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Towards a Reconstruction of the Logic of *Basho*

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Introduction

My aim is to reconstruct Kitarō Nishida's *logic of basho* using contemporary non-classical logic. In this essay, as part of that process, I aim to interpret the concept of *basho*, as it originally appeared in the essay *Basho* (1924), as a *phase space* – a kind of multidimensional set – or the power set of said space. I will adopt the idea of phase space (or its representation in purely logical terms, the possible worlds model) as the model for the reconstruction of the logic o*f basho*.

The logic of *basho* in the essay "Basho"

Basho is an ontological category introduced by Nishida in the essay "Basho." In this essay, Nishida rephrases the concept or the fact of *being [aru]* in terms of "[being] in the *basho*," and articulates "something that is (something that exists)" in terms of the two relational concepts (facts) "that which is in" and the "*basho* wherein it is". Nishida's claim is that the latter is more ontologically fundamental than the former.[2]

[1] *Translator's note*: I would like to thank Professor Deguchi for agreeing to have his essay translated, and Shunichi Takagi for carefully reading a final version and offering invaluable suggestions and corrections.
[2] Nishida 1949, 223, 225, 231, 234.

Nishida explains the concept of *basho* with the aid of modern technical vocabulary –specifically, that of Leibniz's logic of containment. Briefly, the logic of containment understands sentences (or propositions or even judgments), for example, "humans are animals", as having a structure (the subject-predicate structure) in which the grammatical subject ("humans") and the predicate ("animals") are tied together by the copula ("are"), and the truth or falsity of the sentence is determined by the connection between the subject and the predicate. What is here called the subject is (compared to the predicate) a particular concept, while the predicate (compared to the subject) is a general concept; between both, a relation of containment (the latter *contains* the former) is established. As in other of his works, in "Basho," Nishida consistently uses the logic of containment.[3]

The logic of containment posits a series of concepts in which each posterior, more general concept contains the earlier, more specific one—for example, "human", "animal", "living being", and so on. Nishida thinks that, in such a series, the directions of both particularity and generality continue infinitely[4] and ranks his *basho* as the end point on the side of generality of this infinite sequence, in other words, as the utmost limit of the "generality of containment"[5] or the "extremity of predication."[6] At the same time, he claims that only when *basho*, which is the limit of generality, contains all the concepts appearing in the infinite sequence can the relation of containment among neighboring concepts be constituted. In the logic of containment, the constitution of the relation of containment between the subject and the predicate is a necessary condition for the sentence to be true. Accordingly, *basho* also serves the role of guaranteeing truth.

Basho is taken to be, then, a foundational concept not only in ontology and logic, but also in epistemology. Instead of the definition of *knowledge* as the agreement of the proposition (or subject) and thing (or object) or as the constitution of matter through form, Nishida thinks of it as the constitution of "knowledge as self-awareness" by means of the containment of the more particular

[3] Nishida 1949, 229, 240, 262, 272f, 277.
[4] Nishida 1949, 284.
[5] Nishida 1949, 269.
[6] Nishida 1949, 270.

(concept) in the more general (concept).[7] In this case, the contained *particular* corresponds to the *content of knowledge*, while the *general* corresponds to the *knower*. The *basho* that underlies the relation of containment thus acquires the function of constituting knowledge as well.

Although in *basho* the "universal of judgment," "universal of self-awareness" and "noumenal universal" of his later years do not appear, *basho* is differentiated into three parts, or three levels, corresponding to these. In "Basho," the first level is called the "subject-plane", the "object-plane", and the "*basho* of being", the second level is called the "predicate-plane", the "plane of consciousness " and the "*basho* of oppositional nothing", and the third level is called the "plane of intuition", the "*basho* of true nothing," and the "*basho* of absolute nothing." In the present essay, we will label them *first place*, *second place,* and *third place*.

A Contemporary Approach to the Logic of *basho*

In what follows, I intend to transplant the logic of *basho*, which was developed completely within the framework of modern logic of containment, into the tradition of contemporary logic that follows Frege and Russell. More specifically, (1) I will substitute the logic of containment's *subject-predicate* structure with predicate logic's *argument-predicate* structure, and (2), having differentiated the language of logic and the model which is its object, I will use of *phase spaces* and their *power sets* (or their corresponding possible worlds model) as a model for the logic of *basho*.

What is "phase space"? Phase space is a concept originating in mechanics that is represented as a multidimensional Euclidean space (in classical mechanics dealing with *n* bodies (point masses), it has 6*n* dimensions). Let us think of a single object *M*. *M* has, from the point of view of mechanics, six properties, in other words, 6 dimensions: a 3-dimensional position and a 3-dimensional momentum (each of them expressed using real numbers). The set of all possible combinations of these six quantities constitutes the phase space for M. An arbitrary point within this phase space constructed with the ordered sequence of the 6 real numbers

[7] Nishida 1949, 215, 248, 258, 289.

expresses a determinate position and momentum that can be attained by *M*. *M's* position at a determinate point *p* within the phase space means that, at a determinate point in time, *M* will attain the position and momentum expressed by *p*. Furthermore, if, following the passage of time, *M*'s position and momentum were to change, its location within the phase space would change as well. The trace (trajectory) of the changes of location of *M* within the phase space expresses the history of the changes in *M*'s state (including not only position, but also momentum). Furthermore, *M* itself, as what moves in the phase space, can be expressed by the trajectory it draws. Moreover, it is possible to create phase spaces of *m* x *n* dimensions for *n* objects in general with *m* properties that change in time, without being limited to bodies and their mechanical properties. It is such a generalized phase space that this essay will adopt for a logical expression of *basho*. I omit the details, but in general phase space can, from the standpoint of logic, be represented as a kind of possible-worlds model (each possible world representing each possible state of the m objects).

First Place and Second Place

As an example of the first place and "that which is in" it, Nishida gives us three-dimensional physical space and the *things* that exist within that space.[8] Bearing this example in mind, I will take the individuals that are in the first place to be spatiotemporal entities, and the first place to be the phase space that holds them, the dimensions of which are not all, but only a part, of their properties. For example, if we take only the partial property that is *four-dimensional spatiotemporal position, consisting of three-dimensional space and one-dimensional time*, we can obtain a 4n-dimensional phase space (*n* being the number of spatiotemporal entities dealt with). The trajectory within this phase space (the ordered sequence of points within this phase space) expresses the changes in spatiotemporal position of a spatiotemporal entity (or of a system of spatiotemporal entities). Furthermore, the trajectory is the logical expression of the first item itself which *moves* within this space. Nishida takes the second place to be "the place of consciousness" that "envelops within it conscious phenomena."[9]

[8] Nishida 1949, 218, 227, 251.
[9] Nishida 1949, 210.

Furthermore, the individuals that are in this place of consciousness, in other words *second items*, are thought of as "objects of consciousness" that include, together with "conscious phenomena that come and go with each passing moment,"[10] "objects of perception" and "objects of thought."[11]

I here express this second place, which is the "aspect of consciousness", as a phase space which takes for its dimensions all the properties possessed by things in general (in as far as we can be conscious of them), with the exception of those properties expressed by means of first place. (For the sake of convenience, the number of properties considered here will be set to a finite number *m*). In general, the individuals that are second items in this phase space are both spatiotemporal entities and entities that are not spatiotemporal. Moreover, as a result of having chosen as first place a phase space that represents spatiotemporal location, spatiotemporal location will not be contained among the dimensions of second place. As was the case for first place, the trajectories drawn in this space are the individuals in second place, in other words, are second items. These second items express the changes in time of all the properties (excluding spatiotemporal location) of *n* individuals (that have already appeared in first place). Second items are at the same time the *properties of the objects* of which there is consciousness and the way the very consciousness that is conscious of these objects exists.

Let us now look at the relation between first place and the second place. Nishida says first place will "shift" towards second place or third place,[12] and that in this shift "space itself will need to become something that has properties."[13] Based on this, in this essay, I will define a function f_1 that maps first place x_1 onto the second place x_2 and a function f_2 that maps second place x_2 onto third place x_3. A point of pace, which expresses a determined spatiotemporal location that can be taken by a spatiotemporal entity, in other words, "first point x_1," is mapped, by means of f_1, onto a point that expresses the properties had by the spatiotemporal entity that occupies that position, in other words, is mapped onto "second point

[10] Nishida 1949, 210.
[11] Nishida 1949, 280.
[12] E.g. Nishida 1949, 253.
[13] Nishida 1949, 252.

x_2". (If the spatiotemporal entities that would occupy a certain first point do not exist, in other words, if it is an empty position, that point is mapped onto a specific point x_2 that expresses the absence of properties.) In this case, the plurality of first points occupied by spatiotemporal entities that possess mutually identical qualities are mapped onto the same second point. "Although two things cannot exist at the same time in one single space, in the *basho* of consciousness, the overlapping of infinite things is possible."[14] Furthermore, in case first space holds *n* spatiotemporal entities, a first point will be mapped onto one point of second space, which is a phase space with *n* x *m* dimensions that expresses all the properties of these *n* entities (the information concerning which entity possesses which properties will be preserved). In the end, first space, which is the set of all possible *spatiotemporal locations*, is mapped onto a subset (small as it may be) of second space, which is the set constituted by all the *properties* of things, including spatiotemporal entities. This is the logical expression of the *property-fication of space*. Furthermore, following this property-fication of space, spatiotemporal entities, in other words, the *things* which first items are, are mapped onto second items, in as far as they are conscious phenomena. "In the field of consciousness, what was previously a thing becomes a conscious phenomenon."[15]

So then, is first place mapped onto a proper subset of second place? In other words, does the extension of second place surpass the representation of first place? Nishida's reply is that "The predicate [second space] extends beyond the subject [first place]."[16] The representation of first place is, then, a proper subset of second place (that is, $f_1(x_1) \subset x_2$).

That being so, what is the difference between the image of first place and its complementary set $x_2 / f_1(x_1)$? Let us look at the following sentence: "Usually, having excluded from the plane of consciousness the plane of direct perception that represents the law of self-identity, we think of only the remainder as the plane of consciousness... we think only of a *basho* of relative nothingness, opposed to existence, as the plane of consciousness... but, in as far as they are identical to

[14] Nishida 1949, 256f.
[15] Nishida 1949, 243.
[16] Nishida 1949, 281.

themselves, the objects of direct perception must be contained in the plane of predicates."[17] If here we interpret the "direct perception" that corresponds to "existence" as the representation of first place, and the "plane of the remainder" which is the "*basho* of relative nothingness" as its complementary set, we can consider the former as the set constituted by *things that are identical to themselves*, and the latter as the set constituted by *things which are not identical to themselves* (which corresponds to the "contradictory self-identity" of later years). Let us here interpret *things which are not identical to themselves* as "the fact that certain particulars possess properties which contradict each other mutually," in other words, as "the fact that certain particulars possess contradictory properties" (for example, "this apple is both red and not red"). We can express this state of affairs as the second point $x^2\neg^i$, which contains at the very least one group of mutually contradictory properties. (Here, $x^2\neg^i = <..., p_i, \neg p_i, ...>$, $1 \leq i \leq m$, $x^2\neg^i \in x_2$. For now, think of only one physical body in first place and then take x_2 as a phase space with m dimensions. Then, p_i will be one of the m properties that constitute the dimensions of x_2.) From this point of view, we can call $f_1(x_1)$ the *domain of no contradictions*, and $x_2 / f_1(x_1)$ the *domain of contradictions*.[18]

Thus, in contrast to the exclusion of contradiction from first place, which can represent the world of physics, contradictions are contained in second place, which is the field of consciousness. This is because we can be conscious of contradictions. In other words, we can willingly be conscious of contradictions that do not exist in the realm of physics. The *domain of contradictions* is a domain constituted by means of our free will. In that sense, "in as much as the plane of predicates surpasses the plane of subjects in depth and width, the will becomes free."[19]

Third Place

[17] Nishida 1949, 281.

[18] In order to make equal the dimensions of the components of the domain of no contradictions and the domain of contradictions, once having doubled into $2m$ dimensions the dimensions of the phase space with m dimensions that is space two, define its component x^2 in general as follows: $x^2 = <p_1, \neg p_1, p_2, \neg p_2, ..., p_m, \neg p_m>$. Then, for each component of the domain of no contradictions, substitute $\neg p_i$ with a p_0 with the meaning "no characteristics".

[19] Nishida 1949, 281.

As the logical expression of third place, I will make use of the set constituted by all the subsets of the second place, that is, the power set of the second place (that is, $x_3=p(x_2)$). In this case, the elements of third place will be *sets of properties*. This should be interpreted as all the possible states of consciousness at a temporal point t+1 that are the choices I can freely make at a temporal point t, which occurs in second place. When one of these possibilities is chosen by the free will, a conscious state, in as far as it is a second item, will advance one step forward within second place. When this happens, a moving item that draws a determined trajectory within third place, that is, a particular *third item* occurring in third place, becomes a *temporal series of the choices of the free will*.

Among these many choices, only those choices which are chosen and thus appear in the field of consciousness *are conscious*. When choices themselves are separated from consciousness, they become simple bundles of possible properties, what Nishida calls "pure properties."[20] Furthermore, the choice of a state of consciousness that depends on the free will can be formalized as the *pair* including a *choice*, which is a point in third place, and the *result of a choice*, which is a point in second place. In that sense, it can be said that "our will is something that sees the simplified result [second point] from the *basho* [third place] it occupies."[21]

I now will that two different states of consciousness occur simultaneously. This corresponds to what Nishida calls the "contradiction of the will,"[22] but which we express as two different second points in the second place. Furthermore, there can be something corresponding to a third point which contains both of the different second points as choices. Both are tied together in the third point by means of a disjunction and no contradiction arises between them. Thus, what Nishida calls the "overcoming of the contradiction of the will from the standpoint of true nothingness [third place]"[23] occurs.

If we here take the function f_2 that maps second place onto third place as the identity function $f_2(x_2)= x_2$ (since an arbitrary set is a proper subset of its power

[20] Nishida 1949, 246.
[21] Nishida 1949, 217.
[22] Nishida 1949, 249.
[23] Nishida 1949, 249.

set), the image of second place becomes a proper subset of third place (that is, $f_2(x_2) = x_2 \subset p(x_2) = x_3$). Third place is "an even deeper and wider *basho*"[24] than second place.

But then why is the power set of the phase space the "*basho* of absolute nothingness"? Of course, this question is imprecise: the former is nothing but the logical expression of the latter. But then why, or at what point, does the former suffice as the logical expression of the latter?[25] If we now pick out a specific non-contradictory property from a third point, we will end up with an *existent* in second space, and if we select a contradictory property, we will end up with an *oppositional nothingness*. Third place is the womb that gives birth to the couple that is *existence* and its corresponding *relative nothingness*: it is the "creative nothingness"[26] that overcomes the opposition between *existence* and *relative nothingness* and gives birth to them both. In this sense, third space suffices as the *basho* of *absolute* nothingness that overcomes the *opposition* between *existence* and *relative nothingness*. But why then, in what sense, is this the logical expression of *nothingness* in the first place? First items and second items were, respectively, *real* spatiotemporal entities and phenomena of consciousness. As opposed to that, third items are never anything but *not real*, that is, they are *merely possible* series of choices. In that sense, the *basho* in which third items are is the "limitless world of possibility."[27] Third items are that which, though it produces *reality*, is nothing but a *not real*, purely *possible entity*. The *basho* in which such items are suffices as the logical expression of *nothingness*. That is, *the possibility that is not real* is here the logical truth of *absolute nothingness*.

Summing Up

[24] Nishida 1949, 287.

[25] The same question crops up concerning the *relative nothingness* in the second place. That is, why can the region that is second place become the logical expression of *relative nothingness*? *Contradiction* is the answer. The elements of the particular region that is second space are pregnant with contradiction and thus suffice as the logical expression of *relative nothingness*. In other words, *contradiction* is the logical content of *relative nothingness*.

[26] Nishida 1949, 238.

[27] Nishida 1949, 270.

First items are spatiotemporal existents (expressed syntactically by *terms*). Second items are series of properties (expressed syntactically by *predicates*) possessed by those existents. Third items are temporal series of *sets of qualities* (these, in turn, are expressed syntactically by *predicates* about *predicates*, that is to say, by *metapredicates*). Thus, accompanying the shift of *basho* from first place to third place, we have the change of the syntactical expressions *of the things therein* from *term* to *predicate*, and then to *metapredicate*. This is the logical expression of what Nishida calls "overcoming in the direction of the predicate."[28]

Furthermore, in this essay, I have expressed *basho* as *phase space (and its power set)*, and *the things therein* as traces within phase space. In consequence, I interpret *existing things* which are *in a basho* to be *the things that draw a determinate trajectory in a phase space (or its power set)*.

Moreover, here, I have formalized "*A* knows *B*" as "A takes *B* as a component or as a proper subset". Logically speaking, *to know in self-awareness* is no different from *to possess a certain state of affairs as an element of a proper set of oneself*. In this sense, first items, which are spatiotemporal existents, are known by first place, and the former, having been transformed into second items that are *bundles of qualities*, are known by second place. Besides, first and second place are known, respectively, by second and third place.

As I said above, this essay's interpretation in terms of phase space can rescue at least some aspect of Nishida's thinking in "*Basho*". The question of *what aspects can it not rescue*, as well as that of *what aspects should it not rescue*, I will leave for a further essay.[29]

References

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[28] Nishida 1949, 270.

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