**Indexical Realism by Inter-Agentic Reference**

Daihyun Chung,

Ewha Womans University, Seoul

**Abstract:** I happen to believe that though human experiences are to be characterized as pluralistic they are all rooted in the one reality. I would assume the thesis of pluralism but how could I maintain my belief in the realism? There are various discussions in favor of realism but they appear to stay within a particular paradigm so to be called “internal realism”. In this paper I would try to justify my belief in the reality by discussing a special use of indexicals. I will 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 will be presented. The first argument derives from a revision of Kaplan-Kvart’s notion of exportation. Their notions of exportation of singular terms can be analyzed as intra-agentic exportation in the context of a single speaker and theirs may be revised so as to be an inter-agentic exportation in the context of two speakers who use the same indexicals. The second is an argument from the notion of causation which is specifically characterized in the context of inter-theoretic reference. I will argue that any two theories may each say “this” in order to refer what is beyond its own theory. Two theories address themselves to ‘this’ same thing though what ‘this’ represents in each theory turn out to be different objects all together. The third argument is an argument which is based on a possibility of natural reference. Reference is used to be taken mostly as a 3-place predicate: Abe refers an object oi with an expression ej. The traditional notion of reference is constructive and anthropocentric. But I would argue that natural reference is a reference that we humans come to recognize among denumerably many objects in natural states: at a moment mi in a natural state there is a referential relation among objects o1, o2, o3, . . , oj, o j+1, . . which interact to each other as agents of information processors. Natural reference is an original reference which is naturally given and to which humans are passive as we derivatively refer it by using ‘this’.

**Keywords:** inter-personal co-referentiality, inter-theoretic co-referentiality, natural reference, vivid demonstrative predicate, same L relation, original reference and derivative reference

**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 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]](#footnote-1) in what follows I argue that they are indeed consistent; in 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 Donald Davidson,[[2]](#footnote-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]](#footnote-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 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]](#footnote-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. “knows”) [[5]](#footnote-5) as indexicals, at least when they are understood contextually. According to Kaplan, the linguistic meaning (i.e. character) of indexicals is 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]](#footnote-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]](#footnote-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.

**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 famous question concerning the logic of propositional attitudes,[[8]](#footnote-8) 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 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 vividly in the case of the speaker a),” which is formalized as follows[[9]](#footnote-9):

(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) in the following notation [B = believe; S = being a spy; h = the man in the brown hat; b = the man seen at the beach; o = Ortcutt; r = Ralph].

(1a) (∃h) (R (h, Ortcutt, Ralph) and Ralph B “h is a spy”);

(2b) (∃b) (R (b, Ortcutt, Ralph) and Ralph B “b 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) (∃h) (∃b) (R (h, Ortcutt, Ralph) and R(b, Ortcutt, Ralph)

and Ralph B “h is a spy and b is not a spy”).

(5b) (∃s) (∃t) ((R(s, o, r) ∧ R(t, o, r)) ∧ B(r, “S s ∧ ˥ St”)).

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) (∃x) (∃h) (∃b) (((R(h, ο, r) ∧ R(b, ο, r)) ∧ Β(r, “Sh and ˥Sb)) ∧ x = ο).

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 different yet compatible things about it. 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 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 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: [Ui = being understood in language Li; m = Marry; n = Nancy; “this”m = “this” uttered by Mary at ti; “this”n = “this” uttered by Nancy at tj].

(8) (∃”this”)(D (“this” , o, m, t) ∧ D (“this” , o, n, t) ∧ (Ui“this”m ∧ ˥ Ui“this”n ∧ Uj“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, 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) (∃x) (∃”this”) ((D (“this” , o, m, t) ∧ D (“this” , o, n, t) ∧ (Ui“this”m ∧ ˥ Ui“this”n ∧ Uj“this”n)) ∧ (x=o))

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 speakers are able to speak differently about the same thing.

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.[[10]](#footnote-10) 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.[[11]](#footnote-11) 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 speak of the object o within their respective languages Li and Lj, 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 Kaplan’s 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 H2O in the actual world it is H2O in every possible world; here “it” refers rigidly to that same thing.

(8a) (∃”this”)D (“this”, g, m, t) ∧ D (“this”, g, n, t) ∧ (Ui“this”m ∧ ˥ Ui“this”n ∧ Uj“this”n)

(9a) (∃x) (∃”this”) ((D (“this”, g, m, t) ∧ D (“this”, g, n, t) ∧ (Ui“this”m ∧ ˥ Ui“this”n ∧ Uj“this”n)) ∧ (x=g))

What (8a) and (9a) 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. It will 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.**[[12]](#footnote-12)** 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 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 quantum mechanics. According to Jung Won Lee,[[13]](#footnote-13) 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 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 obtains in her 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.

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.[[14]](#footnote-14) Putnam tried to clarify the Kripkean notion of rigid designation by indexicality. Suppose, for instance that W1 and W2 are possible worlds and that a glass in W1 is filled with H2O and a glass in W2 is filled with XYZ. Two speakers, one in each world, each point to their respective glasses, and make the following utterance:

(10) This is water.

Putnam thinks that there are two possible theories for explaining the meaning of “water” in (10). Suppose W1 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 W2 is really not water, and that water is H2O 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 positions can be summarized as follows:

(T1) (W)(x in W)(x is water ↔ x bears same L to the entity referred to as “this” in W);

(T2) (W)(x in W)(x is water ↔ x bears same L to the entity referred to as “this” in the actual world W1).

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 W1 and b is 5m tall in W2 , {<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. {< H2O, 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: “x” is rigid if and only if x of W1+n has the same L relation with the object which is called “x” in the actual world W1.

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 understood in its *de re* sense. For the “same L” can be understood, not relative to worlds, but rather based on W1. However, Putnam’s position is incomplete since the referentiality of state information denoted by Putnam’s “this” is limited by the fact that state information is still determined by particular semantic rules.[[15]](#footnote-15)

Even if “this” has intra-theoretic dependency on state information, the question remains as to how “this” can obtain inter-theoretic referentiality? In order to answer to this question, the two positions of “intra-theoretic dependence of state information” and “inter-theoretic referentiality” need to be weakened so that they can be connected. One candidate for the connection is Jung Won Lee’s “pluralistic reality,” which 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 of 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.

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 account how “this” is used causally in context. The aforementioned distinction between an object o and a thing g can be rephrased as follows: what is not touched by an utterance of “this” is g (state information) but what is connected by the utterance of “this” becomes o (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 within the theory; the ontic route is a causal chain which starts from an utterance of “this” and ends with the thing g 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[[16]](#footnote-16). In this section I will explicate the notion of natural 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 refers to an object b by an expression c”. 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 understanding of 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.[[17]](#footnote-17) Perhaps the best example comes 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 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 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 a speaker wants to talk about, an object or a thing. Some notions of causality 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[[18]](#footnote-18): “ci is a cause of cj if and only if ci is neither a necessary nor a sufficient condition for cj but a necessary part of a sufficient condition for cj”. 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. The 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 of things in nature and requires those things to exhibit natural referentiality unlike passive objects that possess only concept-dependent referentiality.[[19]](#footnote-19) But what exactly is this natural reference? Just as objective 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[[20]](#footnote-20).

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 of a subject that refers to others and 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.[[21]](#footnote-21) 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 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 H2O,” “caffeine is C2H10N4O2,” 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.[[22]](#footnote-22) 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.[[23]](#footnote-23) Causes are merely dispositions toward particular results and they do not necessitate any particular results simply because those causes may be constrained by 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[[24]](#footnote-24). Properties are given, natural, and 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[[25]](#footnote-25) 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.[[26]](#footnote-26) Nelson Rolihlahla Mandela 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 from the sperm of N. M. G. Mandela and the 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 a 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.[[27]](#footnote-27) The two 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,[[28]](#footnote-28) 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. 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 utterances of “this” can point to the same thing even though the two 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. While the ordinary understanding of “this” is intra-theoretic, I have identified a space in which an inter-theoretic use of “this” is possible. 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.[[29]](#footnote-29)

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2016/7/04

chungdhn@ewha.ac.kr

1. The traditional dichotomy of realism and idealism may be due to a failure to 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. [↑](#footnote-ref-1)
2. Davidson, D. (1990: 279-328; 1984: 65-76). [↑](#footnote-ref-2)
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, perhaps together with Quine’s naturalized epistemology. This version, though more persuasive than other versions, still does not discuss how inter-agentic references can be related. [↑](#footnote-ref-3)
4. Davidson, D. (1984: 125-140; 1990: 279-328). [↑](#footnote-ref-4)
5. Schaffer, J. (2004: 73-76). [↑](#footnote-ref-5)
6. Kaplan, D. (1985; 1979: 401-412); Braun, D. (2015; 2008: 57-99). . [↑](#footnote-ref-6)
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. But he seems to deny the possibility that an indexical can be used independently of an established language. [↑](#footnote-ref-7)
8. Quine, W. (1971: 101-111); Kaplan, D. (1971: 112-144); Kvart, I. (1982: 295-328). [↑](#footnote-ref-8)
9. Kvart, I. (1982: 305-307); Kaplan, D. (1971: 134-138). [↑](#footnote-ref-9)
10. 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). [↑](#footnote-ref-10)
11. Davidson, D. (1984: 229-239). [↑](#footnote-ref-11)
12. 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. [↑](#footnote-ref-12)
13. Lee, Jung Won (2009: 1-23; 2002: 287-290). [↑](#footnote-ref-13)
14. Putnam, H. (1970: 102-118; 1973: 119-132; 1977: 423-442; 1978b: 97-119). [↑](#footnote-ref-14)
15. In my view Newton’s ‘lightn’ and Einstein’s ‘lighte’ are causally connected to their utterances of “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 Sunwoo Hwan (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. [↑](#footnote-ref-15)
16. Chung, D. (forthcoming). [↑](#footnote-ref-16)
17. Kant, I. (1987, 1781/1787), Wittgenstein, L. (1953), Goodman, N. (1978). [↑](#footnote-ref-17)
18. Mackie, J. L. (1975). [↑](#footnote-ref-18)
19. Chung, D. (2014; 2013; 2008a). [↑](#footnote-ref-19)
20. Chung, D. (2016; 2008c). [↑](#footnote-ref-20)
21. Chung, D. (2014: 10). [↑](#footnote-ref-21)
22. 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. [↑](#footnote-ref-22)
23. Mumford & Anjum (2011, 2010); Marmodoro (2010). [↑](#footnote-ref-23)
24. As John Heil (2003) argues, 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 and all properties are dispositions. [↑](#footnote-ref-24)
25. Chung, D.(1997; 2008b). [↑](#footnote-ref-25)
26. Kripke, S. (1977a: 16-17, 113-114; 1977b); Chung, D. (1988). [↑](#footnote-ref-26)
27. 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 compossible. 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 the structure of my interpretation is such that if N. R. Mandela actually originated from the zygote formed 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. [↑](#footnote-ref-27)
28. Mumford & Anjum (2011: 189-190). [↑](#footnote-ref-28)
29. This paper is prepared to read at The 3rd Conference on Contemporary Philosophy in East Asia(CCPEA), Seoul, August 19-20, 2016. [↑](#footnote-ref-29)