

DCal • Design Principles

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DCal is a *calculus of description*, designed to satisfy a dozen or so fundamental principles:

	Property	Description
P1)	<i>Perspectival identity</i>	· Identity is not taken to be an intrinsic property of anything (including DCal structures themselves). Rather, descriptions that depend on issues of identity—of property & type as well as object or individual—must “apply” individuation criteria as part of their meaning or content. The issue of whether that which is registered “satisfies” the relevant identity criteria is part of what determines how & whether the description “fits” the world—meaning that DCal descriptions & terms, like sentences in traditional calculi, have “success conditions.”
P2)	<i>Deferential semantics</i>	· in a very broad sense, DCal structures are reminiscent of <i>representations</i> , in that containing or conveying information <i>about something else</i> , rather than (except in extremely rare cases) <i>themselves</i> being that of which they speak. In DCal, however, we say that descriptions <i>register</i> their subject matters. ¹ Although registrations, including how they are used, shoulder responsibility for (i.e., are the locus of the determination of) how they register their subject matters, and although normative considerations that stem from this use, it is nevertheless presumed that it is the world (that which they register) <i>that is the truth maker</i> . In this sense of being normatively <i>deferential</i> to the world the semantics has a classical flavour.
P3)	<i>Contextual registration</i>	· Descriptions are taken to be arbitrarily <i>contextual</i> (deictic/indexical, relative to conceptual scheme, etc.) at arbitrary scale—not just “within sentences (or other complexes). It would thus be fully expected for a DCal system to have structures analogous to such English phrases as <i>I, you, my, today, local, John, recently</i> , etc.
P4)	<i>Dynamic registration</i>	· DCal descriptions can not only be used to register temporal phenomena (i.e., be dynamical) but can <i>themselves</i> be temporal (i.e., dynamic). Cf. not only clocks, meters, sundials, etc., but even rhythmical patterns, oscillations, etc.
P5)	<i>Non-conceptual content</i>	· While some descriptions may register their subject matters in terms of “classical ontology” (objects exemplifying properties, standing in relations, grouped in sets, and arrayed in states of affairs) DCal is not itself committed to such registration, and supports others as well (such as Strawsonian “feature-placing”)
P6)	<i>Metaphysical Holism</i>	· Rather than assume that the world is assembled from atomic or elemental parts, the background metaphysical assumption is that the world is <i>whole</i> , and that descriptions register <i>parts</i> of it under normatively-governed purposes.
P7)	<i>Meaning as (Partially) Use</i>	· It is not assumed that descriptions register <i>independently</i> of how they are used, nor that their significance derives <i>wholly</i> from how they are used. Rather, use is (in general) viewed as a <i>partially determinate</i> of meaning.

¹No DCal structure, therefore, will be the name of a book, or the length of a list, or the address of a cell (though there may be structures that register that name, length, & address in canonical (normal-form) ways.

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P8)	<i>Registration</i>	· It is traditional to view reasoning as a challenge of selecting & carrying out an appropriate (perhaps complex) series of inferential steps based on a presumed, classical ontology (cf. P5)—i.e., as determining an arrangement, given a basic set of building blocks (or puzzles pieces). DCal is founded on a different view, which views the determination of an appropriate registration scheme as an equally (if not more important) step, with the reasoning “in that scheme” as simpler.
P9)	<i>Reflection</i>	· DCal is reflective as well as recursive, giving the user unprecedented control over the structure, operation and interpretation semantics of all described (constructed & kernel) structures. A kernel mechanism is provided with which to refer to or “mention” DCal structures, operations & interpretations—though what exactly is thereby mentioned (type, token, meaning, use, etc.) depends on how it is registered. With these reflective capacities, DCal structures, operations & interpretations can be overridden at will, providing that such overriding can itself (ultimately) be described in kernel terms.
P10)	<i>Fusion</i>	· The DCal structural field will appear (implicitly) to <i>fuse</i> , as much as possible, structures that “mean” the same thing with respect to the concepts & types in terms of which they register their subject matters. [This is effectively a consequence of the principle of perspectival identity; saying it properly is complex.]
P11)	<i>Formality</i>	· In spite of being a well-defined computational calculus, DCal is intended to be thoroughly “non-formal” under a variety of meanings of that term. Any attempt to develop a set theoretically based model theory for a DCal system, or to prove its fundamental soundness &/or completeness, will be based on profound misunderstanding.
P12)	<i>Interpretation</i>	· It is traditional to view formal calculi as “uninterpreted” systems of marks, with issues of semantic interpretation left outside the realm of the calculus per se, although in different calculi the kernel operations are typically defined with respect to (something like) a specific interpretation or interpretation schema (formal logic being the most extreme, in some peoples’ minds challenging it claim even to be a calculus). DCal, in contrast, <i>includes</i> an account of its own interpretation, in terms of which kernel operations are defined and reflective facilities described. As much as is effably possible, that is, DCal is intended to <i>embody</i> a particular ontological/metaphysical view.
P13)	<i>Differentiation & Abstraction</i>	· DCal's approach to identity is based on a “fan-in/fan-out” conception of (something like ²) <i>abstraction</i> , in which regions of the world are gathered together and taken as unities or singularities for some purposes, and divided into pluralities for others. Notions of sets vs. their members, parts vs. their wholes, abstract entities vs. their concrete exemplars, types vs. their tokens or instances, etc., are all characterized as “differentiations” of this basic model.
P14)	<i>Physicality</i>	· Notions of locality, accessibility, etc. in DCal (i.e., those relations that can lead to things happening in unit time) are based on concrete, physical connectivity & connection via effective properties. There is no notion of <i>syntax</i> , per se, but rather of (spatio-temporal) concrete immediacy.

²Only “something like” because it is classically assumed that “abstract” individuals are not concrete, whereas in DCal ontology/metaphysics, all individuals are based on an act of abstraction. Because what is registered is not the “abstraction,” but that which is gathered together as a unity, there is no lack of concreteness in the “abstracted” individual.