001: 11). The center of life construed with these alternative words will not be harshly denied by exteriority. It is rather constricted but still changes flexibly and appropriately when it interacts with the external world. Nevertheless, whether the external world is the primal cause for the change of the inner world was still the charged controversy between Lamarck and Darwin.

6.   Rereading *milieu(x)* in biology in the light of structural semantics

A closer look into *Philosophie zoologique* (1809) will reveal the causal structure, the competence and the overlapping concept of each term in Lamarck's discourse. Lamarck declares in his preliminary discourse that the naturalists should start from the division of an entity into its smallest parts so as not to ignore any details. The work of anatomy will reveal the structures of the organs and their specialized functions, based on which the naturalists start to perceive the things that an animal needs in its environment and the ways that its actions reassures those needs. He agrees with his contemporaries about the influence of the physical on the moral, but he attempts to investigate on how the inner needs (not the sensation) may change the physical appearance. However, regarding the production of new needs and the use and disuse of organs, he thinks they should be explained with the new cycle made in a new environment, which goes on to change the need, action, habit, and inclination of an animal (Lamarck 1984: 9–14). Although he advocates the anatomy of organs, he does not think that the organs themselves are autonomous enough to generate the needs that may consequently change the habits of an animal. In chapter seven of the book, which is about his argument for the physical-biological relevance of *circonstances*, Lamarck says:

As to the conditions [*circonstances*] which have so much power in modifying the organs of living bodies, the most potent doubtless consists in the diversity of the

places where they live [*des milieux dans lesquels ils habitent*], but there are many others as well which exercise considerable influence in producing the effects in question. (Lamarck 1984: 111)

This remark shows that *milieux* are one among the subcategories of *circonstances*, but they are the most powerful ones to exercise a change of needs. Among the many other motivators of change, we can still find that the weather, the water, and the foods, etc. are generalized in the terms like 'the state of things' (*l'état des choses*) and 'nature' (*la nature*). Lamarck trusts that all the subcategories under *circonstances* exercise their influences upon animals with the highest degree of accuracy in the course of time (Lamarck 1984: 114). He somehow transposes *les milieux* to designate the inner environment of an animal, but he still much enhances his thesis about the powerful geographical *milieux*. The inner environment of an animal is therefore subject to constant changes whenever it moves or shifts to new places of survival. Lamarck ruminates:

The substance of sound, that namely which, when set in motion by the shock or the vibration of bodies, transmits to the organ of hearing the impression received, penetrates everywhere and passes through any medium [*traverse tous les milieux*], including even the densest bodies: it follows that every animal, belonging to a plan of organization of which hearing is an essential part, always has some opportunity for the existence of this organ wherever it may live [*dans quelque lieu qu'il habite*]. (Lamarck 1984: 116–117)

The above reasoning reflects Lamarck's belief in the irresistable and unavoidable modification of organic *milieux* by the Newtonian physical *milieux*. As long as the physical *milieux* find any chance to pass through the sensual organs of an animal, they will become even stronger to alter the organs. The immediate result of this modification is a change of 'habits' (*les habitudes*, *sa manière de vivre*), which has been methodically structured as the intermediation between the organic and physical *milieux*. The naturalists may immediately notice the change of actions and habits, but it takes a longer time for them to observe that of organs and needs. *Les circonstances* have been active throughout the life of an animal, while its organs stay comparatively passive. Lamarck's idea of need, though claimed to be the center of life, is actually an end product after a long period of observation.

We can go on to discover Comte's use of the target terms and his revision of their concepts in his fortieth lesson on biology in *Cours de Philosophie positive* (1838). He indicates that *milieu* will not become the goal and object of biology unless the philosophers remove some false conceptions. From his perspective, he sees that the philosophers should not

endow imaginarily-independent laws upon the outer world (*la nature ambiante, le monde extérieur, les circonstances extérieures*). He thinks neither the organs nor the surrounding circumstances (*les circonstances ambiantes*) singly determine the life and death of organisms. Instead, life survives because of a certain systematic harmony between a living being (*l'être vivant*) and its adequately corresponding environment (*le milieu correspondant, convenable, spécial*). The organism constantly reacts to the surrounding system (*réagir sur le système ambiant*) according to its own benefit (Comte 1908: 151–153). Comte also finds it inappropriate to take the isolated elements in the outer world, such as air and water, as the intermediation between the organic and the inorganic (1908: 161–62). For him, the outer world is a system, in which *milieu* should be justified as a neologism that summarizes all the diversities of the outer world and is necessary to every given organism (*l'ensemble total des circonstances extérieures, d'un genre quelconque, nécessaires à l'existence de chaque organisme déterminé*, 1908: 158). Furthermore, he proposes to supplement a different concept of intermediation accordingly. He reinstates:

There will be therefore little inconvenience to adopt here the word *function* in its most ordinary meaning, even though it would be most reasonable to attribute all the philosophical implication to this word when one employs it to designate the total results of the reciprocal action, continually exercised between the organism and the environment. (Comte 1908: 159; italics in the French text, my translation)

We can find from the above remark that Comte attempts to situate the function, defined as the total results of action, as the intermediation between the inner and the outer worlds. In this context, the motivator of life comes from the living beings themselves. It is a living being that acts out its corresponding, adequate, and special *milieu* in harmony. Comte thinks that the preliminary task of biology is to provide a general theory of organic *milieux* (*la théorie générale des milieux organiques*), but he laments over its lack and imperfection among his contemporary physiologists (Comte 1908: 161–162). Despite his idea to come up with an abstract theory of organic function that reacts properly to the outer world, Canguilhem finds from Comte's forty-third lesson (on the general study of plant and organic life) the diversification of function as some variables, such as weight, air and water pressure, heat and chemical elements (the Newtonian *milieux*) that can be experimented with and measured quantitatively, which just frustrates his attempt to conceptualize function in a qualitative sense in the fortieth lesson (Canguilhem 2001: 11).

The comparative reading of Lamarck's and Comte's concepts of *milieu(x)* and *circonstances* helps us appreciate the reason why Darwin

thinks Lamarck has misconceptualized and overemphasized the power of external conditions. Darwin does not believe that external conditions can be the only cause for the variations of physical appearances and organs (Darwin 1964: 3). His idea is closer to Comte's, which construes the environment as a system in which an animal changes itself in relation to its own and other competing species. The bigger the number of competing species within the same environment, the faster and the more obvious the mutation will be. If an animal stays in an isolated environment, it becomes rather static, though the animal has shifted its locations for water and food. It is also the idea of 'interdependence' between the inner and the outer, between one species and the others within a given system, that Darwin highlights in his theory of natural selection. For him, natural law has been prescribed but the value of any change will not become comprehensive until we realize the 'correlations of species' that live in the same environment.

As to Taine, we may find it strange to align him with the naturalists, physiologists, and biologists in the nineteenth century. However, the entry on *milieu* in the *Dictionary of Philosophy and Psychology* groups Lamarck, Comte, and Taine under the same category. They are identified as three major figures that propagate *milieu* as a scientific term and contribute to its circulation among the scientific disciplines (Baldwin 1925: 78). In addition, from Taine's letter to his friend about the rejection of the first three volumes of *Histoire de la littérature anglaise* by *Prix Bordin* at the French Academy of Sciences (Taine 1904: 189–190), we can find his enthusiasm to claim his work as a physiological-chemical investigation into the laws of humanity in history. He thinks he has also offered a guideline for the study of history in the future. He justifies his position:

Only thanks to our philosophical idea that we become valuable, we live, we work [and] we fight. Or what I actually want to say is that all our sentiments, ideas, and the states of human soul are the products, which have their causes and their laws, and all the future of historical study consists in the search for these causes and these laws. To assimilate the historical and psychological researches into the physiological and chemical ones is my objective and my principal idea. Although the two classes of facts are of different order and dignity, I do not say contradictory things about them. As to the way of generating [their assimilation], I have spent ten years to prove their resemblance. (Taine 1904: 305, my translation)[13]

It is not surprising to detect some paragraphs in the work in which Taine digresses to reflect upon the resemblance between human creative activities and the life and death of plants and animals. He thinks the artists and writers in each geographical area and historical period have been

seized with the desire to express their shared ideas of 'nature and life'. If the artists in certain periods do not have the vitality to express their thoughts, they will just copy or fall into silence or delirium. The cycle of these patterns is just like the blossoming and withers of flowers. When a new idea of nature and life transpires in history, it will definitely lead to a blossoming of literary expressiveness. Therefore, Taine believes that the undying success of Homer, Chaucer, Dante, and Shakespeare, etc., is a result of their extraordinary instincts and insights of physiology and psychology. The natural and human laws in history should have been causally connected with each other: the artists 'create as nature creates' and '[w]hoever plants the one, plants the other; whoever undermines the one, undermines the other' (Taine 1895: 159, 355–356).

However, Taine's thesis that the human nature and soul is subject to modification or undermined by its surroundings has been the target of criticism, especially by those scholars in the German system. In addition to the criticism on the derivative and non-transparent quality of *milieu*, Spitzer exclusively draws our attention to Taine's idea of the geographical *milieu*. It is true that Taine applies the concept in geology to construe the human nature (*le naturel*) as the primitive and permanent fold, which can be superimposed and deformed by the secondary and accidental folds in nature (*la nature*) or the physical, social, and political circumstances (*les circonstances physiques, sociales, politiques*) (Taine 1892: xxvi). The idea of pressure from the outside that compresses and transforms human beings into multiple cultural constructs sounds the least agreeable to Spitzer. Nevertheless, Spitzer cannot deny that Taine's theory has been widely influential across the national and disciplinary boundaries. We may wonder about the perspective that helps us generate the positive value of Taine's *milieu* theory, if we do not go after Spitzer's philological project of *periechon*.

Another linguist, Hans Aarsleff (1937–), reminds us that we should not treat *milieu* and *circonstances* in Taine as isolated indexes. They have to be interpreted in relation to race (*le race*) and time (*le moment*), as Taine himself reinstates (Aarsleff 1982; Taine 1892: xxxii–xxxiii). Following this orientation, we can find that Taine has actually conceptualized *le race* and *le milieu (donné)* as 'a contract' and 'a system in equilibrium' while *le moment* or *l'histoire* as a psychological mechanism that changes the value of the system (Taine 1892: xxv, xlv). By further supplementing the historical contexts and encounters between Taine and Saussure, Aarsleff argues for the interplay between synchrony and diachrony in the *Histoire* project.[14] *Le race* and *le milieu* form such an arbitrary relationship that helps define the ethnic, linguistic, and cultural types. It is diachrony alone that introduces variations or mutations to each type. Aarsleff also argues

Table 1. *A table of terms used among the three theorists of milieu(x) (compiled by the author)*

Lamarck	Comte	Taine
les besoins (the needs), les milieux (the organs, the mediums)	les organisations (the organizations of organs), les milieux organiques	le naturel (the primitive human nature)
les habitudes (the habits)	la fonction (a totality of reciprocal actions between the organism and its milieu)	le milieu, les circonstances physiques, sociales, politiques (the secondary nature)
les milieux (the places), les lieux (the places) les circonstances (the natural surroundings)	le milieu (a totality of outside circumstances), les circonstances ambientes	la nature, le milieu, les circonstances environnantes (the accidental nature; the geographical world)

that the *Histoire* project explains Taine's effort to bring the two perspectives of natural history together, the one static and ahistorical advocated by Georges Cuvier and the other evolutionary by Étienne Geoffroy Saint-Hilaire (Aarsleff 1982: 362–363). Broadened and interpreted in the scopes of structural linguistics and evolution theory, Taine's *milieu* theory explains the rise of scientific approaches that favor system-specific thought. It becomes pointless to debate which is more central, life or the environment, or, which of the two is stronger and governs the other. After they are brought together as an established and static system, they can only moderate each other with their given devices but cannot renew themselves. It is the factor beyond and outside the system that is able to initiate a stark change (Aarsleff 1982: 364–365).

In response to Spitzer's story told for the poetic discourse, we find his favor with *ambiance* explains only partially the linguistic phenomenon and methodological pursuits in the discourse of biology. As we can tell from the three subsystems prescribed by Newton (table 1), the terms *milieu*, *milieux*, and *circonstances* are taken as potential substitutes for each other when nature or the outer world in general is addressed. The adjective *ambiant(e)* can be attached to all of them or other substantives to designate a more enclosed and focused living environment. Unfortunately, the noun form *ambiance*, coined by the Goncourt brothers in 1891 and favored by Spitzer, is not yet adopted in the biological discourse throughout the nineteenth century. However, Comte can still rationalize well the concept of harmony by shifting among *ambiante*, *circonstances*, and their combinations. Although Comte rejects the use of *milieux* when he addresses the outer world as a proper object for biology, he still keeps

this usage when he addresses the inner organic world, as Lamarck has done. The *milieu* in Taine is refined as two levels, the one human construct and the other the geographical world, and the term *circonstances* has never been forsaken as its qualified substitute. If one detects a destructive notion of *milieu* in Taine, this notion can die down when he/she generates its meaning in relation to its concealed terms like *le race* and *le moment*. *Milieu* gains its value in the French scientific system by becoming an abstract term to present the systematic approach advocated by Comte and Taine. A holistic view of methods in the system will ignore Spitzer's partial differentiation between destructive *milieu* and protective *milieu*.

7.   The renewal of the French system by Uexküll's *Umwelt*

Although the French theorists have invested an abstract sense upon *milieu*, which enables them to carry out their methodological pursuits, Canguilhem argues that neither *milieu* nor *milieux* is sufficient enough to address 'the indivisible totality of organism and environment' (*la totalité indivisible de l'organisme et du milieu*) (Canguilhem 1989: 149). This suggests that each of the terms has been loaded and overcoded to carry only one biased portion of the biological whole. Canguilhem hopefully identifies Uexküll's *Umwelt* as a new code, which is able to bring about a change in the French system. He says:

After three centuries of experimental physics and mathematics, the word *milieu*, which signifies the environment in physics at the beginning, returns to signify the center because of physics and biology. It comes back to mean what it means originally. The physics is a science of fields, namely many milieus. But we have found that if there is the surrounding world, there should have been the center. It's the position of a living being that constantly refers to the experience in which it lives as a whole, and endows the meanings of its existential conditions to its *milieu* ... Using the surrounding world to explain the center may seem a paradox ... Finally, the relationship between organism and *milieu* finds itself reversed in Uexküll's studies of animal psychology and Goldstein's studies of human pathology. One and the other make this reverse with a clear mind that comes to them from a completely philosophical point of view to observe the problem. (Canguilhem 2001: 19)

Uexküll and Kurt Goldstein (1878–1965) work in two different domains, but their works mean the same thing to Canguilhem that have contributed to the reversed meaning of *milieu*. Uexküll in the twentieth century fulfills the belated need in the French system to return to the original sense of *milieu*, in the middle of a place.[15] In a philological sense, the tradition of a subjective, warm, and flexible *milieu*, which is forgotten but

recovered by Canguilhem in the 1940s, conjuncts with the German tradition of *Umwelt*, which has been well-immersed with humanistic concerns over the world and living beings since the nineteenth century. In order to elaborate a genuinely biological discourse for both animals and human beings, it seems Canguilhem ignores the problem of political ideology by bringing in a German term right after World War II. However, the problem of ideology comes up again when Canguilhem himself and others in the twentieth century make their own choices whether they would translate *Umwelt* as *milieu* or not. If *Umwelt* is translated as *milieu*, it still has to be engaged in the three hundred years of experimental physics and mechanics in the French system. If it is kept untranslated, as the philosophers and scientists have done in the *OED* sentence examples, it is more likely to avoid the loaded French system and to remark a new scope of scientific investigation. Beyond the historical problem of overcoding in the French system, *Umwelt* as a new code goes on to be challenged and modified by *milieu* and other sciences that rise up in the twentieth century. The French philosophers continue to assign their analytic subcodes to *Umwelt* from their discursive positions, and the results of their creative abductions may lead to a renewal of *milieu* itself.

Notes

1. *Oxford English Dictionary*, 2nd ed., s.v. 'umwelt.'
2. Saussure thinks the shift and modification of a phoneme is more valuable than the vague psychological reason.
3. The first English translation of *Sein und Zeit* was published in 1962.
4. Spitzer identifies the three expressions in French respectively as '*les plis accidentals et secondaires*,' '*ces persistantes et gigantesques pressions*,' and '*la pression du dehors*.' These metaphors prove Taine's reception of geology, which is also quite common in Darwin as he analyzes the intermittent layers formed by earthly catastrophes. The translation in Adams puts '*plis*' as 'tendencies' (1971: 608), which just effaces the direct link to geology.
5. The spondee is a metrical foot that consists of two long or stressed syllables; hexameter is a line of verse, which consists of six metrical feet. *Umwelt* in this verse is referred to the reflection of a heavenly castle on the earth but felt to be the fate-hell of poets: '*Und es verwandelt die Fluth in Feuer sich, Nebel in Nordlicht, / Regen in Strahlenerguß, daß von fern erscheinet der Umwelt / Ein' ätherische Feste die Schicksalshölle des Dichters*' (complete quote in Grimm and Grimm 1936: 1259; Sutrop 2001: 454; incomplete quote in Spitzer 1942: 209).
6. Goethe addresses *Umwelt* in the neutral sense of surrounding nature. He thinks that the movement and the open air in nature do not stop his poetic thoughts at all but give rise to them more quickly: '*Der Tag ist so lang, das Nachdenken ungestört, und die herbstlichen Bilder der Umwelt verdrängen keineswegs den poetischen Sinn, sie rufen ihn vielmehr, von Bewegung und freier Luft begleitet, nur desto schneller hervor*' (complete quote in Spitzer 1942: 209; incomplete quote in Grimm and Grimm 1936: 1259; mentioned with a summary in Sutrop 2001: 455).

7. Since Baggesen's 'Elegy to Napoleon. Dedicated to Voss' has not been analyzed as a whole and the writing, editing processes, and the potential traveling routes of Goethe's *Italian Travel* have not been identified at the moment, I still keep the puzzle left by Spitzer about the origin of *Umwelt*.

8. The *Oxford English-Greek Dictionary* identifies the equivalent substitute of *amb-* as another Greek prefix, *amphi-*, which is used, for example, in *amphithéâtre*, the semi-circle theatre.

9. From the *Dictionnaire de l'Académie française*, I find the sentences that contain the original sense of *milieu*: '*Ce monument orne le milieu de la place. Le milieu du fleuve marque la frontière entre ces deux États. Le milieu d'un segment de droite. Nous voici justement au milieu de la forêt. Cette ville est située au milieu de la France. Point qui est également éloigné des deux termes d'un espace de temps. Vers le milieu de la nuit*' (9th edition, available online at http://atilf.atilf.fr/academie9.htm).

10. Emile Littré's *Dictionnaire de la langue française* (1877) shows that *ambiance* had not been used before the Goncourt brothers. Only the adjective form *ambiant(e)* was widely used before the blossoming of noun form.

11. Spitzer hereby refers to Comte and the Goncourt brothers.

12. Spitzer indicates the historical rule of conceptual formation in his survey. He believes that one always freshly represents his idea with a verb, and later on, its noun form or adjective form may serve to modify another noun. Therefore, it is the noun form rather than the verb form that provides an index to observe the reception and stabilization of certain concept.

13. '*Nous ne valons, nous ne vivons, nous ne travaillons, nous ne résistons que grâce à notre idée philosophique. Or la mienne est que tous les sentiments, toutes les idées, tous les états de l'âme humaine sont des produits, ayant leurs causes et leurs lois, et que tout l'avenir de l'histoire consiste dans la recherche de ces causes et des ces lois. L'assimilation des recherches historiques et psychologiques aux recherches physiologiques et chimiques, voilà mon objet et mon idée maîtresse; que les deux classes de faits soient d'ordre et dignité différents, je n'y contredis pas; mais quant au mode de génération, j'ai passé dix ans à prouver la ressemblance; je te donne ma parole que j'ai jamais songé en écrivant à faire du scandale; j'ai toujours cherché l'expression la plus exacte, la plus nette, bref la formule; je n'ai jamais cherché autre chose*' (written in Paris, dated 14th May 1864, to Mr. Cornélis de Witt).

14. Sutrop, the Estonian linguist, summarizes Aarsleff's survey on Taine-Saussure link in passing, but he decides to ally with Spitzer's philological approach, and thus abandons the structuralist approach (Sutrop 2001: 455).

15. Spitzer and Canguilhem agree upon the original sense of *milieu*, but Spitzer takes *Umwelt* as a self-sufficient and transparent entity, which has been able to resist against the spread of *milieu* since the nineteenth century. In the 1940s, Spitzer still sticks to the poetic tradition of *Umwelt*; his project does not allow *Umwelt* to be loaned into the French culture (Spitzer 1942: 209–210).

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