Structure in Ontology – 08/11/2007

How to do Your Ontological Job: Methodological Issues.

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1.   **"On What There Is": ontology or metaphysics?**
2.   **The Quinean mottos, part I: "To Be Is to Be the Value of a (Bound) Variable".**
3.   **The Quinean mottos, part II: "No Entity Without Identity".**
4.   **Descriptive or prescriptive metaphysics?**

This lecture is entirely devoted to **meta-ontological** issues. Meta-ontology, in van Inwagen's [1998] sense, concerns, among other things, the methodology of ontology, that is, the tools one should use when doing ontology. We will also address a cluster of technical terms and expressions belonging to the typical glossary of current analytic ontology.

1.   **"On What There Is"**

▪   Ontology is usually identified with the part of philosophy which aims at answering the question: **what is there?** This Quine [1948] calls the Ontological Question, but we can call it the **Q.Q.** (the Quinean Question).

▪   Quine claims we have an easy answer for the **Q.Q.**: *everything*. To exist is to be a part of the Whole, that is, of Everything. How could something be *something* and fail to be a part of the Whole (Meinong notwithstanding – we'll come to talk about Meinong later)?

▪   We also have a less trivial way of positing the **Q.Q.** In the non-trivial reading, we aim at writing down a **general catalogue** of all there is, a "complete inventory" (Broad [1923]) of the *furniture* of the world. And here disagreements between philosophers are possible (and likely).

▪   The inventory of what there is, is not to be done by listing each single thing as an item of our Big Catalogue (it would take too long!). What we aim at, to begin with is a series of categories that capture the **most general** kinds of being. A few examples:

-   **concrete particular objects**, that is, roughly (we'll find more precise characterizations in the following lectures): things that are in a unique place at every moment of time, and "completely fill" the region of space they occupy, so that there's no room for more stuff there: tables, dogs, stones;

-   most philosophers would list, as a separate ontological category, that **of events** – that is, things that *happen* to people or other things, or things that people or other things *do*, and that can take a short or a long time: kicking a ball, calling on the phone, raining, kidding, fusing hydrogen into helium;

-   some philosophers claim that concrete particulars and events do not exhaust the furniture of the world, and want to countenance also **universals**: roughly, things that, unlike concrete objects, can *recur* in different places at the same time – for instance, *properties*: the property of being red, or the relation between wives and their husbands, etc.

-   some want to list things that occupy an intermediate position between concrete particulars and universals, and called **tropes**; tropes, of which we will talk in the following lectures, are things like the redness of this pen, or the rectangularity of this table, which, unlike properties, do not recur,

but have a single location in space (they are *particulars*, in this sense), and, unlike concrete particulars, do not exhaust the region of space they occupy (they are *abstract*, in this sense): the shape of this table can co-occupy the same spatiotemporal region as the colour of this table.

- Etc., etc. (**propositions**, **facts**, **states of affairs**…)

▪ Of course, one can also signal ontological agreements and disagreements by using *less* general terms: for instance, I may express my disagreement with Peter van Inwagen's ontology by claiming: "Well, unlike Van Inwagen, I do admit pieces of Emmenthal in my ontology". Or I may express my agreement with Quine's ontology by claiming: "Well, Quine's proposition that there are no propositions, to me, sounds true".

1.1.   Ontology or metaphysics?

▪ "Metaphysics" is not an Aristotelian word (it comes from μετὰ τὰ φυσικά, just because the Aristotelian writings on a subject Aristotle called πρώτη φιλοσοφία were put after his writings on physics).

▪ "Ontology" is also a later coinage, referring to the study of τὸ ὄν, *being* or, better (to meet Heideggerian needs), *that-which-is*.

▪ My favourite distinction (to which I will *not* strictly stick! – for reasons TBA) is the following (with "ontology" and "metaphysics" taken as count-nouns):

An ontology   =$_{df}$ **A reply to the question: *What is Out There?***

A metaphysics =$_{df}$ **A reply to the question: *What is It?* (That which is Out There)**

▪ In this sense, ontology would be a preliminary inquiry with respect to metaphysics (see van Inwagen [1998], Varzi [2005]): the *What's-Out-There* ontological task is to write down a general catalogue, by categorizing things that are Out There in very general kinds, such as those listed above: material objects, events, abstract objects (if there are any), propositions (if there are any), properties (if there are any), set-theoretic entities (if there are any), etc.

▪ The metaphysical *What's-It* task comes later: it consists in investigating the **nature**, or the **structural features**, of the things of which ontology has told us that they are Out There. Once ontology has provided us with a general definition of *material object* (say: concrete spatiotemporal occupier, etc.), metaphysics should answer to such questions as: ok, *what* is a material object? Which would be the *nature* of material objects? Do they have some ontological *structure*, or are they something like a metaphysical *blob*? Under which conditions should we claim that *x* and *y* are *the same* material object? Under which conditions do material objects *persist* in time and through change? … And so on (Varzi [2005]).

▪ An example of how the distinction manifests itself. Two philosophers, **A** – say, **A**ristotle – and **B** – say, **B**ertrand Russell – meet (ok, it's a trans-temporal meeting). Both agree that material objects (concrete spatiotemporal occupiers) exist. They have an *ontological* agreement on material objects. But they may have a *metaphysical* disagreement, that is, they may (actually, they *do*) disagree on the nature and structure of material objects. The disagreement goes as follows:

- According to **A**(ristotle), material beings are, in his terminology, prime (or individual) *substances*, made of a *substratum* bearing its properties (actually, Aristotle was not univocal on *substrata*, but we may skip this issue), and three-dimensional: extended in the three directions of space, but not in time, and entirely present at each moment of time at which they exist. Many authors belong to the **A**(ristotelian)-party: Strawson [1959], Wiggins [2001], Lowe [1989].

- According to **B**(ertie), material beings are nothing of the sort: they are *bundles* of properties kept together by their co-occurrence (no mysterious *substratum* around!), and four-dimensional: extended not only in space, but also in time, that is, having *temporal* parts. Many authors belong to the **B**(ertie)-party: Hochberg [1964], Castaneda [1974], and David Lewis [1986].

1.2.   Why I wouldn't be too rigid on terminology

▪   Several metaphysicians (or ontologists!) reverse the terms: Bergmann [1967], Johansson [1989], Grossmann [1992], and others, use "ontology" to mean the *What's-It*-theory, and "metaphysics" to mean the *What's-Out-There*-theory. So it may be good to have the distinction of household *tasks* in mind, but we can occasionally use "ontology" and "metaphysics" interchangeably for both tasks.

▪   The ontology/metaphysics distinction in itself (whatever name you attach to the two tasks) has been criticized by some (e.g., Chisholm [1996], Thomasson [2004]), on different grounds, but the common conclusion is: ontology (in the first sense I gave above: the answer to the **Q.Q.**) is not a *preliminary* issue with respect to metaphysics, or it is not an issue at all. For instance, according to Hacker [1982] philosophers are supposed to do only *one* thing, not two, one after the other: they are not, for instance, supposed to tell us what is Out There in the material world, for this is a job for physics and, maybe, biology or chemistry: philosophers may only philosophize on the things whose existence is established by natural sciences.

▪   The best argument I know (Bianchi and Bottani [2003]) against the distinction is simple: you cannot answer to the (ontological) question whether some kind of being is Out There *before* you have some hints on the (metaphysical) *nature* and structure of that kind of being. Otherwise, how could you know *what* you are looking for? (I think the argument is unsound anyway, as the Aristotle vs. Bertie example shows).

2.   The Quinean mottos, part I: "To Be Is to Be the Value of a (Bound) Variable".

▪   One important meta-ontological tool in order to do ontology, according to many, is Quine's **Criterion of Ontological Commitment**(**C.O.C.**), as found, e.g., in Quine [1948]. Actually, what is most important is to understand what the criterion amounts to (and, first of all, what it does *not* amount to). Some claim that the **C.O.C.** goes as follows:

Quine's C.O.C. =$_{df}$ To Be Is to Be the Value of a (Bound) Variable.

▪   But, actually, this is more the Quinean motto that recapitulates the criterion, than the criterion itself. What does the **C.O.C.** amount to? Some examples:

(1)   There's a horse in the garden;
(2)   There's Gandalf riding the horse;
(3)   There's a round square painted on Gandalf's t-shirt (supposing Gandalf has finally updated his wardrobe).

▪   Now, in order for (1)-(3) to come out true, some things have to *exist*. And we say that (those who claim) (1)-(3) are *ontologically committed* to such things, in the sense that, in order for (1)-(3) to be true, those things have to be Out There. The **C.O.C.**, applied to (1)-(3), says that, in order to ascertain what *exists, according to* the three sentences:

- we have to translate them into the "canonical notation" of predicate logic with quantifiers, that is (I'll provide only a semi-formalization):

(1a) $\exists x$ (x is a horse & x is in the garden);

(2a) $\exists x$ (x = Gandalf & x is riding the horse);

(3a) $\exists x$ (x is round and & x is square & … etc. etc.);

- we have to look at their *domain of quantification*: at the things that are the values of the relevant variables. What exists, according to those sentences, is what has to be in the domain of quantification, i.e., what has to be in the domain of the variables, in order for those sentences to be true.

2.1.   Paraphrases and logical form – a familiar case: the present king of France

▪   The aforementioned cases were easy but, according to some of the initiators of analytic philosophy, such as Frege, Russell, and (the tractarian) Wittgenstein, natural language is ontologically and logically *deceptive*: issues concerning the ontological entailments of what we claim can be addressed only *after* some suitable reconstruction of ordinary language, which should uncover its "real and hidden" logical form, has taken place.

▪   In particular, we are tempted to consider most words alongside the simple pattern of *names* – as autonomously referring to entities Out There, and ontology may be misguided by this. So we have, for instance, Carnap [1932] making very heavy weather on Heidegger, who had said such things as "Das Nichts nichtet", taking such terms as "Nothing" as names denoting something mysterious. This may lead to big metaphysical nonsenses:

"I see nobody on the road", said Alice.
"I only wish I had such eyes", the King remarked in a fretful tone. "To be able to see Nobody! And at that distance too!" (Lewis Carroll, *Through the Looking-Glass*)

▪   The example *par excellence*:

(4)   The present king of France is bald.

The present king of France does not exist, or, which is the same, currently there's no king of France around, so which would be the "ontological commitment" of (4)? A Meinongian (see Meinong [1904]) can take nonexistent objects at face value and claim that no particular logical paraphrase is needed: "the present king of France" denotes a *possible*, but not actually existent, object.

▪   This will not do for any philosopher who does not want to be committed to such strange entities as objects that do not exist. Bertrand Russell is one of them (Russell [1905]). So Russell says that the logical form of (4) is *misleading*, and does not reveal its real *ontological commitment*. What (4) actually means is:

(4a)   There is an individual x such that x is the present king of France, and there's only one such x, and this guy is bald.

▪   The job of the paraphrase (4a) is to disclose the real ontological commitment of (4). (4) is an implicit declaration of existence: given **C.O.C.**, in order for (4) to be true, in the domain of quantification there must be exactly one thing which is the present king of France, and is bald. (4) is *committed to the existence* of such a thing, and (4a) makes it explicit. But such a thing does not exist: there's no present king of France, so in Russell's paraphrase (4) comes out *false*.

2.2.   Is C.O.C. a S.O.S.?

▪   Does **C.O.C.** tell us what is Out There? No! Quine's **C.O.C.** is not an ontological tool by means of which we can give a definitive answer to the **Q.Q.**. It is a meta-ontological tool by means of which we can discover, given a theory T (taking "theory" in a broad sense: a set of sentences closed under logical

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entailment), what *should* be Out There in order for the sentences of T to be *true*: we translate T into the canonical variable-quantifier notation, and we uncover its ontological commitments.

▪ This way, one can criticize a given theory T for having implausible ontological commitments, that is, for being committed (once translated to the canonical notation) to kinds of entities we might, for some reason, not want.

▪ Take David Lewis' [1973, 1986] famous stance on *possible worlds*. When doing modal reasoning, we make such claims as:

(5) I might have been king of France.

This can be analysed in PW-talk by saying that:

(5a) There's a possible world, *w*, such that, at *w*, I am king of France.

And according to Lewis the ontological commitment of (5a) should be taken at face value: in order for PW-talk and analyses to work, possible worlds must *exist*. (5a) comes out true if and only if, Out There, ∃*w* (*w* is a possible world &, at *w*, I am king of France). So if one accepts Quine's **C.O.C.**, and rejects commitment to such strange entities as possible worlds (which should be Out There, but bear no spatiotemporal or causal relation at all with our world), one should reject Lewis' theory.

▪ Conversely, if a theory T appears to be committed to some undesirable kind of entities, *and* the T-theorist who accepts to play the game of **C.O.C.** wants to avoid such commitment, it is up to her to produce a suitable paraphrase of the T-sentences which avoids quantification over the undesired entities. Take the wonderful dialogue on *holes* by David and Stephanie Lewis [1970] in the *Australasian J. Phil.* Lewis is (supposedly) a materialist philosophers, a disbeliever in immaterial things. Now, if Materialist David, talking in ordinary English, claims:

(6) There's a hole in that piece of Emmenthal,

he is quantifying on *holes*: Given Quine's **C.O.C.**, he is committed to the existence of a hole in the Emmenthal, in order for (6) to come out true. In short, he is committed to there being holes Out There. But Materialist David does not want to have any holes Out There. His materialistic world is made of material beings, having mass, weight, etc. So he can accept that there's a piece of Emmenthal (apart from metaphysical disagreements on what it is supposed to be), and that there's air here and there, surrounding it and its surface, but he cannot accept such immaterial stuff as *holes*. If he is willing to play the game of **C.O.C.**, he has to propose some such paraphrase of (6), for instance:

(6a) That piece of Emmenthal is perforated,

thereby avoiding ontological commitment to holes. There are no holes (in the Emmenthal or elsewhere) Out There, but only perforated material beings.

▪ Now suppose Peter van Inwagen enters the scene. Van Inwagen is a mereological quasi-nihilist (this is a technical ontological term to say that, in van Inwagen's ontology, there are no material beings with proper parts such as houses, bananas, and rivers, but only simple particles so-and-so arranged). Nihilist Peter cannot accept (6a) either, if he wants to play the **C.O.C.** game: for uttering (6a) commits him to there being such things as pieces of Emmenthal. (6a) can match van Inwagen's desired ontological commitments only if one turns it into something like:

(6b) Those subatomic particles arranged Emmenthalwise are so-and-so shaped

where "arranged Emmenthalwise" and "so-and-so shaped" are (abbreviations of) descriptions of patterns of distribution of subatomic particles.

▪ Of course, neither Materialist David nor Nihilist Peter have to go around uttering such things as (6a) or, *a fortiori*, (6b). They can keep talking as anyone else does (just like astronomers keep talking of sunrises, although the sun, strictly speaking, does not rise). However, *if* their ontological theory T entails that such sentences as (6) can come out true, and *if* they accept to play the methodological game of Quine's **C.O.C.**, they have to say that even if they keep making such claims as (6), what *they really mean* is… (and here follows the suitable paraphrase).

▪ Further examples:

(7)   Modesty is a virtue;
(8)   Red is a colour.

According to philosophers with a realistic attitude towards universals, (7) and (8) entail ontological commitment to properties: in order for (7) and (8) to come out true, there must be such properties as modesty and redness in the World Out There (see Strawson [1959]; Armstrong [1989], [1992]). Now a nominalist philosopher (say, Quine himself) who rejects properties from his ontological Catalogue (we'll soon see why Quine rejected them), may propose the following paraphrases:

(7a)   Modest persons are virtuous;
(8a)   Red things are coloured,

that is to say:

(7a) $\forall x$ (if x is a person and x is modest, then x is virtuous);
(8a) $\forall x$ (if x is red, then x is coloured),

and these quantify only on individual material beings, and require only individual material beings to be true (see Quine [1948], [1960]).

▪ "Eliminative" research programs in ontology, e.g., in the ontology of mathematics, often play the **C.O.C.** game by producing systematic paraphrases of ordinary mathematical sentences in order to avoid ontological commitment to undesired abstract mathematical objects, such as sets or classes (Burgess and Rosen [1997] is an amazing book on this). However, this can be a tricky business – try and translate *this* without committing yourself to holes:

(9)   There are as many lifebelt-shaped holes in that piece of Emmenthal as olives in your dish

(this comes from Varzi [2001]: 33; see also Casti and Varzi [1994]).

▪ Besides, if paraphrases have to retain meaning, they should be *symmetric*: if P is translatable into Q, then Q is translatable into P, so paraphrases may not be sufficient to establish the eliminativist ontologist's point (Schlesinger [1983], Varzi [2001]: Ch. 2). But even the claim that paraphrases have to retain meaning is controversial (Alston [1958]; Quine [1960]: § 33).

▪ Is **C.O.C.** a **S.O.S.** in ontological debates? To some extent, yes. When you want to know what kinds of entities a theory T is committed to, you may *try* the general strategy of translating T into the canonical logical idiom with quantifiers, and see what has to be in the domain of quantification of the sentences of T so translated, in order for them to be true.

▪ But the translation has to be subscribed to by the T-theorist herself, otherwise she might complain that we haven't taken into account the "intended" logical form of the sentences of T. As van Inwagen [1998] has pointed out, there is no unique translation from ordinary language to the quantifier-variable canonical notation, and according to most philosophers there is no "unique, pre-existing, hidden" logical form to uncover.

▪ So some philosophers propose the following methodological suggestion: *first*, choose your favourite ontology, and *then* see how *it* fits with linguistic intuitions. Otherwise, you run the risk of *imposing* to ordinary language a logical form that matches your (unconsciously) favourite metaphysical options (Marconi [1979], Kripke [1982], Oliver [1999]).

3.   The Quinean Mottos, II: "No Entity Without Identity"

▪ This Quinean motto is a prohibition: do not include in your ontology, therefore, in the furniture or the world, (kinds of) entities for which you have no **identity criteria** (Quine [1981]: 102).

▪ It is usually claimed that an identity criterion is something of the form:

(10)   If x …, and y … , then $x = y$

(usually, identity criteria involve a restriction of *kinds*, but this can be left implicit given contextual disambiguation). The idea comes from Frege [1950]: § 62.

▪ The Quinean motto now means that the only "respectable" kinds of entities to be included in the Big Catalogue are those for which we have a criterion to tell, given entities x and y of a kind K, whether x is the same as y or not. The criterion should provide *sufficient* conditions for identity.

▪ For instance, when K = concrete, particular objects, one may propose the following:

(11)   If x is in the same place as y at the same time, then $x = y$

That is to say, in the case of concrete, particular beings, sameness is entailed by sharing of spatiotemporal address (this was Quine's own criterion): so *the morning star* and *the evening star* are one and the same object (that is, Venus), by sharing the same spatiotemporal location.

▪ One can have a more general criterion for entities with parts (that is, entities that are not mereological atoms) by embracing the principle of so-called *Extensional Mereology*:

(EM)   If x has the same parts as y, then $x = y$.

(principle (EM) is quite controversial, though, as we shall see in the following lectures).

▪ When K = sets, we have the Extensionality Principle of standard set theory:

(EP)   If x has the same members as y, then $x = y$

So the set of *animals supplied with a heart*, and the set of *animals supplied with kidneys* are one and the same set, for all animals with a heart have kidneys, and *vice versa*. The set of the authors of *Principia Mathematica* and the set composed exactly by Bertrand Russell and Alfred North Whitehead are one and the same set, for an author of *Principia Mathematica* is exactly one of Bertie and Alfred North.

▪ On the contrary, when K = Meinongian *possibilia* (in the sense of possible but nonexistent entities), we do not have an identity criterion. Quine's famous example (Quine [1948]):

(12)   The possible fat man in the doorway = the possible bald man in the doorway ?

According to Quine, there is no criterion we can appeal to, to decide such questions as (12). Given possible entities x and y, we may have no way to settle the issue whether they are one and the same, or two.

▪   And the same goes when K = propositions, or properties, … These "intensional" entities are labelled by Quine as "creatures of darkness".

▪   Supporters of propositions, properties, *possibilia*, etc., may have a deflationary attitude towards identity criteria: criteria are not a good *explicans* of the concept of identity (even restricted to kinds: see Loux [1978], Jubien [1996], Strawson [1997], Carrara [2001]), and those who are into modal realism, *possibilia*, universals, etc., tend to de-emphasize the Quinean motto.

▪   Kripke [1978] has claimed that the puzzles of material constitution, such as "Theseus' ship" (Hobbes, *De Corpore* XI, 7), show that we lack criteria to settle issues of identity and difference also when it's about ordinary material objects.

▪   According to David Wiggins, identity is a primitive notion and identity criteria cannot provide a *definition* of identity (restricted to a certain kind K of entities): identity does not *supervene* on commonality of other, more fundamental, properties and relations (Wiggins [2001]: 258; see also Kripke [1978]: 36ff).

▪   But *if* one accepts Quine's second motto (and plays the **C.O.C.** game), then one can be criticized by showing that her ontological theory T entails some ontological commitment to kinds of entities for which we seem to have no identity criteria.

4.   Descriptive or prescriptive metaphysics?

▪   The distinction comes from Strawson [1959], who takes descriptive metaphysics as a "Kantian" approach. Roughly, according to descriptive metaphysics our ontological analysis should begin with our linguistic intuitions, our conceptual schemes (as mirrored especially by the language we speak), and *account for* them. The guide to what is Out There comes from our inspecting the linguistic and conceptual framework by means of which we access the world (see, classically, Dummett [1991], for whom ontology and the theory of meaning simply *overlap*).

▪   Prescriptive metaphysics (Quine's ontology is a classical example) works differently: natural language here is not taken as a safe guide to Out There. The prescriptive metaphysician "Does not answer to the [Quinean] question 'What is there?' by looking at which sentences are true" (Varzi [2005]: 45). The guiding principles in writing down the Big Catalogue come from elsewhere – often, from the results of natural sciences – and they may entail deep revisions of naïve, commonsensical metaphysics.

▪   One may classify different ontological theories in the continuum between describing and prescribing. Neo-Aristotelian ontologies (Strawson [1959], Lowe [1989], Wiggins [2001]) based on the idea of three-dimensional, individual substances organized into "natural kinds" are closer to a descriptive approach. Strongly "revolutionary" theories (allegedly) matching more closely contemporary physics, like four-dimensionalism (Russell [1927], Noonan [1980], Sider [2001]), sequentialism (Chisholm [1969]), and the so-called *stuff theory* (Sidelle [1989], Heller [1990], Jubien [1993]) demand a thorough revision of our naïve ontology – for instance, by entailing the abolition of the very distinction between objects and events (see Goodman [1951], Noonan [1980], Heller [1984, 1990]).

References

Alston W.P. [1958], "Ontological Commitments", *Philosophical Studies*, 9: 8-17.
Aristotle, *Metaphysics*, in *The Complete Works* (ed. by J. Barnes), Princeton: Princeton University Press.
Armstrong D.M. [1989], *Universals: an Opinionated Introduction*, Westview press, Boulder, CO.
Armstrong D.M. [1992], "Properties", in Mulligan [1992].
Bergmann G. [1967], *Realism*, University of Wisconsin Press, Madison.
Bianchi C., Bottani A. (eds.) [2003], *Significato e ontologia*, Franco Angeli, Milano.

Broad C.D. [1923], *Scientific Thought*, Routledge & Kegan Paul, London.

Burgess J.P., Rosen G. [1997], *A Subject with No Object. Strategies for Nominalistic Interpretation of Mathematics*, Clarendon Press, Oxford.

Capitan W., Merrill D. (eds.) [1964], *Metaphysics and Explanation*, Pittsburgh University Press, Pittsburgh.

Care N.S., Grimm R.H. (eds.) [1969], *Perception and Personal Identity*, The Press of Case Western Reserve University, Cleveland.

Carnap R. [1932], "Überwindung der Metaphysik durch logische Analyse der Sprache"*, Erkenntnis*, 2: .

Carrara M. [2001], *Impegno ontologico e criteri d'identità. Un'analisi*, CLEUP, Padova.

Carrara M., Varzi A.C. [2001], "Ontological Commitment and Reconstructivism", *Erkenntnis*, 55: 33-50.

Casati R., Varzi A. [1994], *Holes and Other Superficialities*, MIT Press, Cambridge, Mass.

Castaneda H.-N. [1974], "Thinking and the Structure of the World", *Philosophia*, 4: 4-40.

Chisholm R.M. [1969], "The Loose and Popular and the Strict and Philosophical Senses of Identity", in Care and Grimm [1969].

Chisholm R.M. [1996], *A Realistic Theory of Categories*, Cambridge University Press, Cambridge.

Dummett M. [1991], *The Logical Basis of Metaphysics*, Duckworth, London.

Frege G. [1950], *The Foundations of Arithmetic*, Blackwell, Oxford.

Goodman N. [1951], *The Structure of Appearance*, Harvard University Press, Cambridge, Mass.

Grossmann R. [1992], *The Existence of the World*, Routledge, London.

Hacker P.M.S. [1982], "Events, Ontology, and Grammar", *Philosophy*, 57: 477-86.

Heller M. [1984], "Temporal Parts of Four-Dimensional Objects", Philosophical Studies, 46: 323-34.

Heller M. [1990], *The Ontology of Phisical Objects*, Cambridge University Press, Cambridge.

Hobbes T. [1839-45], *De corpore*, in *The English Works of Thomas Hobbes*, John Bohn, London.

Hochberg H. [1964], "Things and Qualities", in Capitan and Merrill [1964].

Inwagen P. van [1998], "Meta-ontology", *Erkenntnis* 48: 233-50, repr. in van Inwagen [2001]: 13-31.

Inwagen P. van [2001], *Ontology, Identity, and Modality. Essays in Metaphysics*, Cambridge University Press, Cambridge.

Johansson I. [1989], *Ontological Investigations*, Routledge, New York.

Jubien M. [1996], "The Myth of Identity Conditions", *Philosophical Perspectives*, 10: 343-56.

Jubien M. [1993], *Ontology, Modality and the Fallacy of Reference*, Cambridge University Press, Cambridge.

Kripke S. [1978], *Time and Identity*, unpublished MS.

Kripke S. [1982], *Wittgenstein on Rules and Private Language*, Basil Blackwell, Oxford.

Lewis D.K. [1973], *Counterfactuals*, Blackwell, Oxford.

Lewis D.K. [1986], *On the Plurality of Worlds*, Blackwell, Oxford.

Lewis D.K., Lewis S.R. [1970], "Holes", *Australasian Journal of Philosophy*, 48: 206-12.

Lowe E.J. [1989], *Kinds of Being. A Study of Individuation, Identity and the Logic of Sortal Terms*, Basil Blackwell, Oxford.

Lowe E.J. [1998], *The Possibility of Metaphysics. Substance, Identity, and Time*, Clarendon Press, Oxford.

Loux M.J. [1978], *Substance and Attribute*, Reidel, Dordrecht.

Marconi D. [1979], *Le ambigue virtù della forma logica*, in *Tempo verbale e strutture quantificate in forma logica*, Accademia della Crusca, Firenze: 265-84.

Meinong A. (ed.) [1904], *Untersuchungen zur Gegenstandtheorie und Psychologie,* Beth, Leipzig.

Mulligan K. (ed.) [1992], *Language, Truth, and Ontology,* Kluwer, Dordrecht.

Munitz M.K. (ed.) [1971], *Identity and Individuation*, New York University Press, New York.

Noonan H. [1980], *Objects and Identity*, Martinus Nijhoff, The Hague.

Oliver A. [1999], "A Few More Remarks on Logical Form", *Proceedings of the Aristotelian Society*, 99: 247-72.

Quine W.V.O. [1948], "On What There Is", *Review of Metaphysics*, 48: 21-38, repr. in Quine [1953].

Quine W.V.O. [1953], *From a Logical Point of View*, Harvard University Press, Cambridge, Mass.

Quine W.V.O. [1960], *Word and Object*, MIT Press, Cambridge, Mass.

Quine W.V.O. [1981], *Theories and Things*, Harvard University Press, Cambridge, Mass.

Russell B. [1905], "On Denoting", *Mind*, 14: 479-93.

Russell B. [1927], *The Analysis of Matter*, Kegan Paul, Trench, Tubner & Co., London.

Schlesinger G.N. [1983], *Metaphysics. Methods and Problems*, Barnes & Noble, Totowa, NJ.

Sidelle A. [1989], *Necessity, Essence, and Individuation*, Cornell University Press, Ithaca, NY.

Sider T. [2001], *Four-Dimensionalism*, Clarendon Press, Oxford.

Strawson P.F. [1959], *Individuals. An Essay in Descriptive Metaphysics*, Methuen, London.

Strawson P.F. [1997], *Entity & Identity and Other Essays*, Oxford University Press, Oxford-New York.

Thomasson A. [2004], "Categories", *The Stanford Encyclopedia of Philosophy*, CSLI, Stanford, CA.

Varzi A. [2001], *Parole, oggetti, eventi e altri argomenti di metafisica*, Carocci, Roma.

Varzi A. [2005], *Ontologia*, Laterza, Roma-Bari.

Wiggins D. [2001], *Sameness and Substance Renewed*, Cambridge University Press, Cambridge.