# Kant and Natural Kind Terms*

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ABSTRACT: As is well known, the linguistic/philosophical reflection on natural kind terms has undergone a remarkable development in the early seventies with Putnam and Kripke's essentialist approaches, touching upon different aspects (metaphysical and epistemological in particular) of Kant's slant. Preliminarily, however, it might be useful to review some of the theoretical stages in Locke and Leibniz's approaches on natural kind terms in the light of contemporary reflections, to eventually pinpoint Kant's contribution and see how some commentators have placed it within the theory of direct reference. Starting with textual evidence even from the logical corpus, in the present essay I will attempt to discuss some of the arguments dismissing Kant's adherence to this view. These assume that in his approach to the semantics of natural kind terms, Kant appears to be still holding on to a nominalist/conceptualist position, though he seems to be well aware of a few key issues for the theorists of direct reference.

Keywords: Kant; theory of natural kind terms; direct reference theory; indexicality; Leibniz; Kripke; Putnam.

RESUMEN: Como es bien sabido, la reflexión lingüístico-filosófica sobre los términos de género natural experimentó un notable desarrollo a principios de los setenta con las aproximaciones esencialistas de Kripke y Putnam, que tocaban distintos aspectos (metafísicos y epistemológicos en particular) de orientación kantiana. Preliminarmente, sin embargo, puede ser útil revisar algunas de las etapas teóricas en las aproximaciones de Locke y Leibniz a los términos de género natural a la luz de las reflexiones contemporáneas, para finalmente determinar la contribución de Kant y observar cómo algunos comentaristas le han situado dentro de la teoría de la referencia directa. Comenzando con pruebas textuales que incluyen incluso el corpus lógico, en este ensayo me propongo discutir algunos de los argumentos que desestiman la adhesión de Kant a esa concepción. Estos argumentos asumen que, en su acercamiento a la semántica de los términos de género natural, Kant parece sujetarse aún a una posición nominalista-conceptualista, aunque parece ser plenamente consciente de algunas cuestiones centrales para los teóricos de la referencia directa.

Palabras clave: Kant; teoría de los géneros naturales; indexicalidad; Leibniz; Kripke; Putnam.

## 1. Preliminaries

As is well known, the linguistic/philosophical reflection on natural kind terms has undergone a remarkable development in the early seventies with Putnam and Kripke's essentialist approaches (cf. §3), touching upon different aspects (metaphysical and epistemological in particular) of Kant's slant. Preliminarily, however, it might be useful to review some of the theoretical stages in Locke and Leibniz's approaches on natural kind terms in the light of contemporary reflections (cf. §2), to eventually pinpoint Kant's contribution and see

how some commentators have placed it within the theory of direct reference (cf. §4). Starting with textual evidence even from the logical corpus (cf. §§5-6), in the present essay I will attempt to discuss some of the arguments dismissing Kant's adherence to this view. These assume that in his approach to the semantics of natural kind terms, Kant appears to be still holding on to a nominalist/conceptualist position, though he seems to be well aware of a few key issues for the theorists of direct reference (§§7-8).

## 2. Locke and Leibniz on natural kind terms

In some passages from the third book of the *Nouveaux essais sur l'entendement humain,* Leibniz attacks Locke's position on natural kind terms, reconsidering the role of the epistemic component (the 'provisional definition', i.e. Locke's 'nominal essence'). In particular, in doing so he shifts the theoretical weight onto our need to contemplate the substances' real essence and internal constitution to explain how terms may relate to those substances making up the metaphysical furnishing of reality.

According to some of Leibniz's commentators —among which Jolley, Kulstad and Goodin— this specific standpoint connects Leibniz with Putnam's *The Meaning of 'Meaning'* and his own semantic conception. As is known, this lies in the wake of Putnam's first realism on both the metaphysical plane, for his need to contemplate an essentialist base of substances, and the epistemic plane, to postulate the social character of the division of linguistic work which lays down the definitions and the semantic properties of a term within a given linguistic community.

Leibniz argues that the terms of the substances surrounding us in nature tend asymptotically to capture some features of the substances' very essence. As a consequence, substances are held to play a primary role in the method and significance of scientific classification and human knowledge more in general, whether this succeeds in consigning the properties of the substances or not, to eventually rely on a provisional and perfectible definition.

This is indeed the very point of contrast with Locke's thesis in his *An Essay Concerning Human Understanding*. The empiricist philosopher applied a clear division between real and nominal essence, between the metaphysical order and the order involved in the processing of the definitions labelled by a linguistic term: it is not possible to classify nor name substances on the basis of their real essence since this is precluded to our own faculties from an epistemic point of view (1690, III, VI, 9).

Locke does not deny the ontological existence of the substance nor its particular inner constitution, which, according to the corpuscular theory espoused by the philosopher, founds all its qualities. The point (and the epistemological *caesura*) is that since the inner corpuscular structure is not accessible, we cannot distinguish the aspects of the substance's actual constitution on which depend its essential qualities, nor, as a consequence, the definitions and respective demarcations between one substance and another. Locke's *opportunistic mind* (cf. Formigari 2001, 159), based on an inherently constructivistic as well as representational paradigm, sets up a constitutive relationship between language and thought, and furthermore is responsible alone for the scientific (and non-scientific) division of natural substances and the proper use of words: a term designates nothing but an abstract mental representation, i.e. the nominal essence,

which consists of the single representations selected on the grounds of human interests and needs that identify and separate essential from accidental qualities to define the substance in question.

The demarcations and similarities between substances underlying their respective classifications —hence, the identification of the essential qualities enabling us to establish the boundaries between one substance and another— are not based on the order of the real but rather are produced by the human intellect. In its turn, the human intellect's main activity consists in abstracting and combining multiple, rhapsodic, sporadic sensations originated in the perceptual domain. Subsequently, these will be turned into simple, complex ideas, which, in their turn, will receive a name by means of a *voluntary imposition*. Hence, not only the sharing of cognitive contents within a given community but also the formation of knowledge itself implies the association of linguistic terms with abstract ideas —understood as *marks of ideas*, namely subjective signs of memory and intersubjective tools of communication— enabling us to bestow stability and continuity upon the arbitrary character of the abstractive scheme.

The mental order mediates between words and substances: the list of properties forming an idea —i.e. the nominal essence, the set of similarities which the human spirit selects among all potentially available similarities in the corpuscular structure— results from the historical contingent order in which men operate. At the same time, not only does the linguistic order preserve the product of this cognitive segmentation, it also articulates thought at an individual level so as to make it possible, enabling us to share intersubjective knowledge. The separation between mental (and linguistic) order on the one hand, and real order on the other —along with the primacy of the former over the latter— lies on the epistemological rather than ontological plane: although real essences are the causes of the existence of the substances' properties, as it were, the boundaries between the substances composing the natural classifications are posed by nominal essences, by the contingent choices made by men.

Locke —not only in contrast with Leibniz but also with Putnam— holds that a specimen must belong to a given species on the condition that it possesses all the properties contained in its respective nominal essence. Therefore, the presence of such nominalist criteria will enable us to determine unquestionably whether, for example, a substance is gold or not. In addition, seeing that a word is associated with a mental and abstract representation, with the nominal essence, so as to fix it and make it possible, it follows that it is always possible to determine the correct use of a natural substance term in naming performances.

From this perspective, if nominal essence is entirely responsible for the division of substances in the natural world, epistemic access to real essence must inherently depend on nominal essence, that is on the mental order produced by men's choices; this implies, for example, that the real essence of gold is wholly determined by its nominal essence. As different nominal essences will correspond to different corpuscular structure configurations, their real essence will no longer be the same (Kulstad, Goodin 2005, 218).

At first glance, Leibniz and his well-known interest in a nominalism purged of Hobbes's alleged excesses concede Locke (and his position) a few arguments (cf. Mates 1986; Gensini 2000). If substances have an internal structure —namely a metaphysical basis from which spring all the qualities with which we enter in contact in the perceptual domain— most of the time there is no knowledge of such an inner structure. The frontiers

making up the classifications of natural substances are laid down by the mental constructions of men, i.e. by the epistemically contingent cognitive formations of a particular historical moment: in the words of Leibniz (1765, III, VI, 13, 310), '[by] the attributes which appear to us the most convenient for distinguishing and comparing things and, in short, for recognizing species or sorts'. Such is the fundamental role Leibniz grants to the provisional definition, a notion which corresponds (although in some respects only) to Locke's nominal essence:

> Gold can be nominally defined in various ways - it can be called the heaviest body we have, the most malleable, a fusible body which resists cupellation and aquafortis, etc. Each of these marks is sound, and suffices for the recognition of gold: provisionally, at least [...]. So one can say that in matters where we have only the empiric's kind of knowledge our definitions are all merely provisional. (Leibniz 1765, III, IV, 16, 299-300)

Indeed, Leibniz reconsiders the role played by nominal essence and assigns the provisional definition a status of its own (cf. Goodin 1999): it is true that substances can be the objects of knowledge only through a mental construct —namely through empirical definitions, 'concepts' emerging from time to time from the contingent choice of attributes— however, this construct is in itself the product of the joint intervention of perceptions, i.e. sensory stimuli grounded on reality, and the innate equipment of the intellect, also referred to as 'ideas'. In this sense, bodies, of which we have knowledge, are well-founded phenomena ultimately based on the austere ontology of monads.

According to Leibniz's metaphysical vision, the objective order of reality and the subjective order of knowledge ultimately converge in the principle of *expressio*. This is a point of balance between an essentialist basis —which cannot be ignored if we wish to categorize according to an analogy of 'structure' (*habitudo*)— and the contingent formation of human knowledge, which is nothing but the 'expression' of that metaphysical basis, albeit different in its own independent reprocessing.

The gap between Locke's nominal essence and Leibniz's provisional definition unfolds at various points (Kulstad, Goodin 2005, 218-9). Basically, while nominal essence is the sole responsible for the division among substances, provisional definition is not. Real essence, Locke holds, is entirely determined —obviously from a strictly epistemological point of view— by nominal essence: there is no difference between the order of the real and the cognitive order, no real essence without nominal essence. Leibniz, on the contrary, regards provisional definitions as provisional indeed, and differences between definitions and real essences as possible at all times.

The arbitrary constructivism of Locke's abstractive schema has free scope in the determination and classification of natural kinds exactly because the epistemic *caesura* with the metaphysical order is established once and for all. For Leibniz, on the contrary, (1) there exists a classification of substances totally founded in nature; (2) natural classification is constitutive and independent from that of men's; (3) the cognitive order parallels the order of the real, it is the 'expression' of the metaphysical structure of reality; (4) such an approximation occurs regardless whether the defining properties summarized by a term actually capture the essential qualities or not; (5) for the very reason that we can make mistakes in the contingent categorization of reality, the provisional definition is no longer the mediation core of the relationship between words and substances as in Locke's system, where

nominal essence is regarded as the sole —and for this reason unfailingly reliable— criterion for the knowledge and cataloguing of natural substances.

This crucial point anticipates some elements of Putnam's perspective. Leibniz maintains that the word 'gold' can be used to designate the relative substance even if this is unknown and even if the nominal definition associated with the term and the real essence may diverge. Contrary to Locke, Leibniz contends that a particular specimen of metal may present all the properties making up gold's nominal definition (malleable, fusible, etc.) even if that particular metal is not exactly gold, due to the presence of a different real essence. As is well known, this is the essentialist scenario contemplated by Putnam in his *Gedankenexperiment* of the Twin Earth, devised to clarify his externalist perspective, as will be said. The priority Putnam grants to the so-called contribution of the environment in the determination of substance term reference is summarized, and anticipated, in a powerful passage in Leibniz (1765, III, III, 14, 292): 'If men disagree in the name, does that change the things themselves or their resemblances?'.

## 3. *Kripke and Putnam on the theory of direct reference*

The scientific essentialism accounts for the philosophical framework wherein the theory of direct reference was articulated by Kripke and Putnam in the early seventies in several papers and essays[1]. I take Kripke's doctrine as the paradigm of scientific essentialism[2]:

> Scientific investigation generally discovers characteristics of gold which are far better than the original set. For example, it turns out that a material object is (pure) gold if and only if the only element contained therein is that with atomic number 79. Here the 'if and only if' can be taken to be strict (necessary). In general, science attempts, by investigating basic structural traits, to find the nature, and thus the essence (in the philosophical sense) of the kind. (Kripke 1982, 138)

Kripke and Putnam object Frege's (and, *mutatis mutandis*, Locke's) semantic descriptivist approach, for which the reference of natural kind terms, and that of proper names too,

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[1] Cf. essays in Putnam (1975), particularly *The Meaning of 'Meaning',* and Kripke (1982). Needless to say, while a number of authors judge metaphysical essentialism to be a consequence of the theory of direct reference, others consider the two positions as independent; Kripke and Putnam's approaches to scientific essentialism, which will not be taken into account here, differ; Putnam has reworked fundamental metaphysical and epistemic aspects of his philosophical reflection.

[2] Hanna (2006, 152-3): 'Scientific essentialism is held to follow directly from: (1) A general thesis concerning the correct analysis of necessary or strongly modal statements (namely, that they are logically or strictly metaphysically necessary and "Leibnizian", or true in all logically possible worlds accessible from a designated world, our actual world). (2) A general theory of the semantics of natural kind terms (namely, that every natural kind term is a "rigid designator": it holds its actual-world reference fixed across all possible worlds in which its referent exists, and never picks out anything else otherwise). (3) A specific thesis about the modality of identity-statements involving rigid designators (namely, that if they are true, then they are necessarily true). (4) A specific linguistic claim to the effect that natural kind terms are rigid designators, based on some proposals concerning the nature of the linguistic mechanisms of reference-fixing at work in society at large and in the natural sciences in particular (namely, the "causal theory of names", and the socio-linguistic hypothesis of "linguistic division of labor".)'.

is determined on the grounds of a descriptive content since the individual/substance satisfies the properties expressed by the descriptive contents associated with the terms. In particular, Putnam states that a natural kind term can be used notwithstanding the fact that the descriptive content of the term may not be satisfied by the substance in question: if a speaker does not know the difference between an elm and a beech, and yet employs the corresponding terms, these will refer to two different trees even if the content ascribed to 'elm' and 'beech' is the same, making it thus impossible to distinguish them.

Similarly, in Putnam's well-known 'Twin Earth' thought experiment, in which he hypothesizes a planet identical to Earth in every other way except for water —whose micro-structure, different from $H_2O$, is condensed by the formula XYZ— an earthling and his or her twin will refer to two different substances every time they use the term 'water', although the conceptual content or stereotype associated with the term is the same because both perceive the same macro-properties (a clear, odourless, tasteless liquid, etc.). It is not the content/meaning in the two speakers' heads that determines the reference: natural kind terms, just like proper names, are directly referential, or have an indexical component, to use Putnam's terminology. Reference is fixed by a baptism, an act of intentional labelling that establishes a causal and punctual relationship between a single term and a substance, a relationship that stays unchanged in both name and substance on the assumption of the indexical component fixing the paradigm of the substance's extension. The relationship between name and substance —the causal chains of transmission in a linguistic community— must be inherited socially; in other words, the intention to refer constantly to what possesses the same essential properties as the substance of the initial baptism must stay unaltered so that the two most extreme rings of the chain can be assumed.

Once the introductory event is created by a baptism, it is nature, i.e. the metaphysical order, which determines (as Leibniz puts it) a term's reference. However, Putnam maintains that the changeover fixing the reference will occur through an intentional device that introduces and establishes the chain between a name and a substance, its final ring being the indexical act 'this', conventionally set up and socially inherited. Leibniz, on the other hand, adopts quite different criteria for the introduction and determination of linguistic reference[3].

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[3]  Leibniz regards the environment's primacy in an utterly different way by the law of expression. In a well-known letter to Arnauld, dated 9th October 1687, Leibniz comments that one thing expresses another provided that there exists a constant and regulated connection between what can be said of both. A little earlier, in *Quid sit idea,* Leibniz already distinguishes the more powerful *similitudo* from the *analogia habitudinum*, two characterizations of *lex expressionis*, for which, in the expression of a thing, there are structures (*habitudines*) that correspond to the structures of the thing to be expressed (cf. Gensini 2005, 60). Once this particular relation, postulated through a structural-based correspondence, is framed within the linguistic field, it cannot be assimilated to the indexical component: the notion of expression is geometrical/mathematical, indicating a relationship between sign and reality which is justified according to a correspondence rule (which does not imply a naive notion of iconicity or similarity). From a strictly linguistic point of view, this is specified by the statement that words are made up of a psychological (*affectus*) and phonic (*soni*) complex ruled by the law of *consensus*: Leibniz's analogy, namely that particular link connecting language with reality, lies between *verba* and *res* through the human *affectus* caused by things as well as the subsequent mediation

In this framework we can distinguish no less than three different theoretical dimensions. In particular, the first dimension is metaphysical: natural kinds are identified by virtue of their essence or nature based on micro-properties or micro-structures analysed by science, on which depend those macro-properties that are the objects of empirical observation (of course, the philosophical debate on this dependency relationship offers several metaphysical options with a crucial impact on the essentialist thesis). Secondly, an epistemic dimension: structures and micro-properties that make up the substances of natural kinds are investigated by science. The resulting knowledge is just as *a posteriori* as the knowledge of macroscopic properties, in their turn the objects of empirical observation; by contrast, knowledge of the macrophysical properties of natural kinds belongs to conceptual *stereotypes* of common sense and *a priori* knowledge is specified by the conceptual or logical/linguistic analysis of the dictionary meanings of the terms that make up the natural kind stereotypes employed in a given society (Hanna 2006, 156). Lastly, we also distinguish a semantic dimension: natural kind terms are rigid designators, i.e. terms referring to the same referent in all possible worlds in which the referent exists, and are based on a mechanism of direct reference[4]. Their semantic content is not made of descriptions or conceptual contents as is identified by its referents, determined, in their turn, through a baptism that establishes a causal chain, socially inherited, between terms and substances.

If true, a statement of essential identity involving two co-referential rigid designators —e.g. one relative to the natural kind, the other relative to what are regarded as its micro-properties, as in the statement 'water is $H_2O$'— expresses a necessary truth from a metaphysical point of view which is valid in all possible worlds, however epistemically *a posteriori*. On the other hand, to retrieve an example from Kant ('gold is a yellow metal') that I will attempt to analyse in the next section, statements of identity involving a natural kind rigid designator and a term referring to one of the macro-properties of the substance in question express a truth which is metaphysically contingent and epistemically *a posteriori*: the substance's macro-properties, such as gold's yellow colour, do not express the essence of the natural kind and are used empirically to categorize substances from a linguistic/cognitive point of view.

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of the mimetic power of voice. Hence, Leibniz interprets the natural by the law of expression through a threefold process: *affectus,* expressing a state of things, and sound, expressing *affectus*. For this particular aspect of historic-natural languages, the intentional act of baptism plays no constitutive role in Leibniz's system; suffice it to remember his outspoken criticism of the arbitraristic (and Aristotelic) conception —and, in particular, to the *voluntas* component— of the choice of men or collectivity; in short, Leibniz's criticism of Locke's *voluntary imposition* of names. This is an arbitrary device applying to rational languages in particular (such as *characteristica universalis*) and, more limitedly, to natural languages, as can be seen in a passage from *Epistolaris dissertatio* (1712), where the Platonic instance is explicitly invoked whereas the possibility that names are *hominum deliberatione constituta, à la* Kripke, is limited.

4  Obviously, not all rigid designators are directly referential (for a presentation of the theory of direct reference, cfr. Kaplan, 1989). Needless to say, there has been much debate of whether and (if so) how natural kind terms are to be understood as rigid, and there is no consensus, cfr. Bird, Tobin (2012). Since the main aim of this paper is to verify the presence of a direct referential mechanism in the Kantian approach to the semantics of natural kind terms, I will not consider these aspects of the debate.

## 4. Kant and the a priori *nature of the judgement 'gold is a yellow metal'*

On the basis of the identification of metaphysically necessary truths —albeit *a posteriori*, from an epistemic point of view— the essentialist approach overtly polemicizes with Kant. An example is found in Putnam (1975, 233):

> Since Kant there has been a big split between philosophers who thought that all necessary truths are analytic and philosophers who thought that some necessary truths were synthetic a priori. But none of these philosophers thought that a (metaphysically) necessary truth could fail to be a priori: the Kantian tradition was as guilty as the empiricist tradition of equating metaphysical and epistemic necessity. In this sense Kripke's challenge to received doctrine goes far beyond the usual empiricism/Kantianism oscillation.

Nevertheless, several commentators have attempted to articulate Kant's arguments against an essentialistic perspective —cf. Kroon, Nola (1987), Anderson (1994), Hanna (1998) (2006)— in an effort to frame his semantic approach within the theory of direct reference. As I will try to argue, although a number of theoretical points connected to this framework can be certainly discovered, Kant's approach to natural kind terms is still bound to a nominalist/conceptualist position spelled out according to the dictates of transcendental idealism.

In the same manner as Locke, Kant articulates a sharp division between epistemic and metaphysical order. In agreement with the principles of transcendental idealism and the separation between *noumena* and phenomena, the ultimate nature of substances —i.e. their internal foundation— is utterly inaccessible from an epistemic point of view. On the one hand, the thesis of transcendental idealism is even more radical than Locke's *caesura*: while Kant explicitly rejects Berkeley's anti-realism owing to the *noumena/*phenomena distinction, he agrees with the Irish bishop's dismissal of any subdivision between primary and secondary qualities, as also supported by Locke, to eventually reject a representational paradigm based on resemblances even as regards primary qualities (1997, 289). On the other hand, within his transcendental idealism Kant defends his own version of empirical realism (*KrV* A370) —what Hanna (2006, 142) has relabelled 'manifest realism'— based on his adoption of the Newtonian principles of physics and subsequent refusal of the corpuscular theory adopted by Locke (*KrV* A265/B321). The metaphysically assumed existence of material reality conjugates with Newton's principles, for whom reality amounts to a series of movements of material bodies containing perceptible properties and interacting with one another in compliance with the laws of physics in a macroscopic space-time dimension apprehended as a phenomenon. If, for Kant, empirical concepts relative to nature only apply to objects of possible experience (*Log*, 1992, 143-44), the foundation of natural substances cannot be object of knowledge for it lies outside the forms of possible experience established by transcendental investigation. In a letter to Reinhold, dated May 1789, Kant (1967, 299-300) is particularly explicit on this matter:

> The real essence (the nature) of any object, that is, the primary inner ground of all that necessarily belongs to a given thing, this is impossible for human beings to discover. For example, extension and impenetrability are the whole logical essence of the concept of matter, that is, they are

all that is necessarily and primitively contained in my, and every man's, concept of matter. But to recognize the real essence of matter, the primary, inner, sufficient ground of all that necessarily belongs to matter, this far exceeds the capacity of human powers. We cannot discover the [real] essence of water, of earth, or the [real] essence of any other empirical objects.

In this context we should include Kant's famous statement (1997, 267) that 'gold is a yellow metal' is an analytic, *a priori* and necessary judgement:

> All analytic judgments depend wholly on the principle of contradiction, and are in their nature a priori cognitions, whether the concepts that supply them with matter be empirical or not. For the predicate of an affirmative analytic judgment is already thought in the concept of the subject, of which it cannot be denied without contradiction [...] For this very reason all analytic judgments are a priori even when the concepts are empirical, as, for example, 'Gold is a yellow metal'; for to know this I require no experience beyond my concept of gold, which had as its content that this body is yellow and metal. For just this constituted my concept; and I need only decompose it, without looking beyond it elsewhere.

Kripke (1980, 39) overtly rejects the analytical *a priori* character attributed to the judgement. According to the above-mentioned dimensions making up the essentialist approach of the direct reference theory, and considering the term 'gold' as subject and, for brevity, only the term 'yellow' (whose reference is a phenomenal quality) as predicate, for a pure essentialist perspective like Kripke's, the statement cannot be but synthetic, contingent and *a posteriori*. Indeed, while 'being yellow' is a macro-property of the substance gold which depends, to a certain extent, on one's perceptual system, on the other hand it does not concern its essence. As opposed to the dictates of the essentialist approach, Kant's articulation of the epistemic dimension addresses those very macro-properties of the substances since there can only be knowledge of the possible objects of experience based on the principles of transcendental idealism, precluding any possibility to find out the inner nature of the substances themselves.

In order to understand the reasons having led Kant to state the *a priori* nature of the judgement 'gold is a yellow metal', it might be useful to recall the indissoluble link between thought and language and, more specifically, the characteristics of the empirical/conceptual and linguistic dimension. Accordingly, these come into play to determine the semantics of the terms referring to the substances all around us in nature by means of the plexus that binds concept, logical essence and linguistic terms. However, this cannot be attained without specifying at once that it is possible —within a conceptualist frame— to identify two different dimensions in Kant's semantic approach to natural kind terms, i.e. a logical/formal dimension, as it were, and a material dimension[5].

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5   These cannot overlay the two components of the semantic device included in Anderson (1994), one 'stable' and the other 'unstable', wherein Kant's natural kind terms are quasi-indexical terms whose meaning and reference can be determined through a *core-concept* and, in a broad sense, a pragmatic dimension based on an indexical device. However, I will later return to this point in discussing Hanna's (2006) somewhat similar proposal.

## 5.  The relation between term, concept, and natural substance

With the formal/logical dimension in mind as a starting point, every concept has a logical essence, namely a set of essential, necessary, immutable, and limited conceptual notes. As the concept is associated with a linguistic term expressing it, its nominal definition clears up the link between logical essence and term. These considerations must be comprised within the context of general logic and its difference with transcendental logic, that considers the former as unconcerned with the content or matter of thought but only with the form of representations and the way they turn into concepts. The point is well summarized in the context of the *KrV* (A721/B749) that deals with the difference between mathematical and philosophical method starting from the well-known distinction between analytic and synthetic propositions:

> I could analyze my empirical concept of gold without thereby gaining anything more than being able to enumerate what I actually think by means of this word, which would certainly produce a logical improvement in my cognition, but no augmentation or supplementation of it. But I can take the matter that goes by this name and initiate perceptions of it, which will provide me with various synthetic though empirical propositions.

Conceptual analysis cannot increase knowledge from a material point of view since it merely expounds the notes contained in logical essence, associated, in their turn, with the word-concept in question. It is precisely within the articulation of conceptual form that the statement 'gold is a yellow metal' (seen as an analytical judgement expressing *a priori* knowledge) should be contextualized. It is sufficient to apply a linguistic and conceptual analysis to the very bond linking word and concept to state that the conceptual note 'yellow' must be contained in the concept of 'gold'. Once the conceptual plot and its relative linguistic/conceptual links are established, they can be traced back *a priori* in order to find the notes that make up the logical essence of a concept; in other words, it is possible to identify the specific connection between the subject-concept and the concept-predicate contained in it that make up an analytic judgement.

Empirical concepts can only contain conceptual notes relative to macro-structural properties that are objects of possible experience. Therefore, if the concept 'gold' contains the conceptual note 'yellow' to form an analytic judgement, in a similar way —and regardless of the fact that, at Kant's time, chemical knowledge was very limited— the concept of gold does not contain the conceptual note 'element having atomic number 79' analytically. Hence, Kant holds the judgement 'gold is the element having atomic number 79' to be synthetic and known *a posteriori* (Anderson 1994, 357; Hanna 1998, 501).

If this is the conceptualist soul of Kant's approach to the semantic theory of natural kind terms, a material dimension can be specified by investigating how conceptual plots are formed and used. One thing is the formal dimension of the conceptual nexus by means of which we can determine the analytical nature of judgements, another thing is the material dimension of transcendental logic, that can be referred to the concepts' formation and application to intuitions according to synthetic judgements, e.g. in denomination performances.

In the passage from the *KrV* (A721/B749) on the synthetic judgements concerning matter, we can trace an early mention to both the perceptual relationships that increase knowledge and an unavoidably indexical link between term and matter. This indexical link is more

explicitly restated in the quoted passage from *Prolegomena* (1997, 267), for this reason Hanna (2006, 212) adds '[Kant] explicitly describes "my concept of gold, which had as its content that *this* body is yellow and metal"' (italics added). Although I will later return to this specific point to mitigate some conclusions, now it is necessary to point out the interdependence between conceptual and intuitive dimension in reference determination, which depends not only on conceptualist criteria but also on the introduction of empirical intuition[6].

As opposed to Leibniz's framework, both the conceptualist and the Kripkian/Putnamian essentialist perspectives operate a clear-cut distinction between metaphysical and epistemic order. Of course, this takes place from two different directions, i.e. in one case from the epistemic side of nominal essence, in the other from the *essentialist* side of the substance's nature. The causal chain created by an introductory event binding name and substance remits the issue of linguistic reference to the essential nature of substances rather than to contingent nominalist criteria; hence, the reference between a term and the substance is ensured, be the latter epistemically captured or not.

Kant's *caesura* concerns the epistemic side, implying the anti-Leibnizian objection to the fixing of a *species infima* or a complete notion of an individual or substance from a metaphysical point of view (*KrV* A655-6/B683-4). At the same time, Kant (*Logik* 1992, 595) acknowledges the determination of a lowest species by convention, ignoring the conceptual differences which —according to the regulative principle of reason given by the transcendental law of specification (*KrV* A656/B684)— can be articulated within any concept at all times. Additionally, the contingent condition of uniqueness of the lowest species, in exactly the same way as the denotation of definite descriptions, requires an empirical intuition: a substance is specifically identified by a concept so long as an intuition incompatible with those conceptual assumptions is given (Thompson 1972, 331). In other words, the introduction of *species infima* or of criteria for the determination of a substance cannot provide identification conditions valid once and for all, its conventional and provisional nature always implying the possibility for further intuitions to disavow those criteria. The following Kantian passage specifies this aspect by introducing new elements of reflection on the relationship between term, concept and natural substance:

> in the concept of gold one person might think, besides its weight, color, and ductility, its property of not rusting, while another might know nothing about this. One makes use of certain marks only as long as they are sufficient for making distinctions; new observations, however, take some away and add some, and therefore the concept never remains within secure boundaries. And in any case what would be the point of defining such a concept? - since when, e.g., water and its

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6   Ever since the mathematical/philosophical debate aroused by Hintikka and Parsons' essays (cf. Posy [1992], which contains these as well as other interventions), there have been identified a number of conditions a representation must meet to amount to an intuition. I will only mention two of them (cf. *KrV* A19/B33), bearing in mind that they are objects of a heated dispute within the theoretical debate: (a) *the singularity condition*, a criterion based on the type of denotation involved, whereby intuition is a singular representation denoting an individual object as opposed to concepts denoting different objects that fall under it, owing to the presence of the very property the concepts represent; (b) *the immediacy condition,* which concerns the type of relationship —obviously immediate— a particular representation shares with its denotation as opposed to concepts referring to an object in a mediated way through those conceptual features (or marks) that compose the very concept's intension. For the problems regarding the role of the intuition as an indexical representation, cf. Forgione (2015).

> properties are under discussion, one will not stop at what is intended by the word "water" but rather advance to experiments, and the word, with the few marks that are attached to it, is to constitute only a designation and not a concept of the thing; thus the putative definition is nothing other than the determination of the word. (*KrV* A728/B756)

This passage offers several key issues concerning the topics that are being touched on and should be contextualized within the distinction between the notion of *definition*, typical of mathematical concepts, and that of *exposition*, belonging indeed to the sphere of empirical concepts (cf. Capozzi 1980). If we analyse the material dimension of concepts, the use of the terms associated with them, and the experimental scientific research on the making of the substances that are the very terms' referents, from a transcendental point of view it is not possible to establish the conceptual characteristics that define once and for all the contents of a term and, along with them, the properties that make up the essence of a natural substance. As a matter of fact, it is not possible to establish a definition of the concept, thus we can only proceed with an exposition or description —provisional for its own nature— of the notes composing it. The definition is an exclusive privilege of the *a priori* synthesis of mathematical concepts: as this is arbitrary, coming about in pure intuition without the material intervention of an object, it coincides with the *construction*, i.e. with the *a priori* representation of an object in intuition that contains nothing but the elements that compose the concept itself in a complete and precise *Darstellung* of the concept in intuition.

## 6.  *The semantic reflection in the logical* corpus

Although the issue is somewhat more articulated in the logical corpus, it reaches the same conclusion. Kant (*Logik* 1992, 630) states that the doctrine of method, understood as the second part of the logic that follows the doctrine of the elements, analyses the form of science in general —that is the way to connect the manifold of knowledge to make it a science— and expounds how we reach the perfection of knowledge. One of the essential logical perfections of knowledge is articulated in the distinctness, thoroughness, and systematic ordering required by science; in its turn, the distinction of concepts regarding what is contained within and below them is part of the distinction of knowledge. In this context, we find the notions of exposition and definition —where the latter is meant as an exact and distinct enough concept— mainly analysed in *Wiener Logik*. In order to frame these concepts it is necessary to follow Kant in his articulation of the different types of concepts.

The first distinction regards (I) *conceptus dati* and (II) *conceptus factitii*: while the former do not depend on any choice whatsoever, the latter are produced on a voluntary basis. *Conceptus dati* can be: (I.1) *a priori*, if the concept is given in the intellect, e.g. the concept of cause; (I.2) *a posteriori*, if the concept is given through experience, e.g. the concept of water. In their turn, *conceptus factitii,* can be (II.1) *a priori*, if the concept is formed through reflection, without the intervention of any element of experience, e.g. the *conceptus fictitius* that supports the representation of a thousand-sided figure; (II.2) *a posteriori*, if the concept is formed on the basis of an object given in experience, e.g. if we wish to form a distinct concept of a piece of metal we must carry out a series of experiments or tests to record all the properties that might emerge from experience so as to extend the concept through the addition of subsequent notes.

At first glance, all *conceptus dati* (I) —be they *a priori* (I.1) or *a posteriori* (I.2)— can only be defined through the analysis: 'For because [the concept] is given, I cannot make it distinct except by making clear the marks that lie in it, and that is just analysis' (*Wiener Logik* 1992, 357). On the other hand, *conceptus factitii* —be they *a priori* (II.1) or *a posteriori* (II.2)— can only receive a *per synthesin* definition (*Wiener Logik* 1992, 357).

The synthetic definitions of concepts given *a posteriori* cannot be determined as there is no knowledge of every possible and undefined conceptual mark experience can offer. On the whole, the analytic definitions of concepts given *a posteriori* are themselves incomplete: 'When the inquirer into nature defines water, e.g., as a fluid body without taste or colour, one readily sees how precarious the definition is. He who is not already acquainted with water will not thereby become acquainted with it'. It follows that 'The definition [...] is completely unsuitable for acquainting others with water. For in the concept water there lies so little that I immediately go outside the concept and have to collect new marks through experience' (*Wiener Logik* 1992, 360). Furthermore, even the analytic definitions of concepts given *a priori* present several limitations since it is not easy to expound a concept's marks in a precise way.

In this context, it is necessary to introduce the distinction between *nominal* and *real definition*. As already mentioned, while the former corresponds to the meaning associated with a given name to designate logical essence, the latter concerns the knowledge of the object according to its internal determinations and corresponds to the foundation of possibility of the thing (Capozzi 1980, 426-29). In particular, the real definitions are given for the *conceptus factitii* only, e.g., the arbitrary mathematical concepts, concepts of reason and arbitrary inventions. Apart from being real, they are always complete but never wrong[7].

Now Kant addresses the possibility to employ the notion of 'definition' for empirical concepts. *In primis*, the corresponding object cannot be defined by a real definition; hence, we can only resort to the concept through which the object is thought along with the corresponding marks involved in the nominal definition. Nonetheless, while these marks are always variable, they can never make up the complete concept of an object; once again, by using an argument similar to those also already introduced in the *KrV*, Kant says that in naming and defining empirical concepts, 'we do not all have the same opinions'. As each speaker may have different experiences of the same thing, we can only acquire a provisional description of empirical concepts relative to particular purposes.

Therefore, in the logical corpus Kant also argues that a real definition —here synthetic and real— is possible, coinciding with the accomplished perfection of knowledge only as far as *conceptus factitii* are concerned, in particular for arbitrary concepts paradigmatically

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7   In *Logik Blomberg*, which is based on lectures given early in the 1770S and then before the introduction of the distinction between transcendental and general logic, Kant argues: 'it lies solely with me to make up the concept and to establish it as it pleases me, and the whole concept has thus no other reality than merely what my fabrication wants[;] consequently I can always put all the parts that I name into a thing[,] and these must then constitute the complete, possible concept of the thing, for the whole thing is actual only by means of my will' (*Logik Blomberg* 1992, 216). It is exactly because concepts or artefacts are arbitrary that we can choose how to call them through an act of baptism: 'since [...] I will that this shall be called thus, it is called thus' and this is the reason why 'the names of things that arise in art are also always true[;] their inventor is always right, for they are arbitrary concepts' (*Logik Blomberg* 1992, 216).

exemplified by mathematical concepts. Instead, since the synthesis of empirical concepts is endless, it is always possible to find new notes in experience that modify the concept. For this reason, it is only with mathematical arbitrary concepts that we can associate a definition that Kant (*Logik* 1992, 633) also terms *declarations*, 'insofar as through them one declares his thoughts or gives account of what one understands by a word. This is the case among mathematicians'.

This does not mean that in a logical context a logical/semantic reflection cannot serve the specific purpose of anchoring the use of language to a reliable semantic side (at least in a provisional way) thanks to the concept's nominal definition and the corresponding logical essence governing the relationship between word and concept. Kant states this principle in several passages: 'By mere *definitions of names*, or *nominal definitions*, are to be understood those that contain the meaning that one wanted arbitrarily to give to a certain name, and which therefore signify only the logical essence of their object, or which serve merely for distinguishing it from other objects' (*Logik* 1992, 634); 'It (Nominal definition) means almost nothing more than what the expression nominal definition says, a certain attestation to the name of the thing, in order to make the name of the thing distinct, but not to have better insight into the thing itself' (*Wiener Logik* 1992, 361).

In other words, at one extreme, and with respect to the concepts given *a priori* and *a posteriori*, Kant seems to provide an analytic definition that, in the case of a material or real context for *a posteriori* concepts such as natural kinds, is judged 'precarious' since such concepts can be modified at all times. In the case of a logical/formal context, an analytic definition will be needed in order to capture the logical essence of a concept and fix a stable meaning. At the other extreme are the synthetic definitions of *conceptus factitii*: as with the above-mentioned example of the artefacts of the works of art, these can be named by an act of baptism without the mediation of a specific conceptual core so that their designation may become the connecting core for subsequent synthetic definitions.

## 7. The role of the designation

This opens a breach in Kant's conceptualist approach to natural kind terms. In addition to the corpus's considerations, up to this point a number of passages have been quoted: (a) the passage from *Prolegomena* (1997, 267) on the concept of gold's content as involving an indexical dimension; (b) the passage from the *KrV* (A721/B749) in which, after explaining the content associated with the term gold, it is stated that 'I can take the matter that goes by this name and initiate perceptions of it'; (c) the passage from the *KrV* (A728/B756), whereby we can never be sure that the same number of notes can be thought with the word that designates the same object; (d) finally, once again from the passage from the *KrV* (A728/B756), whenever we speak of water and its properties from the point of view of the material and its properties, we cannot limit ourselves to what is contained in the thought and its concept given *a posteriori*: 'when, e.g., water and its properties are under discussion, one will not stop at what is intended by the word "water" but rather advance to experiments, and the word, with the few marks that are attached to it, is to constitute only a designation and not a concept of the thing'.

If in the material dimension of transcendental logic, the word, with the few marks that are attached to it, constitutes only a designation and not a concept of the thing, the logi-

cal essence is no longer the centre of mediation between substance and term. At the same time, as has been said, the synthetic definitions of concepts given *a posteriori* cannot be determined because new observations can modify the conceptual content associated with the term[8]; thus, we will not be able to learn all possible marks provided by experience. In *Logik Dohna-Wundlacken* Kant (1992, 464) also points out that of a natural substance such as water, 'We can never have complete insight into the real essence, e.g., we can never experience all the marks of water no matter how far physics advances'. It is for this precise reason that, in a material dimension, the designation (*Bezeichnung*) —i.e. the link between term and substance, albeit accompanied by the notes the term carries along with it— becomes the fulcrum of the semantic device of natural kind terms. Since it is synthetic judgements that come into play in this dimension, we need to exit from the logical/formal dimension and move to the indexical mechanism of the empirical intuition, which will eventually turn into the bridge linking word-concept and substance, the hook that enables us to speak of the same substance even if the same notes that make up the related concept are not shared.

Undoubtedly these considerations link Kant to the spirit of the direct reference theory or, at the very least, they controvert a pure conceptualist approach *a là* Locke. At the same time, it does not seem possible to assert a direct relationship between terms and substances along the lines of Putnam's indexical component through the attribution of a twofold component (both demonstrative and descriptive) to natural kind concepts[9]. This is due to the presence in the designation, even so specified, of certain notes that constantly accompany the word-concept in the first place. More importantly, a natural kind concept is no special empirical concept containing a demonstration component: like any other empirical concept, it may have a singular use[10] and be employed in indexical cognitive performances as involve empirical intuition within the form of a singular judgement. Kant's examples, among which the already quoted passage from *Prolegomena*, should be contextualized in this bigger picture.

In a nutshell, even when Kant in the *KrV* (A728/B756) focuses on the *Bezeichnung* —the word that designate the thing, rather than its concept— this will involve some of the notes that accompany the word and the intuition serving as the substance's designative terminal. The demonstrative component is irrelevant to the concept and, in a material dimen-

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[8]  *Logik Blomberg* (1992, 87): 'gold differs from all other metals through its weight, but a metal has also been discovered, named platina, that is white in colour but has the same weight as gold. Consequently this mark, this distinguishing ground of gold from all remaining metals, is not sufficient enough'. Cf. Capozzi (2002, 497).

[9]  Hanna (2006, 212-13): 'Kant regards natural kind concepts as a special case of his theory of empirical concepts. He explicitly describes "my concept of gold, which had as its content that this body is yellow and metal"; hence GOLD partially decomposes to this conceptual microstructure: <this body + yellow + metal>. It can be immediately seen that for Kant gold contains two distinct components: (a) a referential component, this body; and (b) an attributive or descriptive component that reflects some (but obviously, not all) of the manifest identifying properties of gold, namely, yellow and metal. What I want to argue is that for Kant this fusion of distinct components yields the very feature of natural kind concepts that sets them radically apart from all other sorts of empirical concepts'. Kroon and Nola (1987) have already argued that Kant implicitly —as well as inconsistently— identifies two different natural kind concepts, a rigidly designating concept and a concept-stereotype.

[10]  Kant (*Logik* 1992, 589) explicitly states that there is no singular concept whatsoever: by definition, concepts are representations whose logical form is always general. However, he also admits the possibility of three different uses of concepts: one general, one singular, and one particular.

sion —both in the formation of an empirical concept and in its application— it only involves the intuition in an act of judgement that, in the applied case, tries to bring it under the brim of the abstract concept through the schematic process of imagination.

Probably it is starting with a semantic reflection on proper names that the tension between a conceptualist approach and one based on a direct semantic device becomes tangible to the extent that, in certain passages, Kant seems to be giving more importance to the latter than the former. Following Capozzi's (2009, 2015) contributions, proper names are associated with *conceptus singulares*, 'as disconcerting may be the presence of this term in the Kantian logical lexicon' since Kant explicitly rejects the existence of singular concepts: 'being something' and 'being one' constitute the only necessary notes articulating its contents. This minimalist/conceptualist approach to the semantics of proper names allows considerations that seem to parallel the theory of direct reference, if we consider the problem of epistemic identification and its relative application to proper names, and the fact that singular concepts designated by proper names cannot differ in content —which is the same for everyone— but only in number: '*differentia numerica* (*Caius, Titius*)' (*Reflexion,* 2901, 16.566). In *Logik Dohna-Wundlacken* (1992, 489), numerical difference is made explicit as 'the distinction of the *conceptus singulares*, insofar as they are not common to several. Among men we indicate them by *nomina propria*'. Accordingly, it is the names themselves —and their own bearers' designations— rather than the mediation of *conceptus singulares* that determine the differences among individuals. Once again, in the example of *Logik Dohna-Wundlacken* (1992, 496), if two learned men are not distinguishable through the conceptual notes attributed to the singular concepts representing them, it must be the numerical difference that makes a difference; this will be signified by the relative designation of proper names or their initials: 'Learned men are specifically the same and generically, too, and nonetheless numerically different[,] as C. and J.'.

## 8. Conclusions

In conclusion, for the presence of certain notes in the designation that constantly accompany the natural kind terms (and also the proper names) Kant does not introduce a direct referential mechanism and appears to be still holding on to a nominalist/conceptualist position spelled out according to the principles of transcendental idealism, although he seems to be well aware of a few key issues for the theorists of direct reference. Thanks to the designation of a substance, we can speak of the same substance even if two speakers have different knowledge of it and even if they do not share exactly the same conceptual notes, or when science brings about new knowledge and further observations change the concept associated with the substance term. As has been said with respect to the difference between definition and exposition, 'an empirical concept cannot be defined at all but only explicated. For since we have in it only some marks of a certain kind of objects of the senses, it is never certain whether by means of the word that designates the same object one does not sometimes think more of these marks but another time fewer of them' (*KrV* A 728/B756).

The fragment in question vaguely recalls what Putnam termed 'the division of linguistic labour' within a community on the assumption that speakers cannot all share the knowledge of a particular natural kind in the same way. On this issue, however, the true precursor of Putnam's positions is Leibniz; save for the metaphysical instance, whereby

there exists an order of truth that is independent from our way of knowing, Leibniz reveals men the entire world of history, the contingent character of the formation of knowledge and linguistic definitions. At the same time, precisely because the broad spectrum of *indétermination du langage* opens within the historical order, it is a mistake to judge what is conceived with a certain name to be exactly what other more expert people conceive. One won't err 'if we have recourse to the experts when fine points arise about whatever it is that the name is generally understood to stand for' (1765, III, VI, 30, 323).

In Putnam (1975, 227-8), as in Leibniz, the result is surprisingly similar: within a given community, there exists in the broad sense a division of labour on which is based the division of linguistic labour (noticeably, some commentators, among which Leibniz himself, regard the distinction of these two aspects as futile, cf. Marconi 1997).

The following Leibniz-Theophilus's ideas in response to Locke-Philalethes's —the former being an argument against Locke-Philalethes's claim that languages have arisen before science, and the latter advocating for the need to study the natural history of substances— both anticipate Putnam's position on this ground, i.e. the priority of the scientific knowledge of natural essences that experts develop over that of common people: 'the people who study a subject-matter correct popular notions. Assayers have found precise methods for identifying and separating metals, botanists have marvelously extended our knowledge of plants' (Leibniz 1765, III, VI, 25, 318). In addition, the phenomenon of 'semantic deference', a central aspect in the perspective and social character of the division of linguistic labour, is also reasserted:

> the name 'gold', for instance, signifies not merely what the speaker knows about gold, e.g. something yellow and very heavy, but also what he does not know, which may be know about gold by someone else, namely: a body endowed with an inner constitution from which flow its colour and weight, and which also generates other properties which he acknowledges to be better known by those who are experts. (Leibniz, 1765, III, XI, 24, 354)

## REFERENCES

Anderson, Erik. 1994. "Kant, Natural Kind Terms, and Scientific Essentialism". *History of Philosophy Quarterly*, 11(4): 355-373.

Bird, Alexander & Tobin, Emma. 2012. "Natural Kinds". In *The Stanford Encyclopedia of Philosophy*, edited by E.N. Zalta, http://plato.stanford.edu/archives/win2012/entries/natural-kinds

Capozzi, Mirella. 1980. "Kant on mathematical definition". In *Italian Studies in the Philosophy of Science*, edited by M.L. Dalla Chiara. Dordrecht: Reidel Publishing Company.

Capozzi, Mirella. 2002. *Kant e la logica. Vol. I*. Napoli: Bibliopolis.

Capozzi, Mirella. 2009. "La teoria kantiana dei concetti e il problema dei nomi propri". *Dianoia*, 14: 119-46.

Capozzi, Mirella (forthcoming). "Singular term and intuitions in Kant: A reappraisal". In *Kant's philosophy of mathematics. the critical philosophy and its background*, edited by C. Posy and O. Rechter. Cambridge: Cambridge U.P.

Forgione, Luca. 2015. "Kant on de re: some aspects of the Kantian non-conceptualism debate". In *Kant Studies on line*, 2: 32-64.

Formigari, Lia. 2001. *Il Linguaggio. Storia delle teorie.* Roma-Bari: Laterza.

Gensini, Stefano. 2000. *'De linguis in universum'. On Leibniz's Ideas on Languages. Five Essays*. Münster: Nodus Publikationen.

Gensini, Stefano. 2005. "Leibniz on the arbitrariness of signs". In *Leibniz et les puissances du langage*, edited by D. Berlioz and F. Nef. Paris: Librairie Philosophique Vrin.

Goodin, Susanna. 1999. "Locke and Leibniz and the Debate over Species". In *New Essays on the Rationalists*, edited by R.Gennaro and C.Huenemann. Oxford: Oxford University Press.

Hanna, Robert. 1998. "A Kantian Critique of Scientific Essentialism". *Philosophy and Phenomenological Research*, 58(3): 497-528.

Hanna, Robert. 2006. *Kant, Science, and Human Nature*. Cambridge: Cambridge University Press.

Jolley, Nicholas. 1984. *Leibniz and Locke. A study of the 'New Essays on Human Understanding'*. Oxford: Clarendon Press.

Locke, John. 1690. *An Essay Concerning Human Understanding*. Indianapolis: Hackett Publishing, 1996.

Kant, Immanuel. 1900-. *Gesammelte Schriften* Hrsg.: voll. 1-22, Preussische Akademie der Wissenschaften; from vol. 23, Deutsche Akademie der Wissenschaften zu Berlin; from vol. 24, Akademie der Wissenschaften zu Göttingen. Berlin: de Gruyter.

Kant, Immanuel. 1755-99. *Philosophical Correspondence*. Chicago: University of Chicago Press, 1967

Kant, Immanuel. 1781-87. *Critique of Pure Reason* (*KrV*). Cambridge: Cambridge University Press, 1997.

Kant, Immanuel. 1783. *Prolegomena to any Future Metaphysics*. Cambridge: Cambridge University Press, 1997.

Kant, Immanuel. 1800. *The Jäsche Logic*. In *Lectures on Logic*. Cambridge: Cambridge University Press, 1992.

Kant, Immanuel. 1992. *Lectures on Logic*. Cambridge: Cambridge University Press.

Kaplan, David. 1989. "Demonstratives: An Essay on the Semantics, Logic, Metaphysics, and Epistemology of Demonstratives and Other Indexicals". In *Themes from Kaplan*, edited by J. Almog, J. Perry and H.K. Wettstein. Oxford: Oxford University Press.

Kripke, Saul. 1980. *Naming and Necessity*. Cambridge: Harvard University Press.

Kroon, Fred & Robert Nola. 1987. "Kant, Kripke, and Gold". *Kant-Studien*, 78: 442-58.

Kulstad, Mark & Susanna Goodin. 2005. "Leibniz, Locke et l'essence de l'or: la question de la classification des espèces dans un débat philosophique historique et dans le contexte scientifique actuel". In *Leibniz et les puissances du langage*, edited by D. Berlioz and F. Nef. Paris: Librairie Philosophique Vrin.

Leibniz, Gottfried Wilhelm. 1765. *Nouveaux Essais sur l'entendement humain*. Cambridge: Cambridge University Press, 1996.

Marconi, Diego. 1997. *Lexical Competence*. Cambridge: MIT Press.

Mates, Benson. 1986. *The philosophy of Leibniz. Metaphysics and Language*. Oxford: Oxford University Press.

Posy, Carl J. (ed.). 1992. *Kant's philosophy of mathematics: modern essays*. Dordrecht: Kluwer Academic Publishers.

Putnam, Hilary. 1975. "The meaning of 'meaning'". In *Philosophical papers vol. II*. Cambridge: Cambridge University Press.

Thompson, Michael. 1972. "Singular Terms and Intuitions in Kant's Epistemology". *The Review of Metaphysics*, 26(2): 314-343.

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