Δ Calculus · 003 — Perspectival Identity

From DCal · 003 (2008)

I • Intro

A. What does the principle of perspectival identity (PI) come to? That is: why does it *matter*—what are the consequences?—of DCal's assumption that identity is perspectival, rather than intrinsic?

B. This splits into two questions

1. A semantical question: of what the difference is between assuming that the identity criteria are "contributed by the registration," as opposed to inhering in a (possibly vastly populous) world consisting of objects and entities supporting all possible perspectival registrations; and
2. An operational question: of what difference treating identity as perspectival makes to the structures, operations, and functions of DCal as a calculus.

We could also call the first one "an ontological question".

C. The aim of this edition of the register is to begin to address the operational question.

D. A quick comment on the semantical one, though:

1. One might argue that one cannot tell the difference, from *within* a calculus (within DCal) between the two possibilities suggested in I·B·1—that for any story along the lines of "registration-supplied" individuation or identity criteria, an operationally equivalent story could be told, in terms of a world pre-individuated in all the ways that the registrations individuate. Note this qualification on "all the ways".
2. My sense is that this might be correct—that it would not make an internal difference—if there were no self-reference or reflection in DCal. That is, if there were no causal connection between DCal itself, and the world registered in it (a certain species of formality), then the two stories might be equivalent—though whether they would be equally felicitous I don't know.
3. With reflection, however, I think the story changes. How?
4. Also, it is not clear that the *normative* story (DCal's analog of soundness & completeness) that would result, for a "pre-individuated world," would be as revealing or felicitous as the PI story.
5. But these things can wait. It is the operational consequences that I am concerned with here.

II • A Bad idea

A. For the sake of argument, consider a Δ proposal (call it BCal, for "bad calculus"), which assumes that descriptions must refer to *only those objects that are* (explicitly?) *registered in terms of the same identity criteria*[1] *that they* (the descriptions) *are relying on*.[2]

B. Example (to be used through this note)

1. You are reading a book, and a friend says "Did you know that the author of that book lives off the grid?" "This one?", you ask, holding up a torn paperback. "Yeh, the torn one" your friend says.
2. In English it appears that two predicates[3]—(i), of having an author who lives off the grid, and (ii) of being torn—are being predicated of the same object, a book (of some sort).
3. The aim, for DCal, is to support and allow this.
4. The idea behind BCal, in contrast, is that it would require semantic clarity—i.e., would require your

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[1] I will assume that "identity" criteria are general things, which can be called "individuation" criteria when the entity whose identity is in question is an object. Note that "criteria" might suggest a traditional reading, according to which the criteria inhere in the object or entity; but the point, rather, is that the criteria are criteria that the registration takes to be those which establish the identity of that which it registers.

[2] I am not sure this is even coherent, wrt. DCal metaphysics, since "same identity" criteria would be a perspectival fact. But this is a case to distinguish DCal from, anyway, so it shouldn't matter.

[3] I will use predicate semantically (as opposed to its use in logic as a syntactical type), so as not to suggest that DCal supports *proper*ties, and also to fit with "predication."

friend's saying, as it were, "No, not that token, stupid! Rather, the abstract book, a torn token of the second printing of the English translation of which you are holding—yes, that one."

5. I.e., for BCal to deal with the situation, just to handle this one example, there would have to be (at least):
   a. 4 distinct identifiers:
      i. `book-173`
      ii. `book-173-translation-English`
      iii. `book-173-printing-2`
      iv. `book-173-token-48237`
   b. 3 explicit relations—something like:
      i. `Token(book-173-token-48237, book-173-printing-2)`
      ii. `Printing(book-173-printing-2, book-173-translation-English)`
      iii. `Translation(book-173-translation-English, book-173)`
   c. And then one could say
      i. `Lives-off-the-grid(author-of(book-173))`
      ii. `Torn(book-173-token-48237)`
   d. Or, if one wanted to reduce the whole thing to functions, and we use `x` for the reference to the torn book:
      i. `Lives-off-the-grid(author-of(book-of(translation-of(printing-of(x))`
      ii. `Torn(x)`
6. In DCal, in contrast, one would be able simply to say:
   a. `Lives-off-the-grid(author-of(x)`
   b. `Torn(x)`

It's probably worth taking a look at knowledge graphs and how they are constructed and used these days.

C. Discussion
   1. The difference between I·B·5·d and I·B·6 may not seem all that huge, but this is a tiny example. I am confident that the Δ is actually tremendous.
   2. In their relations to and among each other, BCal descriptions would drown in a morass of horrible, unmaintainable, explicit pedantry. (This was already an Achilles heel of 3Lisp, and 3Lisp was simple by comparison to what DCal dreams of being.)
D. The bottom line of the operational Δ between BCal and DCal has to do with avoiding this mess.[4]
E. Fans: The key issue on which this example hinges has to do with *levels of abstraction*, which is the core issue of "fans." So dealing with the example properly will require dealing with how fan-in and fan-out are to be handled, in DCal.

III • Anchors

A. The following is only a half-baked idea…but I want to try to give it some initial voice, in order to air it to critique.
B. "Reach out and touch something"
   1. In any act of concrete reference (i.e., reference to something concrete—which is to say, a denizen of the spatio-temporal plenum or whatever, even if "abstracted," as we say), there is a link established—an intentional or semantic link—between two concrete (material, one might want to say[5]) things:

[4]A reader might think that no matter *what* we do, there will be no way to distinguish DCal and BCal, because BCal is
[5]Though I am not yet sure whether *I* want to say; more on this later.

   a. The semantic or intentional agent—i.e., the *registrar*; and
   b. The object or entity to referred to—i.e., what is *registered*.
2. As metaphorically suggested in Register #002, if what is registered is registered as an *object*, then it will be abstracted, so as to encompass not simple a "point" in the underlying plenum, but an *area* or *volume*. Similarly (though this wasn't addressed in R002), the registrar will be (as Descartes would put it) "res extensa"—i.e., will occupy a *region* of space-time, rather than being an actual spatio-temporal *point*.
3. For present purposes, what matters about the semantic or intentional link is that:
   a. Both ends are *concrete*; but
   b. The link itself will not, in general, be causal or effective (is in no way constrained to stay within $1/r^2$ causal envelopes.
4. I.e., reference in particular, and registration in general, establishes a *non-effective "connection"* between two *concrete sites*.

C. Anchors
1. We will say that any act of reference is anchored at the site of its object or target.
2. In saying that something is "anchored," I am not thereby suggesting that there is "an anchor"—i.e., something registered as an object—at the site. The idea, rather, is simply that there is something like a space-time point, or perhaps an indefinite region spreading out around the space-time point, or an indefinite region roughly *at* a space-time point, or something like that, at which what is registered is located, or that is subsumed in the (physical) extension[6] of what is registered, or something like that.[7]
3. For example, suppose you are in a room that has a white-board covering an entire wall, and you, sitting next to it, point vaguely to the wall at a certain "place," and say to a small child "Why don't you draw a picture *here*." The idea is that your registration of a place expressed in your use of the word 'here,' in conjunction with your act of pointing, is *anchored* to the wall at a certain (but indefinitely circumscribed) place.
4. What 'here' means *relies* on the anchor, but *isn't* the anchor (if "the anchor" is even a coherent term); it may "spread out," as it were, from the anchoring point, to encompass an indefinitely specified region around the anchor, suitable for the amount of drawing that a small child is likely to do.
5. Similarly, in the mundane case the reference of a use of the term 'now' will be *anchored* to the (relatively finely-grained individuated) temporal moment at which it was uttered, but from that point could spread out to refer to an arbitrarily large amount of time around it. Cf. Nunberg's two examples of hugely contrasting uses of 'now':
   a. "Now that we are land creatures … "; and
   b. "This won't hurt, now, *did it*"—said by a dentist.

D. Books
1. What matters to the viability of the English conversation about the torn book with an off-the-grid author is that the reference "this one" is *anchored* through the gesture of lifting up a token into the friend's sight path.
2. Perceptually, what is primarily available at the anchoring point is a "book" in the sense of a concrete token.

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[6] "Extension' in the 'res extensa' sense.
[7] Alls subject to the standard proviso that "space-time points" are themselves registrations of (very poor) objects, which have yet to be explained. This whole discussion is being framed in spatio-temporally reductive terms, which in the end have to be upended. See the later chapters of O3.

3. The norms on the reference supporting the claim "has an off-the-grid author" are not, then, that it be true *of the token book*, but rather *that there be something registerable, at an appropriate level of abstraction*—i.e., something that has an author—that is anchored at that point—i.e., that is anchored by the anchor underpinning the referring registration "this torn one?"
4. Similarly, if either you or your friend were to go on to say "Who is the translator?" a conversation might ensue: "This is the Spellman one; but I've heard people say that they prefer the Baumgarten," or something like that. Again, the point would be that a book at an appropriate level of abstraction to support the registration "has a translator" would be anchored by the original gesturally indicated torn token.

E. Indexicality
   1. I use the term *deixis* for the spatio-temporal context dependence that underwrites all these examples (a dependence that inherently derives, I believe, from the ontic fact underwriting the epistemic fact that differential equations are an appropriate calculus in terms of which to express physical regularities).
   2. Some philosophers call this "indexicality"—but I think the latter term should be reserved for what linguists (cf. Nunberg, Kay, etc.) call indexical reference, where something *other* than the entity really being referred to is used. E.g.:
      a. "He's parked out back," where in fact it is his car; or even
      b. "The ham sandwich is parked out back," which Nunberg claims once to have heard a waiter actually say.
   3. What I take it distinguishes indexicality from deixis, in terms of anchors, might be something like this:
      a. Deictic expressions are anchored more or less *directly* through the concrete location and circumstances of the registering act; whereas
      b. Indexical expressions are indirectly anchored through the concrete location and circumstances of the registering act, via a "leap" or "bridge" or something like that, to a second (or subsequent) anchor, at or around or subsuming which the intended referent can be registered (at its appropriate level of abstraction).

IV • Discussion Very important.

A. The fundamental point—which I will simply state here, as best I can—but will have to explore a great deal more, is something like this:
   1. Consider claims or descriptions or functions or any such description which require either a referring term or a link to a referring term such as:
      a. `author-of(__)`
      b. `opened-up-at-time(__)`
   2. Call the predicate or function ('author-of' and 'opened-up-at-time', in the preceding) α.
   3. Call the referring registration term placed into the blank, or the structures, a link to which is put into the blank, β.
   4. What is then required is:
      a. Not that term β registers the world at a level of abstraction appropriate for the "type requirements" of α (which a typically "strongly-typed" language would require),
      b. But that an appropriate combination of the following three things be capable of identifying the appropriately registered object for the predicate α to apply to:
         i. The "type" requirements incumbent on the argument position of the predication α (e.g., "`author-of`" will somehow specify or require that it must be of a book at a relatively high level of abstraction; and so on); and
         ii. The anchor underpinning the success of β as a referring term;

iii. The "type" or category or concept in terms of which β registers what it registers.

c. The anchor provides the *concrete grounding*; the two types or categories (the one implicitly required by the operative predicate α, the other provided by the referring or linked to term β) dialectically triangulate in on the appropriate type. Use deep learning?

5. Conclusion

a. How the anchor and 2 types relate, so as to generate the way in which the object is considered to be registered *in its use in the predication* will be key to how DCal actually operates (in a way, this corresponds to the way in which it will "pass arguments")

b. And (to put it a bit zeugmatically) discussed in a future edition of this Register.

V • Epilogue

A. The following point somehow seems relevant to the above—so I include it here. I *think* the reason it is important is that "slot" or "argument" is in a sense playing the role of α in the above, and cannot merely be a formal name. It has to be substantial, so as to make its contribution of type requirements on how its "value" is to be registered (identified, individuated, etc.)

1. No slot or attribute names: I have felt for some time that DCal may end up having something like an "object" or "class" or "type" structure, à la object-oriented programming languages, but that it would be fatal to have formal "slot names" or "attribute names" or anything like "local variables". The problem is that their meaning would derive solely from the type or class in which they are defined, and if we are going to support PI, we need to know something substantial about what *type* (and therefore what identity conditions go along with) the part. (In the example, when we say "author," by way of specifying α, we aren't using a formal, local variable; the notion *author* has its own integrity, with individuation criteria stemming from person, etc.)

Not obvious to me.