Polar Terms and Interdependent Concepts

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The notion of polarity, of polar concepts or polar terms or polar relationships, has been extensively used and widely applied, both in the history of philosophy and in more recent times. Particularly prominent examples are Heraclitus's theory of the war of opposites, and Hegel's and Schelling's metaphysical drama on such polar categories as identity and difference, unity and multiplicity, nature and spirit. Waldo Emerson is not often quoted these days in philosophical circles, but he has provided a romantic account of some interest:

Polarity, or action and reaction, we meet in every part of nature; in darkness and light; in heat and cold; in the ebb and flow of waters; in male and female; in the inspiration and expiration of plants and animals; in the equation of quantity and quality in the fluids of the animal body; in the systole and diastole of the heart; in the undulations of fluids and of sound; in the centrifugal and centripetal gravity; in electricity, galvanism, and chemical affinity. Superinduce magnetism at one end of a needle, the opposite magnetism takes place at the other end. If the south attracts, the north repels. To empty here, you must condense there. An inevitable dualism bisects nature, so that each thing is a half, and suggests another thing to make it whole; as, spirit, matter; man, woman; odd, even; subjective, objective; in, out; upper, under; motion, rest; yea, nay.

In recent times the notion has taken a linguistic or conceptual turn; it seems basically the same idea — even if somewhat less romantic — nonetheless. Thus the concept appears, even though it is not mentioned, in the following passage: "Certain words of our language operate in pairs, e.g., 'large' and 'small', 'animate' and 'inanimate', 'vague' and 'clear', 'certain' and 'probable'. In their use in ordinary language a member of a pair requires its opposite — for animate is contrasted with inanimate, probability with certainty, vagueness with clearness.... it [is] essential to the meaning of the word 'vague' ... that vagueness [is] contrasted with clearness." It seems clear enough that the terms mentioned here as contrasting or opposite are regarded as polar terms (though whether "vague" contrasts in the required way with "clear" or, rather, with "precise", and whether "clear" and "precise" in turn are not also polar terms are nice questions I here only allude to.)

It is clear, then, that the concept has been around, and used and recognized. What has been lacking is analysis and elucidation. This I offer in what follows.
Consider the following definition: “A and B are polar words if it is impossible for an instance of one to exist unless some corresponding instance of the other also exists”. The author says that polar words are used in pairs, and says further: “It is characteristic of a pair of polar words that the meaning of one ... involves the meaning of its partner”. Now there seems no doubt that if two terms are so related that there cannot be an instance of one unless there is an instance of the other, then the meaning of one somehow involves the meaning of the other, though it is not clear just what the nature of this involvement is. However, the author goes on to say that “‘peace’ and ‘war’ are correlative or polar words”, and in saying this is not applying the explicit definition he had provided for “polar words”; he is, rather, treating what he had described only as a “characteristic” of polar terms as itself a defining characteristic. Although it is hard to attain a state of peace on earth, it is surely not impossible for there to be peace without there also being war. The terms “peace” and “war” are polar in the sense that the meaning of each involves the meaning of the other, but it does not follow that whenever there exists an instance of the one there must also be an instance of the other.

It is evident that there are at least two senses of polar terms, one wider than and implied by the other. In one, (a) two terms A and B are polar iff the meaning of one involves the meaning of the other. This is the wider sense, in which the relationship is conceptual only. In the other, the narrower stricter sense, (b) A and B are polar iff it is impossible for an instance of one to exist unless there also exists some corresponding instance of the other. Clearly, (b) implies (a), but not vice-versa.

Instances of terms that are polar in the stricter, existential sense are: north and south, buying and selling (also buyer and seller), cause and effect, debtor and creditor, lessor and lessee, mortgageor and mortgagee. Terms that are polar in the wider, conceptual sense, but not necessarily in the narrower, existential sense, are: means and ends, supply and demand, part and whole, peace and war, form and content, and question and answer.

Unless this distinction is kept in mind, it is easy to infer a fallacious existence statement. Thus in the article on “The Ineffable” in The Encyclopedia of Philosophy it is said that “‘Form’ and ‘content’ ... are polar concepts; wherever there is form there must be content”. “Form” and “content” are indeed polar concepts, but in the conceptual, not the existential sense. For even though whatever can be called a “content” must have some form (though it can be a constantly shifting form, as with a cloud on a windy day) there can be an empty form, that is, a form empty of content. (The example, it is true, may be peculiar, since it may be that in order for there to be a form it is only necessary to imagine one, and the emptiness of an “empty” form may be regarded as itself content, as the hole in a doughnut may be regarded as part of the doughnut.)

Manifestly some of the instances I have just provided are arguable. But I shall take it for granted that there is no dispute about the instances just presented as polar in the existential sense, and will go on to consider some members of the
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other category. After all, how could there be an instance of buying, of something being bought, without there also being an instance of selling — of that same thing, in fact, being sold? And how could something be a cause without there being something that it is a cause of, which of course is an effect? Conversely, how could anything be an effect without its being an effect of something, which of course is its cause? And, though one and the same person can be both a debtor and a creditor — a debtor to one person or in one relationship and a creditor to or in another — given that there is someone who is a debtor there is someone or some agency to whom that person is in debt and that is the creditor. The converse argument also holds.

With regard to means and ends, however, or supply and demand, the exact nature of the relationship may seem more problematic. We can have some end without there being any means available to that end. If we think of something as a means we necessarily think of it as a means to some end, which we think of as at least capable of being brought into existence; if it were already in existence or obtained, we should have no need of the means. But the converse existence statement does not hold. Admittedly, the peculiarity of this example is that if we “have some end” the end is not yet in existence. It is an end aimed at, or an “end in view”. Nonetheless, I am still of the opinion that there can be an end, meaning that someone can have that end, without there being any means to that end and without there being any possibility of such means being developed. Similarly — indeed, more emphatically — with supply and demand. There can be a supply of something with no demand whatever for it, and there can be a demand for something of which there is no supply whatever, as of water in a desert. Again, although there can be no answer without there being some question it is an answer to (so that answer implies question) there can be questions without answers, hard as that may be to accept. Part and whole have their own peculiarities. Something can be a part of some whole that is conceived of but never comes into existence; thus, something could be conceived of as a part of some perpetual motion machine yet to be built, and which we can be sure never will be built, or the air force could order and store a supply of parts for some aircraft that never gets built, and in that sense never gets off the ground.

Some other examples of terms that are presumably polar are worth some discussion, or at least presentation: colored, colorless; white, black; early, late; before, after; up, down; right, left; east, west; winning, losing; succeeding, failing; love, hate; attraction, repulsion; “per capita”, “per stirpes”; convex, concave; pleasure, pain; good, bad; right, wrong; true, false. And there are some instances that seem polar but that I am not at all sure fit the category even conceptually. Some such examples are knowledge and belief, friendship and acquaintance, joy and sorrow, life and death.

Early and late seem to me to be polar only conceptually, not existentially; we can conceive of a world in which everyone is always early, no one is ever late, or vice-versa. Winning and losing, considered as events in some competition or contest, seem existentially polar; no one literally can win if everyone wins, so someone must lose if anyone is to win. On the other hand, winning and losing, conceived of in relation to achieving one’s aims where no contest is involved, are
polar only conceptually, not existentially. We can conceive of everyone's aims being achieved, hence of everyone in this sense winning; and we can also conceive of an unhappy world in which no one's aims are achieved, so that everyone loses. Winning and losing, even in this unhappy world, are still to be understood in relation to each other. Similarly for succeeding and failing. It is not necessary, except again in the case of a contest, that some fail for others to succeed. Not every activity is a game, much less a zero-sum game.

More problematic are teaching and learning. As every teacher knows, there can be teaching without learning. Perhaps this is not very effective teaching, but it can be teaching nonetheless. No doubt there cannot be teaching without there being at least a would-be or presumptive learner, but this presumptive learner might not be learning. It should be clear also that there can be learning without teaching, as where a child learns to stand up or to walk without being taught how, or where one learns to swim without being taught. Someone might want to say that this is self-teaching, but this sounds too much like an ad hoc response to save a theory, the theory that teaching and learning are polar conceptions and that there cannot be one without the other. These considerations seem to me to indicate that teaching and learning are not existentially polar but that they are conceptually polar. The situation is that "learning" is an achievement word, "teaching" is not. This matter, however, is really a topic in itself. Similarly for teacher and learner, as distinct from teaching and learning, and for teacher and taught. Other pairs that manifestly are topics in themselves are pleasure and pain, right and wrong, and true and false. I return to some of these in what follows.

II

The notion of "the meaning of one term involving the meaning of the other" is vague, and I want to try to get it more precise and also clarify it. Although the meaning of the term "husband" involves the meaning of the term "wife", the world in which the meaning of "husband" involves the meaning of "wife" is not the world in which "red" involves "colored" or in which "husband" involves "male". (I am going by present usage linked with present custom and present law. There is no telling what changes will occur in custom, usage, and law. But if such changes should occur, another example could be substituted.) We can say that "husband involves (implies) "male" on the ground that whoever is a husband is necessarily male, (x) (Hx ⊃ Mx). However, anyone who is a husband is certainly not a wife i.e., (x) (Hx ⊃ ¬Wx). Yet the meaning of "husband" involves the meaning of "wife" in the sense that if anyone is a husband then there is necessarily someone else who is a wife; and the converse holds as well. The formula for "husband" as "wife", then, is:

\[ (1) \quad (x) \left[ Hx \supset (\exists y) (x \neq y \land Wy) \land Wx \supset (\exists y) (x \neq y \land Hy) \right].^6 \]

In the particular case of "husband" and "wife", we need the further condition that no husband is also a wife, namely (x) (Hx ⊃ ¬Wx). However, this condition is not essential for the polarity of "wife" and "husband".
There is, at least in a number of instances, a close parallel between the notions of polar terms and of converse relations, where the converse of a relation \( R \) is the relation that holds between \( y \) and \( x \) when \( R \) holds between \( x \) and \( y \):

\[
R = \text{Conv}R = \{ xRy \}.
\]

The converse of husband or husband of is the relation between \( y \) and \( x \) such that \( x \) is the husband of \( y \), and the converse of husband is wife. Another formula for husband and wife is thus:

\[
(2) \quad (x) (y) (xHy \equiv yWx).
\]

Many polar terms fit this pattern of converse relations, such as “parent” and “child”, “earlier” and “later”, “large” and “small”. What is required for this parallel is that a monadic property be interpreted as a relational property or as derived from a relational property. This is what Aristotle maintained in his discussion of relative terms. A husband is always the husband of somebody. A child is always the child of somebody. However, the pattern does not hold universally. Take the term “spouse”. A spouse is always the spouse of somebody, just as someone who is married is married to somebody.

Yet the converse of the relation spouse is the relation spouse, and the term “spouse” is not a polar term. Still, the reference to converse relations is genuinely illuminating in some cases. The terms “large” and “small” are polar terms because whenever something is large there must be (or perhaps must have been) something small by reference to which what is said to be large can be made out to be large, and vice-versa — because largeness is contrasted with smallness. Yet it seems clearer to say that the terms “large” and “small” are polar terms because the relation smaller than is the converse of the relation larger than: \( x \) is larger than \( y \) iff \( y \) is smaller than \( x \).

But the class of polar terms is not identical with or equivalent to the class of converse relations. Not every case of polar terms is a case of a relation and its converse or of terms derived from a relation and its converse. Nor are all polar terms instances of converse relations. The converse of spouse is spouse, the converse of sibling is sibling, and, to take a more interesting instance, the converse of identity is identity. So we have to rule out symmetrical relations (where a relation is symmetrical if it is identical with its converse, and asymmetrical if it is incompatible with its converse). It appears, however, that we can take the property of being an asymmetrical relation as defining the class of polar terms. Thus, if \( R \) is an asymmetrical relation, then \( R \) and \( R (R, \text{conv} R) \) are polar terms, and the terms corresponding to or derived from \( R \) and \( R \) (as “large” and “small” are derived from or correspond to “larger” and “smaller”) are also polar terms.

This, however, does not eliminate all difficulties, and it also slides over the distinction between the two types of polar terms distinguished, the conceptual and the existential. Terms like “north” and “south” are such that if there is an instance of one there must simultaneously exist an instance of the other. Terms
like "parent" and "child", or even more obviously, "earlier" and "later", are not subject to this condition. If a occurs earlier (or later) than b, b does not occur at the same time as a. With terms like "husband" and "wife" (given present usage slight variation seems called for: if there is an instance of one there must exist else there must have existed, an instance of the other.

Terms like "motion" and "rest" are different in a more interesting way, and apparently generate a third sense of polar terms. We cannot say that if one thing is in motion there must be something else that is at rest. Yet motion and seem unquestionably to be polar concepts, neither can be understood without reference to the other. The relation seems to be that we could not determine that x is in motion without reference to some y that is, or has been, or can be conceived to be, at rest in relation to x. I shall say that such terms are epistemically polar, and define this sense as follows: A and B are epistemically polar iff it is impossible for an instance of one to be ascertained, made out, discovered or known without reference to the other.

That not all polar terms are or involve converse relations can be shown by instances. "Right" and "wrong" are polar terms, yet neither is, nor is either derivative from, the converse of the other. Similarly with "true" and "false", "valid" and "invalid", "sound" and "unsound", "correct" and "incorrect"; and I think also that this is true of "male" and "female", though there is no point, especially in this context, in arguing about the example. One could maintain a doubt, that "correct" and "incorrect" are relative terms, serving as surrogates for the converse relations of "more correct" and "less correct", or "more correct" and "more incorrect", though this seems forced. "A is more male than B" and "is more female than A" seem somewhat less forced. Whether this is true of male and female depends on biological facts, perhaps also on social conventions, currently shifting. "Good" and "bad", on the other hand, seem easily definable in terms of "better" and "worse", though where one goes from there is not readily determined. I see no chance, however, of anything similar being done with "right" and "wrong" — it somehow wouldn't seem right — or with "true" and "false". Not all dualisms are untenable. Yet it is clear enough that these terms are polar: each is to be understood by reference to the other; with "true" and "false" and "valid" and "invalid" further argument appears in the sequel.

Consider now "inside" and "outside". We say that a is a husband, but not that a is an inside — rather, a has an inside. If a has an inside then a has an outside, and conversely, and inside and outside are polar. (Notice that this is not to say that every surface must have both an inside and an outside.) But the pattern we obtain for inside and outside, namely

\[(x) (\exists x \equiv \exists x),\]

where "lx" means "x has an inside", will not fit the pattern of "husband" and "wife", and "inside" and "outside" will not fit pattern (1). It is surely false that if something has an inside then there must be something else that has an outside. This difficulty, however, may be only apparent. We use locutions like "the inside of x", and there is a relation inside of, the converse of which is outside of. Thus
the relation \textit{inside} of its pattern (2), i.e., \((x) (v) \forall y \equiv y \in x\). And if we speak of \(z\) being the inside of \(x\), "inside" and "outside" will fit pattern (1). Also, it may be that the condition of pattern (1), that \(x \neq y\), is too restrictive. We can get a pattern

\[(4) \quad (x) : \Phi x \supset (\exists y) \psi y . \psi x \supset (\exists y) \Phi y.\]

This fits "inside" and "outside" when "\(\Phi x\)" is interpreted as "\(x\) has an inside", not as "\(x\) is an inside" on the model of "\(x\) is a husband", and "\(\psi x\)" is interpreted as "\(x\) has an outside".

Here we have an application for the phrase "terms corresponding to or derived from a relation and its converse". The terms "inside" and "outside" correspond to or are derived from the converse relations \textit{inside of} and \textit{outside of}, as "large" and "small" correspond to \textit{larger than} and \textit{smaller than}. Hence "inside" and "outside" are polar terms.

Still, this does not take care of all types of polar terms. The terms "peace" and "war" do not correspond to relations in this way, and it is not necessary, as we noticed, that peace and war must both exist if one is to exist. Nor is the existence condition necessarily one of simultaneous existence. If a certain state of affairs is describable as a state of peace the most we can infer is that there has been or could be war, by reference to which and by contrast with which the word "peace" has meaning. One idea involved here is that of opposition. Peace and war are in some way opposed to each other.

\section*{III}

Before going on, however, to consider the matter of opposites and the extension of the idea of polarity, something further should be said about the basic idea of polar terms, that of the meaning of one involving the meaning of the other. The point, and potential problem, is that instead of \(A\) being defined in terms of or as a function of \(B\), or \(B\) being defined in terms of or as a function of \(A\), with polar terms we not only go both ways but must. \(A\) and \(B\) are defined in terms of and as a function of each other.

The idea of defining or explaining two terms by reference to each other is bound to generate some skepticism about circularity of definition. An account of \(A\) in terms of \(B\) combined with an account of \(B\) in terms of \(A\) seems inherently circular, violates one of the long standing rules for definitions, and so on. The intriguing thing about polar terms is that with respect to them the ordinary rules are off, and such accounts not only work but with polar terms are actually essential. They cannot be understood, really, in any other way. As the instances presented show, there is nothing odd or strange about this, depending on the examples talked about. One can of course find instances in which the circular procedure does not work at all, at least for persons of ordinary intelligence. One such instance is delightfully presented in P. G. Wodehouse's \textit{A Pelican at Blandings}, in which the somewhat dotty Lord Emsworth is instructed by his brother Galahad Threepwood as follows:
“This is very pleasant, Galahad,” he said, and Gally endorsed the sentiment.
“I was thinking the same thing, Clarence. No Connie, no Dunstable. Peace, perfect peace with loved ones far away, as one might say. I’m sorry I’m leaving.”
“You must, I suppose?”
“I doubt if the marriage would be legal without me.”
“Someone you know is being married?”
“My godson.”
“I’ve never met him, have I?”
“Certainly you have. The chap who falls downstairs.”
“Ah yes. Who is he marrying?”
“Linda Gilpin.”
“Who is Linda Gilpin?”
“The girl who kisses him after he’s fallen downstairs. I am to be Johnny’s best man.”
“Who—”
“Yes, I see I’m confusing you, Clarence. Johnny and my godson are one and the same. All straight now?”
“Perfectly, perfectly. Your godson Johnny is marrying Linda Gilpin.”
“You put it in a nutshell. And I have to be there when the firing squad assembles. Furthermore, Trout and Vanessa Polk insist on me dining with them before they go off on their honeymoon.”
“Who is Trout?”
“The chap who has married Vanessa Polk.”
“Who is Vanessa Polk?”
“The girl who has married Trout. They’ve both married each other, and they’re going for their honeymoon to Nassau.”
“That’s where the Falls are, isn’t it? People go over them in barrels, which is a thing I don’t suppose many young couples would care to do. But no doubt Mr. and Mrs. Trout will find some other way of passing the time. Vanessa Polk, did you say? Wasn’t she staying here?”
“That’s right, and so was Trout.”
“I thought the names were familiar. Nice girl. Very sound on pigs. I hope she will be very happy.”
“I’m sure she will.”
“And I hope your godson will be very happy.”
“Have no uneasiness about that. He loves his popsy.”
“I thought you said her name was Linda.”
“Popsy is the generic term."

This sort of interrelationship or cockeyed explication is definitely not the sort involved with polar terms, the point of which is that neither of a pair of polar
terms can be understood without reference to the other.

It should be emphasized that "the meaning of one involves the meaning of the other" does not mean merely that the meanings of the two are the same, which is true of any synonymous terms or equivalent expressions and is a situation brought into being by any formal definition. What it means is (i) that neither A nor B can have a meaning unless the other has a meaning, and these meanings are intrinsically connected, (ii) that both terms must be defined simultaneously, each by reference to the other, (iii) that neither can be explained without explaining the other, and (iv) that neither can be understood without understanding the other. Each essentially involves and implicates the other, as each necessarily requires the other. Consequently, definition (a) — of conceptual polarity — is to be understood as (a') (a-prime): A and B are polar iff neither A nor B can be defined, explicated, understood, or conceived of without defining, explaining, understanding, or conceiving of the other, and neither can have a meaning unless the other has a meaning. It is in this sense that the meaning of one "involves" the meaning of the other.

IV

Polarity has traditionally been conceived in terms of opposites or extremes, as in the case of the north and south poles. One popular dictionary definition is "occupying or characterized by opposite extremes". Bennett and Baylis define polar concepts as "incompatible concepts which are ... at opposite extremes of an ordered series of concepts", and Henry Sidgwick once said, of someone else interested in psychic research, "we are in polar opposition: my sole aim is proof, whereas L. O. ... appears as indifferent to scientific proof ... as the most woolly-headed enthusiast". The meaning here is plain enough. And the notion of polar terms is traditionally connected with that of opposition. Aristotle in Categoricae developed a theory of opposition and relative terms relevant to the topic of polar terms. (See note 7.) C. K. Ogden worked out a theory of opposition according to which there are three different kinds of opposition: opposites may be either the two extremes of a scale or series; the two sides of a cut; or opposites in the sense of opposite directions. These accounts consider opposition as always involving a pair — duo — of elements. But more than two elements can be opposed to one another, and there is consequently an extension of polarity beyond the domain of pairs. Furthermore, there is no need for the notion of opposites as exclusive criterion of polar terms. The notion of polar terms can just as well be used as a criterion of opposition.

There is a natural extension from the pair of polar terms:

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parent
  
child
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...to the trio of polar terms:
Although the meaning of “father” does not involve the meaning of “daughter”, it involves the meaning of “child”, a child is either a son or a daughter, and the meanings of “son” and “daughter” involve each other. (The explanation of this is that son is a male child, daughter is a female child, and “male” and “female” are polar terms.) Further, if child requires its opposite, parent, then son can be said to require its opposites, daughter and parent; and if parent requires its opposite, child, then father requires its opposites, mother and child.

It is true that opposites are normally thought to come in pairs, and consequently, with the idea that something can have several opposites, the concept of opposition becomes troublesome. But this idea about opposition and polarity leads to a further sense, the notion of polarity without opposition, through the extension of the concept of polar notions to a wider range beyond the original idea of pairs of opposites, and beyond the underlying metaphor of north and south poles. Multiple conceptions can be polar — multi-polar or interdependent — and there is illumination in extending the concept in this way, for it enables the polar or interdependence relation to be understood. The basis of the relationship between husband and wife is marriage, and there is similarly a basis, though it can be of a different type, for every polar relationship. One thing is long, or tall, and another short on the basis of a standard of length or height (and of course what is tall on one standard can be short on another). It is on the basis of this standard that the meaning of each of the terms involves the meaning of the other, and in defining a polar term, as polar, this relationship must be specified, if only implicitly. (Thus there are senses of “short” and “long” that are not polar, as in “an hour long”, “I long for her”, and “we are two persons short”.) The basis of the polar relationship between rights and duties is the rationale or reason or ground on which one person has a duty and another a right, and it is not implausible to hold that the notions of rights, duties, moral agent, and moral community are in some way such as this interdependent. I am not here maintaining that rights and duties are existentially polar; I am taking it for granted that they are conceptually polar, and I am maintaining that rights and duties are
interdependent — multi-polar — with a whole range of notions.  

Here are some other examples of interdependent or multi-polar concepts. "Premise" and "conclusion" are polar terms — the meaning of one involves the meaning of the other, and whenever there is an instance of one there is an instance of the other. But we are speaking here of the premise and conclusion of an argument or inference, not of land and the buildings upon it or the conclusion of a story, and it is argument (or inference) that is the basis of the polar relation between premise and conclusion. And the following concepts — clearly more than two — are interdependent: premise, conclusion, argument (inference), principle of the argument (defined as the proposition that the premise of the argument implies the conclusion), presupposition of the argument (defined as a proposition that must be true if the argument is valid), and validity (since every argument claims to be valid the concept of argument must be defined in terms of valid argument).

What this means is that none of these concepts can be understood or explained or defined without reference to (not just one other but) all the others. By an extension of the conceptual sense of polar terms, interdependent concepts are concepts so related that the meaning of one involves the meanings of the others. It follows that, given a set of interdependent concepts, no one of them is basic or fundamental, with the others derivative or derived from it or dependent on or to be explicaded by reference to it, and not vice-versa. (In any given system of such interdependent ideas, which idea is to be treated as basic or fundamental is a matter of aesthetics or convenience.) Interdependence — many-term polarity — may well characterize ideas that are themselves fundamental, that lie at the foundation of our thought, such as necessity, logical truth, self-contradiction, denial, possibility, a priori, empirical, ... ... (synthetic, analytic?).

To come back to teaching and learning for a moment, whenever there is teaching and at least attempted learning, there is a third thing, the thing taught, whether it is a matter of teaching someone how to swim or teaching mathematics or philosophy. At college or university, we think of ourselves as teaching certain subjects, such as history or epistemology, rather than as teaching students, and of students as studying them and presumably learning them. In lower levels, teachers are thought of as teaching students or pupils, but there is always something they are teaching them, such as how to read, to do sums, or proper deportment. But no matter how we conceive of the differences at different levels of learning there is always, along with teaching and learning, a third term, the thing taught, and these terms are interdependent. Although there can be teaching without anything being learned, and there can be learning without anything being taught, there cannot be teaching without something being taught, so here we have an interdependent triad.

Another example is provided by Peirce's discussion of doubt, belief, and inquiry, which, as Peirce explains them, are polar or interdependent concepts. Indeed, as I have argued elsewhere, there is good reason to believe that, as Peirce conceives of them, the ideas of doubt, belief, inquiry, truth, and reality are multi-polar, such that the meaning of any one of them essentially involves the meanings of all the others."
One of John Kenneth Galbraith's typically wry observations is that:

Of all the mysteries of the stock exchange there is none so impenetrable as why there should be a buyer for everyone who seeks to sell. October 24, 1929, showed that what is mysterious is not inevitable. Often there were no buyers, and only after wide vertical declines could anyone be induced to bid.\(^{16}\)

This passage only confirms what those who are not inveterate optimists already were aware of: seeking to sell is not existentially polar with finding a buyer. There are, to be sure, conceptually related. And buying and selling are existentially polar. As Galbraith also observes: “Not only were a recorded 12,894,650 shares sold on October 24; precisely the same number were bought". If we specify that what is being bought and sold are securities, we generate a relationship of interdependence, involving the polar terms buying and selling, as well as money and credit, the market (without which there could be no such transactions), a system of corporations or companies or firms, and investors or speculators, and no doubt a bit more. I don’t wish to venture far into economics or into the ideology of capitalism; I only point out that supply and demand are polar concepts, and on the supply and demand theory of price, price is the resultant of the two forces of supply and demand. If this is so, these concepts are also interdependent.\(^{17}\)

\(^{V}\)

It must be recognized that an unusual amount of nonsense — even for philosophy — has been written about polarity. An interesting example, one you are not likely to be familiar with, is provided by the following. After reference to "the primary duality that governs both the material world and the universe of the mind", the author I have selected for the present honor goes on to say:

> We know that every concept has its opposite, by which it is defined. High/Low, Convex/Concave, Day/Night — it is impossible to think of one member of these couples (or pairs) without thinking of the other. One member is implicit in the other, the inverse being, on the whole, a mirror in which every reality rests on its exact opposite — its reflected image.\(^{18}\)

It is manifestly false that every concept has its opposite. A list drawn at random of concepts that have no opposites would include the following: table, chair, desk, wood, paper, pen, pencil, typewriter, computer, book, radio, television, photograph, newspaper, magazine, philosophy (unfortunately the opposite of philosophy is not nonsense), concept, perect (someone might insist of course that these two are opposites), thought, word, deed. As to the idea of "a mirror in which every reality rests on its exact opposite," the less said the better. I certainl
hope that I have not added to the amount of nonsense — really immense — that
has been written about polarity. But I must confess that I am not really much
worried about it.¹⁰

APPENDIX I

Here is a compendium of the senses of “polar terms” distinguished above.

(a) A and B are polar iff the meaning of one involves the
meaning of the other. Df. of “conceptually polar”.

(b) A and B are polar iff it is impossible for an instance
of one to exist unless there also exists some corre-
spanding instance of the other. Df. of “existentially
polar”.

(c) A and B are polar iff it is impossible for an instance
of one to be ascertained, made out, discovered, or
known without reference to the other. Df. of
“epistemically polar”.¹⁰

Admittedly hardly anything has been said herein about epistemic polarity, a
conception that remains to be explored.

APPENDIX II

The reader might be interested in some comments made by Max Black on some
earlier versions of this paper, which he saw some time ago, especially since, so far
as I know, he wrote nothing further on the topic since the passages I quoted at
the outset. On one version he said:

I agree that your interpretation [of conceptual polarity] is
the one that most repays consideration. Suppose we try:
A and B are polar = (Df) the sense of A is a function of
the sense of B and conversely. The difficulty would then
be to explain the meaning of “function” in this context.
We might say the sense of A is a function of the sense of B ⇔
Some proposition of which A is a nonvacuous constituent
entails some proposition of which B is a nonvacuous
constituent. I don’t know whether this would work.
On another version he said:

I confess that the reference to “war” and “peace” was a blunder on my part. There seem in fact to be two notions involved at least:

I. A depends upon B = (Df) (∃x)Ax ⊃ (∃y)By

A and B are polar = (Df) A depends upon B and B depends upon A

(I don’t think it important whether x = y or not)

Of course the above would need obvious modifications if relations other than predicates were involved.

II. A and B are related in meaning = (Df) There is at least one necessary truth about A and B in which neither occurs vacuously (?)

(I’m more doubtful about this.)

The suggestion I found most promising was the first, explaining A and B are polar as “the sense of A is a function of the sense of B and conversely”. But I have not travelled that route here, and it is arguable, no doubt, that “the meaning of one involves the meaning of the other” is still in need of elucidation.

I add that it was Black who suggested the use of the term “interdependent” to me, a suggestion I adopted (though I now think of “multi-polar” as an alternative). He also suggested in some discussions on the philosophy of mathematics long ago that the notions of function, variable, value of a variable, value of a function, and so on are interdependent in the way depicted above.

APPENDIX III

Other, Sometimes Polar, Discussions of Polarity

References to some works explaining or making use of the notion of polar terms or polarity, are scattered in the notes. For the prudently incurious, or the imprudently curious, some others are provided here, as sources either of enlightenment or bewilderment. In a number of the works listed, perhaps most, there is more on opposition than on polarity; indeed, in many polarity as such is not mentioned at all. However, can there be one without the other? Although polarity and opposition are not opposites, they are almost unquestionably polar. It should be remarked that I first learned about a number of these works through Ogden’s penetrating monograph Opposition (cited note 11). This is of course not a complete list. A complete list of discussions of polarity is unthinkable.


Bogoslavsky, Boris B., The Technique of Controversy (New York: Harcourt,
Polar Terms and Interdependent Concepts

1. Although it comes nowhere near the standards he set in his own writing and thinking, in view of his contributions to the ideas set forth herein (see Appendix II) I dedicate this paper to the memory of Max Black, one-time teacher, longtime friend.


6. I am using the symbol “⇒” to stand for necessarily implies, or “necessarily if”, and “⇔” for “necessarily if and only if”, or “is necessarily equivalent to”.

7. Aristotle, Categories, chs. 7, 10, 11, 13. “Those things are called relative, which being either said to be of something else or related to something else are explained by reference to that other thing” (6a36). Also: “All relatives have correlates: by the term “slave” we mean “slave of a master” ... (6b26).


9. I am indebted for this last phrase, and for some help with understanding how best to explain “the meaning of one involves the meaning of the other”, to some remarks by Georges Dicker when this paper was presented at the State University of New York.
at Brockport on March 6, 1991. Other people at the colloquium who made helpful remarks include Jack Glickman, and some others whose names I unfortunately did not register.


12 I have argued this, though without explicit reference to polar terms, in “The Basis of Rights and Duties”, Philosophical Studies, 23, 1972, pp. 48-57.

13 I have argued this, with explicit reference to polar terms, in “Some Reflections on Rights: Human, Natural, Moral, and Fundamental”, Transactions of the Wisconsin Academy of Sciences, Arts & Letters, vol. 72 (1984), pp. 63-4; the present paper is meant to supply some of the philosophical background for the claims made there about the interdependence of rights, duties, and the moral community.

14 This has been argued effectively by Sid Thomas, Jr., in “The Status of the Generalization Principle”, American Philosophical Quarterly, vol. 5, July 1968, p. 181.


17 There is another analysis on quite different lines by C. K. Grant, “Polar Concepts and Metaphysical Arguments”, Proceedings of the Aristotelian Society, vol. 56, 1955-56, pp. 83-108. I strongly recommend this, although I have chosen not to discuss it and have proceeded on quite different lines. Morris R. Cohen made extensive use of what he called the principle of polarity in Reason and Nature (New York: Harcourt, Brace and Company, 1931), passim, and in other works, such as A Preface to Logic (New York: Henry Holt and Company, 1944), pp. 74-5. Thus (Reason and Nature, p. 426): “Universality and individuality, justice and the law, the ideal and the actual, are inseparable, yet never completely identifiable. Like being and becoming, unity and plurality, rest and motion, they are polar categories. Deny one and the other becomes meaningless. Yet the two must always remain opposed.”


19 This paper has benefited immeasurably from comments made on earlier versions at different times by Max Black, Paul Ziff, and Fred Dretske. In different form it was presented a few years ago at a colloquium at the University of Warwick, where the lively discussion was most enlightening. I remember particularly the contributions made to the discussion and to my enlightenment, by Phillips Griffiths, Donald Locke, Cyril Barrett, Martin Warner, Roger Sprigge, and C. Battershee, as well as some others whose names I neglected to mark down. If this paper’s defects still outweigh its merits, all of them are obviously to blame, for they did not kill it outright.
It is to be understood throughout that when two (or more) concepts, A and B, are spoken of as polar, A and B are distinct and neither synonymous nor equivalent. (This addition was suggested to me by my colleague Don Hausman, and he may be right in thinking it needed to be made explicit.)