Indexical Realism by Inter-Agentic Reference

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【ABSTRACT】 I happen to believe that although human experiences are to be characterized as pluralistic, they are all rooted in one reality. I would assume the thesis of pluralism but how could I maintain my belief in realism? There are various discussions in favor of realism but they appear to stay within a particular paradigm and so to be called 'internal realism.' In this paper, I try to justify my belief in reality by discussing a special use of indexicals. I argue for my indexical realism by advancing the thesis that indexicals can be used as an inter-agentic referential term. Three arguments for the thesis are presented. The first argument derives from a revision of Kaplan-Kvart's notion of exportation. The notions of exportation of singular terms can be analyzed as intra-agentic exportation in the context of a single speaker. This may be revised to be an inter-agentic exportation in the context of two speakers who use the same indexicals. The second argument is from the notion of causation, which is specifically characterized in the context of inter-theoretic reference. I argue that any two theories may each say "this" in order to refer to what is beyond its own theory. Two theories may address themselves to "this" same thing although what "this" represents in each theory can turn out to be different objects all together. The third argument is based

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on a possibility of natural reference. Reference is used to be taken mostly as a 3-place predicate: Abe refers an object o_i with an expression e_j. The traditional notion of reference has been constructive and anthropocentric. However, I argue that natural reference is a reference that we humans come to recognize among denumerably many objects in natural states: at moment m_i in a natural state, there is a referential relation among objects $o_1, o_2, o_3, \ldots, o_j, o_{j+1}, \ldots$ which interact with each other as agents of information processors. Natural reference is an original reference, which is given independently of a human language and to which humans are passive as they derivatively refer to it by using "this."

Ⅰ. Indexicals: A Foundation for Realism

An utterance of the sentence "I am here now" is like a human footprint in that both entail the existence of an agent—the speaker of the remark and the maker of the footprint. This article pursues this suggestive analogy in an attempt to develop a stable theory of realism, one that is based upon certain features of indexical expressions. The discussion that follows is motivated by the realization that the assumption of pluralism, which is essential for the co-existence of human kinds, requires a stable theory of realism and that perhaps the three most common versions of realism may not suffice for this purpose. Thus, a new theory of realism is needed. While pluralism and realism may at first glance appear to be incompatible,[1] in what follows I argue that they are indeed consistent; in

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1) I would start with a sort of working definitions of pluralism, realism and indexical realism. Pluralism is a belief that there are two or more systems of true interpretations of the world, realism is a belief that there are things independent of a human language which make sentences to be true, and indexical realism is a belief that indexicals like "this" have certain roles to play in connecting plural systems and reality. The traditional dichotomy of realism and idealism may be due to a failure to

particular, I show that indexical-based realism does not violate the presuppositions of pluralism.

At a general level, realist theories can be divided into three types: common sense realism, internal realism and radical realism. Common sense realism generally manifests itself as a critical response to relativism or postmodernism. One well-known approach to common sense realism was taken by D. Davidson,[2] who held that truth is primitive; contrary to what relativists claim, Davidson insisted that truth is what is presupposed whenever people make assertions. Common sense realists typically believe that pluralism does not, whereas relativism does, presuppose a primitive notion of truth. An explanation is needed of whether, and if so how, these two views can be reconciled. One possible explanation may hinge on the idea that every speaker presupposes some notion of truth, but this truth need not be the primitive truth of metaphysical realism.

Another version of realism worth considering is Putnam's internal realism.[3] Like Kantian epistemology, this version of realism depends on the distinction between a thing-in-itself and a concept-dependent object. Putnam advanced this notion of realism along with a notion of truth that is concept-dependent. He abandoned the notion of metaphysical realism

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appreciate the roles that indexicals play in human languages. One type of realism, exemplified in Aristotle's and Aquinas' notion of *scala naturae*, presupposes an ontological hierarchy, supposing that purer a form is more real it is; and traditional idealism, which may be traced to the philosophies of Berkeley and Hume, provides justifications for pluralism in actual social experiences, regarding that indexicals are just relative as any cognitive ideas are. Neglect for the role of indexicals may be due to the long-standing presupposition in philosophy that ordinary language is inferior to "the" formal language.

2) Davidson, D. (1990: 279-328; 1984: 65-76).

3) Putnam, H. (1981: 22-48; 1988: 22-32; 1990: 30-42; 1980: 464-482). Putnam in his later period advanced semantical externalism in his discussion of the twin-earth thought-experiment, which may be understood as a move toward scientific realism. This version, though more persuasive than other versions, still does not discuss how inter-agentic references can be related.

and along with it any notion of truth that is transcendent or non-epistemic, such as the correspondence theory of truth. Putnam accepted that truth is epistemic and that reference is not transparent but rather internalistic in the sense that communal forms of life are constructed out of an "empirical influx." However, it is far from clear how this empirical influx makes his internalism genuinely realistic. Further explanation is needed.

A third version of realism can be found in Davidson's theory of radical interpretation.[4] According to Davidson, it is possible, given the principle of charity, for the speakers of one language to correctly interpret the sentences uttered by speakers of a radically different language. Furthermore, Davidson held that the possibility of radical interpretation does not require any notion of direct reference or external truth. However, the process of radical interpretation relies too much on the individual capacities of the interpreter and provides an unsatisfactory basis for drawing realist conclusions.

If there is a solid justification for realism, it should be found in something other than Davidson's notion of primitive truth, Putnam's empirical influx, or the theory of radical interpretation. The argument for realism that I put forward in this paper is based on a particular understanding of indexicals, that is, expressions such as "I/you," "here/there," "today/yesterday," and other terms whose referents are context-sensitive. Some philosophers regard expressions of tense (e.g. "is"), modality (e.g. "possible"), gradual adjectives (e.g. "fast"), and even folk-psychological verbs (e.g. "realizing", "intending", "knowing")[5] as indexicals, at least when they are understood contextually. According to Kaplan, the linguistic meaning (i.e. character) of indexicals is

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4) Davidson, D. (1984: 125-140; 1990: 279-328).
5) Perry, J. (1979: 723-734); Babb, M. (2016: 439-457); Schaffer, J. (2004: 73-76).

conventional while their reference or referential meaning (i.e. content) is contextual; Kaplan also proposed that the contexts of indexiclas are constituted by agent, time, location and possible worlds.6) Thus, Kaplan thought that any sentence S is true in the context C or in the world of C, where the predicate "being true in the world of C" is more basic than the predicate "being true in the context of C" since the latter is regulated by the former. In what follows I accept that indexicals are ordinarily understood in accordance with Kaplan's semantics, but I explore the possibility that in certain exceptional cases indexical expressions can be used independently of any notion of possible worlds.

My strategy is to pay close attention to the way in which indexical expressions like "this" refer. While "this" is typically used in ordinary language to refer to an object, indexical realism looks beyond Kaplan's intra-contexts to consider how the term functions in inter-contexts.7) In other words, the direct referentiality of "this" can be generalized as inter-agentic referentiality. I will argue below that the inter-agentic referentiality of "this" covers both inter-speaker and inter-theoretic referentiality and, furthermore, that inter-agentic referentiality applies also to the information processors that are found in the natural world. These arguments will be used to justify the position of indexical realism.8)

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6) Kaplan, D. (1985; 1979: 401-412); Braun, D. (2015; 2008: 57-99).

7) Schaffer, J. (2004: 82-86) makes a distinction between indexicality, which is constructed by semantical rules, and ternicity, which is generated by the absence of clear devices. He takes *contextualism* to treat 'knows' as an indexical that denotes different epistemic properties in different contexts and *contrastivism* to treat 'knows' as denoting a ternary relation with a slot for a contrast proposition. I will argue that contrastivism resolves the main philosophical problems of contextualism, by employing a better linguistic model. Contextualist insights are best understood by contrastivist theory. But he seems to deny the possibility that an indexical can be used independently of an established language.

8) Sun-Hie Kim (2013: 276-278) takes the thesis of my conception of inter-agentic reference (i) to presuppose that two theories are incommensurable, not sharing any

II. Inter-Personal Co-Referentiality

My first argument for indexical realism is based on Kaplan and Kvart's notion of the exportation of singular terms. Writing in response to Quine's question, sometimes called "Frege's Puzzle", concerning the logic of propositional attitudes,[9] Kaplan and Kvart claimed that different singular terms can refer to the same object in the context of a single speaker. By way of illustration, consider the following sentences:

(1) Ralph believes "the man in the brown hat is a spy."
(2) Ralph believes "the man seen at the beach is not a spy."
(3) The man in the brown hat = the man seen at the beach = Ortcutt.
(4) Ralph believes "Ortcutt is a spy and Ortcutt is not a spy."
(5) Ralph believes "the man in the brown hat is a spy and the man seen at the beach is not a spy."
(6) Is Ralph rational or not rational?

Quine believed that (1), (2), and (3) together imply (4) and that (4) entails that Ralph is irrational, which is counter-intuitive. The problem, in Quine's view, is the failure of the rule of the substitutivity of identicals in the context of propositional attitudes. However, according to Kaplan and Kvart, the problem consists in the inference from (1), (2), and (3) to (4); they insist that what is entailed by (1), (2), and (3) is not (4) but rather (5), which does not conflict with the supposition that Ralph is rational. Kaplan and Kvart's argument is based on the idea that (3) is

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object or any property, and (ii) to imply that the co-referentiality thesis allows two theories to be commensurable. And she questions whether the presupposition and the implication are compatible.

9) Quine, W. (1971: 101-111); Kaplan, D. (1971: 112-144); Kvart, I. (1982: 295-328).

true on its *de re* reading but false on its *de dicto* reading. Since Ralph's beliefs—those expressed by (1) and (2)—are *de dicto* one cannot use the *de re* reading of (3) to infer (4). The rule of the substitutivity of identicals implied by (3) applies only in *de re* contexts. In order to provide a *de dicto* interpretation of (3), Kapalan and Kvart introduce the notion of a vivid reference predicate, "predicate R (that a singular expression e denotes an object o_i vividly in the case of the speaker a)," which is formalized as follows:[10]

(K1) R (e, o, a) iff e represents o vividly to a; that is, iff
  (i) e denotes o,
  (ii) e is a name of o for a, and
  (iii) e is sufficiently vivid.

One can rewrite (1) and (2) in accordance with (K1) by using the following notation [B = believe; S = being a spy; H = a man in the brown hat; ɿxHx=the man in the brown hat (the x: Hx); B = a man seen at the beach; ɿxBx=the man seen in the beach (the x: Bx); o_1 = Ortcutt; r = Ralph].

(1a) ($\exists$x) (R (ɿxHx, Ortcutt, Ralph) and Ralph B "x is a spy");
(2b) ($\exists$y) (R (ɿxBy, Ortcutt, Ralph) and Ralph B "y is not a spy");

Then, given (1a) and (2b), together with the *de dicto* reading of (3), one can infer (5a) or, formally, (5b).

(5a) ($\exists$x) ($\exists$y) (R (ɿxHx, Ortcutt, Ralph) and R(ɿxBy, Ortcutt, Ralph)
  and Ralph B "ɿxHx is a spy and ɿxBy is not a spy").

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10) Kvart, I. (1982: 305-307); Kaplan, D. (1971: 134-138).

(5b) $(\exists x)\,(\exists y)\,(((R(\iota xHx, o_1, r) \wedge R(\iota xBy, o_1, r)) \wedge B(r, \text{"Sx and } \lnot Sy\text{"}))$

Finally, (5b) allows the transparent structure in (7), which shows that Ralph can maintain consistency and rationality in the context in which he apparently holds incompatible beliefs about the same person (e.g. Ortcutt).

(7) $(\exists x)\,(\exists y)\,(((R(\iota xHx, o_1, r) \wedge R(\iota xBy, o_1, r)) \wedge B(r, \text{"Sx and } \lnot Sy\text{"})) \wedge (\iota xHx = \iota xBy = o_1)).$

Kaplan-Kvart's notion of vivid reference predicate R can be revised to support indexical realism; thus, two speakers, while using "this" to refer the same thing, can say about different objectst. In other words, it is possible to transform the vivid reference predicate R into the vivid demonstrative predicate D, that is, "predicate D (that a demonstrative 'this' refers an object o_i vividly in the case of the speaker a"). In ordinary language, "this" typically exhibits direct referentiality, which carries with it a concrete space-time context. The fact that a speaker a utters "this" to refer an object o_i means that a has a vivid representation at space-time t when a utters "this". I now introduce the following predicate, D, modeled on Kaplan and Kvart's predicate R:

(K2) D (this, o, a, t) iff "this" represents o vividly to a at t; that is, iff
      (i) "this" denotes o at t,
      (ii) "this" is a name of o for a at t, and
      (iii) "this" is sufficiently vivid at t.

The question to ask at this point is how if at all this vivid demonstrative predicate D is relevant to indexical realism. To see how it is, consider the following hypothetical scenario. Mary and Nancy adopt different paradigms and yet they pay attention to what is the shared interest of a scientific community to which they both belong. And they use the demonstrative "this" to refer to that shared interest. This scenario can be represented as in (8) using the following notation: [$\exists$ this = for some token utterance of "this";[11)] m = Marry; n = Nancy; g=the thing of the shared interest of a scientific community at a certain time period; $this_m$ = "this" uttered by Mary at t_i; $this_n$ = "this" uttered by Nancy at t_j; U_i = being understood in language L_i].

(8) ($\exists$ this)(D (this, g, m, t) $\wedge$ D (this, g, n, t) $\wedge$ ($U_i this_m$ $\wedge$ $\daleth U_i this_n$ $\wedge$ $U_j this_n$))

Mary's "this" and Nancy's "this" have the same demonstrative character but represent different uses or contents. The two cases of "this" behave as rigid demonstratives, possibly referring to the same thing, that is, a shared interest of the scientific community to which they both belong. This grammar can be expressed as follows:

(9) ($\exists$ this) (((D (this, g, m, t) $\wedge$ D (this, g, n, t)) $\wedge$ ($U_i this_m$ $\wedge$ $\daleth$ $U_i this_n$ $\wedge$ $U_j this_n$)) $\wedge$ (this = g))

This sentence captures the idea that Mary and Nancy can use the same word "this" to refer to the same thing while having different understandings of the thing in question. In other words, different

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11) " $\exists$ this" can be rephrased as "($\exists$ x) (this) x m t (for some x, x is an event of utterance of "this" by an agent m at time t)".

speakers are able to speak differently about the same thing.[12)]

The plausibility of the vivid demonstrative predicate D can be seen by reconsidering Quine's notion of reference. For Quine, reference is both inscrutable and relative. It is inscrutable in that referential relations cannot be determined uniquely by states of affairs; it is relative in that referential relations are chosen relative to a translation manual.[13)] Davidson, on the other hand, rejected the idea that reference is relative, claiming that the natural way of stating a rule to the effect that "expression x refers to object y relative to a translation manual" is to say simply that the translation manual translates x into y. Davidson drew a distinction between the ontology and the epistemology of reference and thereby accepted the inscrutability of reference while denying its relativity. Quine tried but failed to introduce the relativity of reference into a speaker's language, for no discussion can take place unless the relativity of reference is already solved.[14)] These debates concerning the understanding of reference are plausible only if one ignores the issue of indexical reference.

The direct referentiality of "this" shows the limitations of the Quine-Davidson debates over reference. To see this one need only consider the notion of an object, which is one of the four places for the demonstrative predicate. Sentence (8) indicates how Mary and Nancy

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12) One may ask what is the same thing referred to by "this" used by two competing theories. This question sounds natural since there seems no candidate for a sortal concept readily available to combine the two cases in the competing theories. But from my perspective, it is empirical investigations which will answer to the question whether what the competing theories talk about by using "this" are the same or not.

13) Quine, W. V. O. (1960: 26-30, 72-79). Quine's two propositions may lead him to embrace a form of semantic eliminativism, but his notion of stimulus meaning allows him to entertain a sort of dispositional reductionism (Kai-Yuan Cheng 2008). Yet, both of Quine's meaning skepticism and his notion of stimulus meaning points to the idea of naturalizing of meaning.

14) Davidson, D. (1984: 229-239).

speak of the object o_i within their respective languages L_i and L_j, both uttering "this" at time t to refer it. Though the two objects which are grasped and understood in two different languages may not be the same, those two objects are traceable, in principle, to something which is not yet involved with any conceptual or linguistic networks. It is something which is free of Kaplanian possible worlds, which is to be directly referred to only by "this", and which is to be given only as a thing rather than an object. When different scientific communities under different paradigms come to recognize a shared interest it may be rigidly designated by "this" and dubbed "g." For example, if what is called "water" is H_2O in the actual world it is H_2O in every possible world; here "it" refers rigidly to that same thing. What (8) and (9) show is that it is possible to maintain the special function of the direct referentiality of "this" even if one accepts Quine's or Davidson's understanding of reference. Two speakers may use "this" to say differently about two different objects in their own languages, and yet their different explanations may be about the same thing.

III. Inter-Theoretic Co-Referentiality

The second argument for indexical realism is based on the idea of inter-theoretic co-referentiality, that is, the idea that two different theories can refer to a thing outside of each theory using "this". Two theories on the surface seem to construct two different objects from what they call "this" within intra-theoretic space. But on a deeper analysis these "two different objects" are traceable to the same source.[15] It will

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15) One case of tracing to the same source can be constructed as follows. In my view, Newton's 'light$_n$' and Einstein's 'light$_e$' are causally connected to their utterances of

be helpful at this point to see how intra-theoretic reference is related to inter-theoretic reference.

   In the previous section I accepted the distinction between the ordinary linguistic meaning (i.e. character) of "this" and its context-dependent referent (i.e. content), and I assumed that the selection of the referent is determined solely by a speaker's intentions. Jaegwon Kim has made an important observation about this assumption.[16] Kim's reservation about the notion of reference concerns the causal relation between the event of the initial naming and that of the derivative naming, but his question is ultimately focused on the relation between the act of naming and the object thereby named. How does the act of naming reach the object thereby named? In other words, how are an act and an object connected? The first candidate to connect them is a description which selects a referent. However, Kim believes that a descriptive phrase does not

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"this," and their relevant singular terms can be identified with what was referred to by their utterances of "this". Jinho Kang (2013:272-274) has observed that what is required of the causal connection is theory-dependent, and Hwan Sunwoo (2013: 284-287) has suggested that things which can be identified are not guaranteed to be identical. Both Kang and Sunwoo have concluded that the notion of co-referentiality that I tried to reach by the means of "this" is not available. Their observations are relevant as far as their traditional frames are allowed to be reasonable. But I claim that a distinction between theory-dependent object and theory-independent thing can be made and that "this" can be used to refer not only intra-causal events which we can talk about within scientists's frames, but also to refer trans-causal events which we cannot talk about but which we can only point to as thisness.

16) Kim, Jaegwon (1977: 606-620). However, Kim may be taken as a sort of indexical realist. For the notion of indexicals need not be limited to particular linguistic expressions. The notion may be expressed by an indicator, which was suggested by Kim (1996: 191-193) and Stalnaker (1984: 18). Many people may share the same belief that it is now raining here. For there is a correlation in a normal condition between the situation that it is now raining here and the perception that it is now raining here. If the correlation obtains then the perception is said to be the indicator of the situation that it is now raining here. Since Kaplan's notion of indexical consists of two elements, linguistic meaning (character) and referential meaning (content), Kim's notion of indicator appears to satisfy these two conditions.

determine the selection of a referent; rather, he thinks that the description which helps to select the referent presupposes the speaker's cognitive contact with the referent. This cognitive contact is some sort of direct cognition or Russelian acquaintance. Furthermore, Kim believes that the Kripkean causal theory of reference is exposed to the difficulties associated with Russel's idea of acquaintance.

Kim's concern about the relation between the act of naming and the object named is justified when one maintains a sharp epistemological distinction between subject and object. However, this distinction, which was central to the tradition that stretches from Descartes to Hume, was first weakened by Kant's Copernican turn and later called into question again by epistemology of quantum mechanics. According to Jung Won Lee,[17] whereas measurement in classical mechanics is a copying process that shows the value of physical quantities on the assumption that physical quantities really exist in physical objects and correspond to physical properties, quantum mechanics involves a completely different notion of measurement. In quantum mechanics measurement is not a mirroring act that copies what is there physically; rather, measurement has two aspects, one of which consists of an epistemic mode in the sense that some physical stimulus allows some empirically meaningful proper value, the other of which is a physical mode in the sense that physical objects carry proper states to correspond to empirical effects. The coexistence of epistemic and physical states gives rise to a distinction between measurement information and state information. Measurement information exhibits an empirical representation, which is significant at the moment the observer obtains a measurement but which has nothing to do with any future events or their causal involvements. State information, on the other hand, is informative of the causal relations by which one can

17) Lee, Jung Won (2009: 1-23; 2002: 287-290).

predict the result of the measurement. This information is given empirical meaning only through some special semantic rules, which give rise to theory-dependent object descriptions. State information has a one-to-one correspondence with measurement information only at the moment of measurement. Thus, these two different kinds of information are heterogeneous.

The distinction between state information and measurement information in the epistemology of quantum mechanics has significant implications for the role of the demonstrative "this" in intra- and inter-theoretic reference. "This" may be used to reflect both types of reference at the same time even when used in different theories. The demonstrative's intra-theoretic referentiality is a descriptive referentiality in which state information is given some empirical meaning in accordance with relevant semantic rules. But the demonstrative's inter-theoretic referentiality is a referentiality of measurement information, which the speakers obtain in their contact with the thing at the moment of measurement. Intra-referentiality may vary at different times of measurement, but it is stable due to the constancy of a theory, whereas inter-referentiality, though restrained by the condition that measurement is relevant only at the moment, is real referentiality that mirrors state information in the sense that measurement information and state information have a one-to-one correspondence.[18]

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18) The distinction between intra-theoretic referentiality and inter-theoretic referentialiy may be clarified through the contrast between haecceity and haecceitism. If haecceity is a term to denote some discrete properties of an object that make it a particular thing then the haecceity would be an object's thisness, whereas if haecceitism is a term to denote the numerical distinctness of two possible worlds which are indistinguishable from each other then the haecceitism provides a candidate for the criterion for transworld-identity. It may be plausible to take the following understanding that haecceity is an essentialist interpretation of this to see its thisness in the intra-theoretic context whereas haecceitism is an empirical investigation of whether two possible worlds are only numerically distinct (Son

While quantum mechanics challenges the epistemological distinction between subject and object, it remains to be seen how the dissolution of this dichotomy is realizable in the relation of state information and measurement information by using "this" as an inter-agentic reference. Toward this end, Putnam's discussion of indexicality and rigid designation will be helpful.[19] Putnam tried to clarify the Kripkean notion of rigid designation by indexicality. Suppose, for instance that W_1 and W_2 are possible worlds which are indistinguishable except what are clled "water" in the two worlds is H_2O in W_1 and XYZ in W_2 and that a glass in W_1 is filled with H_2O and a glass in W_2 is filled with XYZ. Two speakers, one in each world, each point to their respective glasse, and make the following utterance:

(10) This is water.

Putnam thinks that there are two possible theories for explaining the meaning of "water" in the utterance (10). Suppose W_1 is the actual world. Then the first theory is that "water" is extensionally relative to worlds but is intensionally independent of worlds. The second theory is that "water" means different things in the two worlds, that what is called "water" in W_2 is really not water, and that water is H_2O in every possible world. Thus, the demonstrative "this" is interpreted differently in the foregoing two theories. "This" is understood in its *de dicto* sense in the first theory but in its *de re* sense in the second. Putnam takes the second interpretation to be the proper one. The two theories can be summarized as follows:

2003; Choi 2008; Dorato 2013).
19) Putnam, H. (1970: 102-118; 1973: 119-132; 1977: 423-442; 1978b: 97-119).

(T$_1$) (W)(x in W)(x is water $\leftrightarrow$ x bears same L to the entity referred to
        as "this" in W);

(T$_2$) (W)(x in W)(x is water $\leftrightarrow$ x bears same L to the entity referred to
        as "this" in the actual world W$_1$).

The "same L" relation stands for a trans-world relation between two terms. Their extension is the set of ordered pairs of individuals which may not exist in the same possible world. For example, if a is 5m tall in W$_1$ and b is 5m tall in W$_2$, {<a, b>} belongs to the extension for the predicate "being of the same height." Likewise, "being of the same liquid" or "being not of the same liquid" may have a trans-world relation. {< H$_2$O, XYZ>} belongs to the extension for the predicate "not being of the same liquid." Appealing to this notion of trans-world indexicality, Putnam defined rigidity as follows: an expression "e" is rigid if and only if the object which is so called in the world W$_{1+n}$ has the same L relation with the object which is called "e" in the actual world W$_1$.[20]

Putnam's strategy of obtaining rigidity by means of "this" is interesting in that "this" may play a similar role in alleviating ambiguity and vagueness since "this" can refer to either state or measurement information. Without Putnam's strategy, it is difficult to know whether "this" should be understood in its *de re* or *de dicto* sense in reference to that information. But with his analysis, it is easy to see how "this" can be

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20) Putnam and I share a realistic view of the world by appealing to the notion of indexicality as shown in Putnam's view of the twin earth thought experiment and my notion of reference. But Putnam does not go in to the detailed discussion as to how the notion of de re indexicality could get out of the Kaplanian possible world structure. In other words, Putnam explains how the demonstrative "this" can hold the same L relation of reference of the actual world W$_1$ to the reference of another possible world$_{n+1}$. But his explanation takes place within a Kaplanian intra-possible worlds. He did not pay attention to a possible notion of trans-possible world reference relation.

understood in its *de re* sense. For the "same L" can be understood, not relative to worlds, but rather based on the actual world W_1. However, Putnam's position is incomplete since though the referentiality of state information is stabilized through Putnam's *de re* interpretation of "this", the referentiality of measurement information remains in darkness. Though the referentiality of state information can clearly maintain its intra-theoretic referentiality, there seems no way to show how the inter-theoretic referentiality would be plalusible in the case of measurement information.

One candidate to explore for the challenge may be accessible from Jung Won Lee's notion of pluralistic reality. This can be characterized as follows: (i) if measurements about what is denoted by "this" or "something" result in the same consequences under the same circumstances then the identity of the denotation can be empirically confirmed; (ii) as for the value of "this" if one can predict through a theory that the probability of the value is 1 then what is denoted by "this" is not discontinued but temporally sustainable; (iii) if the measurement of the denotation of "this" (property A) of a thing does not have any influence on the information of the denotation of "that" (property B) of the thing then what are denoted by "this" and "that" are independent. Given that constancy, sustainability, and independence are neither logical nor *a priori*, these are conditions for pluralistic realism.[21]

It seems that Jaegwon Kim's question about the relation between the naming act and the object named has been partially but not completely answered. To provide a complete answer it is necessary to take into

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21) The three conditions for Lee's pluralistic reality can be read in the context of epistemology of classical mechanics. But here they need to be taken to entertain the idea of how some different momentary pluralistic measurements could be empirically correlated with each other in the context of the Seoul Interpretaion of quantum mechanics.

account how "this" is used causally in context. The aforementioned distinction between an object o_i and a thing g_j can be rephrased as follows: what is connected with other elements within a system by the utterance of "this" becomes an object o_i (state information), but what is not connected thus but just touched by an utterance of "this" is a thing g_j (measurement information). The distinction enables one to see more clearly the two dimensions of the causal context of "this". There are two routes leading to causality in the context of an utterance of "this." The linguistic route is a causal chain which starts from an utterance of "this" and ends with the object o_i within the theory; the ontic route is a causal chain which starts from an utterance of "this" and ends with the thing g_j outside of the theory. The linguistic route of causality is one in which different theories arrive at objects of different understanding with a notion of rigidity that is relevant to their own linguistic formulations. But the ontic route of causality reaches what is the same endpoint despite the different uses of "this" by various theories.

IV. Natural Reference

The third argument for indexical realism is based on the notion of natural reference.[22] In this section I will explicate the notion of natural

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22) My thesis of natural reference may look "highly stretched" but it may be strengthened by considerations of semantics of natural languages. Procedural semantics by Johnson-Laird (1977), Cognition as Categorization by Harnad (2005), Semantics of Natural Selection by Jeongmin Lee (2017) and Reference Naturalized by Chung (2016b) may be taken to show such a direction. Meaning of a word does not have to presuppose notions like intentionality or mental image but is fully located at the role-place which the word occupies in the meaning space of its system, natural or artificial. Any spatio-temporal marks exhibited in Whalesongs, warning sounds of birds, bees' waggle dance are bound to have the role-place in

reference and show how indexicals play an instrumental role in it. Traditionally, reference is understood as a three-place predicate, Rabc, as in "a speaker a_i refers to an object b_j by an expression c_k". A speaker is the subject of a referring act, an object is the target, and an expression is a part of a given language or something added to the language.

The distinction between the traditional reference and natural reference can be understood in terms of the relation between an object and a thing: an object is concept-dependent whereas a thing is theory- independent. Prior philosophical discussions that establish the concept-dependency of objects include Kant's transcendental arguments, Wittgenstein's discussion of language games, and Goodman's exposition of the ways of world making.[23] Perhaps the best example of arguments for the concept dependency of objects may come from Kaplan, who constructed the notion of context relative to possible worlds. For him, a referential object (i.e. the content) of an indexical expression is a language-dependent or possible world-dependent object. However, a thing exists independently of the linguistic constraints that any conception presupposes. Kaplan interprets indexicals in terms of contexts defined by possible worlds, but on this interpretation there is no way in which indexicals can connect to things outside of Kaplanian possible worlds, yet it should in principle be possible to connect them. If traditional reference is intra-theoretic, there should also be a trans-theoretic reference by means of indexicals to refer to those things outside of Kaplanian possible worlds. This is how the notion of natural reference should be understood.

To illustrate the foregoing consider how "this" can refer to an inter-theoretic thing. Of course, "this" is capable of referring to whatever

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their respective life systems. They don't require any notion of intentionality in order to have a meaning.

23) Kant, I. (1987, 1781/1787), Wittgenstein, L. (1953), Goodman, N. (1978).

a speaker wants to talk about, an object or a thing. Some notions of causality may help to shed light on the distinction between an object and a thing. The theoretical immanence of an object is part of the structure on which the linear theory of causality is based. The linear theory analyzes the notion of causation in terms of the following bi-conditional:[24] "c_i is a cause of c_j if and only if c_i is neither a necessary nor a sufficient condition for c_j but a necessary part of a sufficient condition for c_j". The events that enter into linear causal relations must be intra-theoretic events, otherwise it would be impossible to provide necessary and sufficient conditions for the alleged causation. Though such events are passive, as all Cartesian material things are, they obtain conceptuality through Kantian epistemological constructions in order to become theoretically inter-connected and eventually part of a sufficient condition for causation within a theory.

The linear theory of causation offers no explanation as to how passive material events can engage in active causal relations. Such causal relations can be described as mechanistic, but the key question is how this sort of causation is powered and structured. A plausible answer to this question can be found in the notion of yinyang, where things in nature are viewed as active subjects that process information. Yinyang permits and demands the active agency from things in nature and requires those things to exhibit natural referentiality unlike passive objects that possess only concept-dependent referentiality.[25] But what exactly is this natural reference? Just as mechanistic reference is dependent on the metaphysics of the Cartesian tradition, natural reference may be taken to be based on the naturalism of yinyang, which comes from a different philosophical tradition.[26]

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24) Mackie, J. L. (1975).
25) Chung, D. (2014; 2013; 2008a).

Yinyang naturalism is an ontology in which trans-theoretic things exist and complement each other with the properties of yin and yang. In the order of yinyang, things in nature consist of dispositions, properties, and events, all of which are trans-theoretic beings. Such things are active processors of information and intentional subjects that preserve their own identity, existing among other subjects. Therefore, a thing in nature at a particular moment simultaneously plays the dual roles, (i) as a subject that refers to others and at the same time (ii) as an object that is referred to by others. Inter-connections of natural reference are thus given in such a yinyang order. Humans approach this order of natural reference linguistically with an understanding of natural reference that is interpretative and hermeneutical. Natural reference is not an *a priori* reference reflecting an established language but rather an executive reference exhibiting how nature really works. To understand how natural reference is trans-theoretic, one must distinguish between two notions of natural reference, namely, that of state information and that of property essentiality. Given this, let us now see how "this" can function derivatively as a natural referring term.

The first type of natural reference is that of state information in which different things are mutually referential as active processors of information. State information is local and causal. There are many ways in which things, as parts of an organic system, communicate with each other, one of which relates to the hypothesis that causal relations are a natural kind.[27] Natural kinds are exemplified in things like tigers and spinach and also in material substances like water and gold. One understands how they behave through scientific inquiry. Scientists construct theories to understand and explain concrete cases of natural

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26) Chung, D. (2016a; 2008c).
27) Chung, D. (2014: 10).

kinds. But when they refer to these natural kinds, the act of referring is an act of interpreting what they are presented with; it is hermeneutical rather than constitutive of the natural kind. For example, chemists construct theories about molecular formulas within one or another conceptual framework, but what they observe in concrete cases is types of material molecules or the number of atoms within the molecule. When chemists say "water is H_2O," "caffeine is $C_2H_{10}N_4O_2$," or "gold is Au," they are referring to structural elements within particular natural kinds. They are referring hermeneutically to what they experience in the lab.

Causal relations are generally understood as localized or lateralized. For example, information-processing for perceptions and emotions are localized in the brain. Seeing, hearing, sensing, movement, linguistic understanding, and aphasia are exemplifications of the relevant properties of different parts of a human brain. And yet these different parts of the brain share information with each other, exhibiting the inter-relationality of parts of the whole and facilitating a re-invigoration of perception at another level.[28] The notion of brain localization may be applicable to the case of state information as well. We can regard the world as the totality of state informations and take various states not only as localized but also as inter-relational. States form systems of various kinds and levels, showing manifestations of dispositions as well as the silencing of dispositions. States as dispositions can be analyzed in terms of the dispositional property of causality.[29] Causes are merely dispositions toward particular results and they do not necessitate any particular results simply because those causes may be constrained by

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28) According to Jungoh Kim (2011), the notion of information localization seems to have helped Fodor (1983) and Robbins (2009) advance the concept of informational encapsulation, but this concept fails to explain the connections among information encapsulations at the next stage because of its dissociative character.

29) Mumford & Anjum (2011, 2010); Marmodoro (2010).

other forces. Such forces behave additionally or deductively just as vectors have sizes and directions. Such a model helps to draw a picture of the relations between things such as causal modality, the manifestations of power, a power's withdrawal causality, and causal probability. This picture can be understood as nothing other than an informational structure in which the manifestation forces as well as the withdrawal forces of parts of a state are both localized. The efficacy of causality is the power of a property of a thing.[30] Properties are given, natural or physical, and yet they are also dispositional, intentional, and information-processing. The essentiality of properties is manifested when properties reveal themselves as subjects that refer to each other in their causal relations. Speakers utter "this" to refer derivatively to what those natural subjects refer to originally.

The second type of natural reference is based on an analysis of the essentiality of a property. Some reference seems to be mutual reference among essential properties in states of nature; in other words, essential properties do exist. The argument for this claim consists of the following three hypotheses: (i) fitting[31] pairs in a causal relation are connected essentially; (ii) essential properties of a thing are primitively modal; and (iii) the rejection of essential properties implies that true counterfactuals cannot be entertained. What then are essential properties? One may answer this question in Kripkean manner.[32] Nelson Rolihlahla Mandela

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30) As John Heil (2003) claims, properties or qualities are all objects of perceptions, they cannot be objects of perception without power, and the individuation of properties cannot be separated from the individuation of manifestations of properties. Thus, the powers of properties become dispositions of properties. As Heil thinks that all properties are dispositions, we may be reminded of the way he argues: properties are all objects of perceptions; they cannot be objects of perception without power; the individuation of properties cannot be separated from the individuation of manifestations of properties; the powers of properties become dispositions of properties; therefore all properties are dispositions.

31) Chung, D.(1997; 2008b).

was a South African anti-apartheid politician, who served as President of South Africa from 1994 to 1999. This is true, but contingently true. The property expressed by "being President of South Africa" was a contingent property of N. R. Mandela, since he might not have been President of South Africa. Born on July 18, 1918, N. R. Mandela was the son of Nkosi Mphakanyiswa Gadla Mandela and Nonqaphi Nosekeni. If this is true then it is necessarily true. The property of being the son of N. M. G. Mandela and N. Nosekeni is an essential property of N. R. Mandela. For the zygote cell that developed at time t_i from a sperm of N. M. G. Mandela and an ovum of N. Nosekeni could not become anything other than N. R. Mandela. Once an essential property is understood in such a way, it is easy to see that natural reference is not a notion constructed within an arbitrary language; rather, it is something reached through the interpretation of the structure of an essential property.

This can be illustrated by means of an example that shows how fitting pairs in a causal relation are connected essentially. Consider this sentence: "Ice cubes in a glass cool water and water in the glass melts ice cubes." The properties referred to by "the cooling of water by ice cubes" and "the melting of ice cubes by water" execute causal powers to each other and construct simultaneous and mutual causal relations.[33] The two

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32) Kripke, S. (1977a: 16-17, 113-114; 1977b); Chung, D. (1988).

33) Martin (2008: 175-185); Molnar (2003: 187-196). Some may disagree with my interpretation of Kripkean property essentialism here. Chen Bo (2011) does not accept the idea of a posteriori necessity; instead he claims that proper names or rigid designators are forms of descriptions. Lee & Yi (2016) argue that origin essentialism implies that there are individually possible but jointly impossible organisms and material objects, whereas the essentialist arguments rest on the assumption that, contra to origin essentialism, any two possible things of the kind in question are composible. Sungil Han (2016) proposes that Kripke's negative thesis of origin essentialism—the claim that objects necessarily have their origin in no alternative source to the actual one—fails to constitute the positive thesis of origin essentialism that objects necessarily have their origin in some pertinent source. But

properties above each have their own individual dispositions; they become a causally fitting pair under relevant conditions and engage in causal manifestations. The two properties become essential for the manifestation of their causal relations. They become fitting pairs, fitting only to each other, among all the properties in the world. They refer to each other in their essential relation through the processing of informations, and a human observer derivatively can recognize their original mutual references and interpret them.

How is it possible that two properties in the relation of a fitting pair refer to each other? According to one dispositionalist analysis,[34] the properties referred to by "the cooling of water by ice cubes" and "the melting of ice cubes by water" are dispositions toward manifestations of such results under appropriate circumstances, having the function of selecting a fitting partner among many available properties. Properties are disposed to direct themselves toward fitting partners, to look for them, and to favor them. Causal powers and the dispositions of these properties cannot be analyzed in any other way, it seems. The causal powers of the essential properties of a thing are primitively modal.

In this article I have tried to defend the position of realism by arguing that "this" can be an inter-agentic referential term. The indexical can be used to connect the different experiences of two speakers; two token utterances of "this" can point to the same thing even though the two

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the structure of my interpretation is such that if N. R. Mandela actually originated from the zygote formed at t_i from the sperm of N. M. G. Mandela s and the ovum of N. Nosekeni then it is necessary that N. R. Mandela originated from that zygote. I would not reject the notion of compossibility, for an example, that it is actual that N. R. Mandela was the son of N. M. G. Mandela and N. Nosekeni, and yet it is compossible that N. R. Mandela was the son of non-N. M. G. Mandela and N. Nosekeni. But this compossibility is allowed when we take Putnam's "same L" relation as de dicto. (note my discussion above about two theories of meaning of the word "water").

34) Mumford & Anjum (2011: 189-190).

speakers express different contents with those utterances. The demonstrative "this" may also be used in two different theories to refer to the same thing with which the theories are concerned. Even though "this" tends to be understood in ordinary language mostly as an intra-agentic term, I tried to identify a space in which an inter-agentic use takes place. I have also argued that the natural world of causal dispositions consists of natural agents that are information processors. If these natural agents find fitting partners and come to have mutual causal relations, they can refer to each other in their original state. We human beings interpret those original referential relations derivatively by using indexicals.[35]

References

Babb, M. (2016), "The Essential Indexicality of Intentional Action", *The Philosophical Quarterly*, 66 (264): 439-457.

Bo, Chen (2011), "Proper Names, Contingency A Priori and Necessity A Posteori," *History and Philosophy of Logic* 32 (2):119 - 138.

Bacon, J. et al. eds. (2008), *Ontology, Causality, and Mind*, Cambridge University Press.

Braun, David (2015), "Indexicals", *Stanford Encyclopedia of Philosophy* (on line), ed. E. N. Zalta.

Braun, David (2008), "Complex Demonstratives and Their Singular Contents," *Linguistics and Philosophy*, 31: 57-99.

Cheng, Kai-Yuan (2008), "The Significance of Indeterminacy: Semantic Eliminativism or Dispositional Reductionism?", *Philosophy and Culture* 35 (8): 47-65.

Chung, Daihyun (2013), *This Spoken of Thus-Pluralistic Realism* (in Korean), Seoul: Sechang Publishing.

Chung, Daihyun (1997), *Philosophy of Fitting: Toward Meaning and Truth* (in Korean), Seoul: Cholhakgwahyunsilsa.

Chung, D. (2016a), "Integrationality(誠): A Metaphysical Basis for the Concept of Causation" (CCPEA 2012 Teipei), The Korean Society of Analytic Philosophy, ed., *Philosophical Analysis*, 17(1): 1-20.

Chung, D. (2016b), "Can Reference Be Naturalized?- Notes toward an Integrational(誠) Causality" (CCPEA 2014 Kyoto), *Philosophy Study* 6 (5): 289-304.

Chung, D. (2014), "Dispositions: An Integrational(誠) Analysis" (Gyunghee Disposition Workshop 2012), *Diogène,* 248: 59-70.

Chung, D. (2008a), "Intentionality of Cheng (誠): Toward an Organic View," Korean Philosophical Association, ed., *Philosophy and*

Culture: Metaphysics, 2008: 33-40.

Chung, D. (2008b), "Fitting: A Case of Cheng(誠) Intentionality", Abstracts: XXII World Congress of Philosophy: 109.

Chung, D. (2008c), "Seeds: Agents of Cheng(誠) Intentionality", Abstracts: XXII World Congress of Philosophy: 110.

Chung, D. (1988), "Kripkean Essentialism and Natural Kinds" (in Korean), Korean Philosophical Association, ed., *Philosophy*, 29(Spring 1988): 129 -145.

Choi, Lee-Sun (2008), "Essence and Identity", *Proceedings of the Xxii World Congress of Philosophy* 15:29-36. < https://philpapers.org/s/ Lee-Sun%20Choi >.

Davidson, D. (1990), "The Structure and Content of Truth," *Journal of Philosophy*, June, 1990: 279-328.

Davidson, D. (1984), *Inquiries into Truth and Interpretation*, Oxford University Press, 1984.

Dorato, M. and Morganti, M. (2013). "Grades of Individuality: A Pluralistic View of Identity in Quantum Mechanics and in the Sciences". *Philosophical Studies* 163: 591-610.

French, P. A. et al. eds. (1979), *Contemporary Perspectives in the Philosophy of Language,* Minneapolis: University of Minnesota Press.

Goodman, N. (1978), *Ways of Worldmaking*, Indianapolis: Hackett.

Han, Sungil (2016), "The Limit of the Kripkean Defence of Origin Essentialism," The Spring Proceedings of the Korean Society of Analytic Philosophy.

Harnad, Stevan (2005). "To Cognize is to Categorize", in Lefebvre, C. and Cohen, H., Eds. *Handbook of Categorization*. Elsevier.

Heil, John (2010), "Powerful Qualities", in Marmodoro (2010): 58-71.

Heil, John (2003), *From an Ontological Point of View,* Oxford University

Press.

Johnson-Laird, Philip N. (1977), "Procedural Semantics", *Cognition*, 5: 189-214.

Kang, Jinho (2013), "Co-referentiality and Theory Realism" (in Korean), in Chung (2013): 272-274.

Kant, I. (1781/1787), *Critique of Pure Reason*, tr. P. Guyer, et al. Cambridge University Press, 1987.

Kaplan, D. (1985, 1978), "Dthat," In Martinich, A. P. ed., (1985).

Kaplan, D. (1979, 1978), "On the Logic of Demonstratives," in French, P. A. et al. eds., 1979: 401-412.

Kaplan, D. (1971, 1968), "Quantifying in", in Linsky, L. ed. (1971): 120-144.

Kim, Jaegwon (1996), *Philosophy of Mind*, Westview.

Kim, Jaegwon (1977), "Perception and Reference without Causality," *Journal of Philosophy*, 1977: 606-620.

Kim, Jungoh (2011), *Study of Minds* (in Korean), Sigmapress.

Kim, Sun-Hie (2013), "Co-referentiality and Theory Realism" (in Korean), In Chung (2013): 276-278.

Kripke, S. (1977a, 1972), *Naming and Necessity*, Harvard University Press.

Kripke, S. (1977b, 1971), "Identity and Necessity", *Naming, Necessity and Natural Kinds*, in Schwartz, S. P. ed. 1977: 66-101.

Kvart, I. (1982), "Quine and Modalities de re: A Way Out?" *Journal of Philosophy*, June 1982: 295-328.

Lee, Chunghyoung & Byeong-uk Yi (2016), "Impossible Objects and Origin Essentialism," The Spring Proceedings of the Korean Society of Analytic Philosophy, 2016.

Lee, Jeongmin (2017), "Learning Chinese Room", *AI after Alphago*, Korean Society for Philosophy of Science Proceedings, July 5-6,

2017: 179-194.

Lee, Jung Won (2009), "A New Approach to the Measurement and Schroedinger' Cat Paradox: Supports from Stern-Gerlach Experiment" (in Korean), Korean Society for Philosophy of Science, ed., *Philosophy of Science*, 12(1): 1-23.

Lee, Jung Won (2002), "A Critical Defense of Internal Realism" (in Korean), Korean Society of Philosophical Studies, ed., *Philosophical Studies*, 58: 279-303.

Linsky, L. ed. (1971), *Reference and Modality*, Oxford University Press, 1971.

Mackie, J. L. (1975), "Causes and Conditions", *Causation and Conditionals*, ed. Ernest Sosa. Oxford University Press.

Marmodoro, A., ed. (2010), *The Metaphysics of Powers*, Routledge.

Marmodoro, A. (2010), "Introduction", in Marmodoro (2010): 1-7.

Martin, C. B. (2008), "Power for Realists", in Bacon, J. et al. eds. (2008: 175-185).

Martinich, A. P. ed., (1985), *The Philosophy of Language*, Oxford: Oxford University Press.

Molnar, G. (2003), *Powers-A Study in Metaphysics*, Oxford University Press.

Mumford, S. & Anjum, R. K. (2011), *Getting Causes from Powers*, Oxford University Press.

Mumford, S. & Anjum, R. K. (2010), "A Powerful Theory of Causation", in Marmodoro (2010): 143-157.

Perry, J. (1979), "The Problem of the Essential Indexical", *Nous*, 24 (5): 723-734.

Putnam, H. (1990), *Realism with a Human Face,* Harvard University Press.

Putnam, H. (1988), *Representation and Reality,* MIT Press.

Putnam, H. (1981), *Reason, Truth and History,* Cambridge University Press.

Putnam, H. (1980), "Models and Reality" *The Journal of Symbolic Logic*, 45-3(Sept. 1980): 464-482.

Putnam, H. (1978b), "Reference and Understanding", in Putnam, H. (1978a): 97-119.

Putnam, H. (1978a), *Meaning and the Moral Sciences*, Boston: RKP.

Putnam, H. (1977), "Analyticity and Apriority: Beyond Wittgenstein and Quine", *Midwest Studies in Philosophy*, IV: 423-442.

Putnam, H. (1973), "Meaning and Reference", in Schwartz, S. P. ed. (1977): 119-132.

Putnam, H. (1970), "Is Semantics Possible?" in Schwartz, S. P. ed. (1977): 102-118.

Quine, W. (1956), "Quantifiers and Propositional Attitudes", in Linsky, L. ed. (1971): 101-111.

Quine, W. (1960), *Word and Object,* Wiley.

Schaffer, J. (2004), "From Contextualism to Constrastivism", *Philosophical Studies*, 119 (May 2004): 73-103.

Schwartz, S. P. ed. (1977), *Naming, Necessity, and Natural Kinds*, Ithaca: Cornell University Press.

Son, Byung-Hong (2003), "Haecceitic Modal Acutalim" (in Korean), Korean Society for Analytic Philosophy, ed., *Philosophical Analysis*, 17: 61-82.

Stalnaker, R. (1984), *Inquiry*, MIT Press.

Sunwoo, Hwan (2013), "Co-referentiality and Theory Realism" (in Korean), in Chung (2013): 281-287.

Wittgenstein, L. (1953), *Philosophical Investigations*, tr. G.E.M. Anscombe, Oxford: Blackwell.