PHENOMENOLOGICAL STRUCTURES, SELF-CONSCIOUSNESS & CIRCULARITY

Sans doute, dira-t-on, mais il y a cercle. Car ne faut-il pas que je compte *en fait* pour que je puisse avoir conscience de compter? Il est vrai. Pourtant, il n'y a pas cercle ou, si l'on veut, c'est la nature même de la conscience d'exister "en cercle."

—Sartre, *L'être et le néant*

It seemed that in order to understand common knowledge . . . , circular propositions, various aspects of perceptual knowledge and self-awareness, we had to admit that there are situations that are not wellfounded under the "constituent of" relation.

—Jon Barwise, foreword to Peter Aczel's *Non-Well-Founded Sets*

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PHENOMENOLOGICAL STRUCTURES

Does consciousness have invariant structures? (Might as well say Yes.)

What are the invariant structures of consciousness?

- Accessible (potentially Decidable & potentially Usable)
  - Phenomenology, Mathematics
- Inaccessible (Undecidable & (mostly) Unusable)
  - Some are purely Metaphysical (and make no specific predictions)
  - Some involve (potentially testable) implications, based on models with observable bases

Which of the apparent structures of consciousness are good candidates for being the “Master Key”, the key to unlock all doors?

CANDIDATE INVARIANTS

Qualitative Character

Representational Character

Synthetic Character

Subjective Character (Subjectivity)

QUALITATIVE CHARACTER

- Qualitative Character
  - What-it-is-Like
  - Representational Character?
  - Spatiality & Embodiment
  - Tonal & Modal Qualities (Mood)
  - Sensory Qualities
    - Algedonic Variations
    - Perceptual Spaces and Spectra
    - Affective Character

REPRESENTATIONAL CHARACTER

Representational Character

- Qualitative Character?
- Modal/Tonal Character (Ways of Representing? Emoting, Imagining, Hoping, Wishing, Seeing, Loving, etc.)
- Simple vs. Two-Tiered Accounts of Perception (sensory data, animation functions)
- Objects of Representation (facts, individuals, properties, relations, states of affairs, propositions)
- Vehicles of Representation (sensory vs. nonsensory, linguistic vs. non-linguistic, conceptual vs. non-conceptual)

SYNTHETIC CHARACTER

Synthetic Character

- Diachronic Unity (Temporality)
- Multi-Modal Synchronic Unity
- Full-Context Unity (Semantic Memory, Sedimentation, Long-term Memory, Specialized K)
- Global Availability
- Attendability

SUBJECTIVE CHARACTER (SUBJECTIVITY)

Subjective Character (Subjectivity)

- Pre-Reflective Self-Consciousness (PRSC)
- Self-Location
- *De Se* Constraint
- Sense of Concrete Individuality
- Perspectival Character/Point of View
- Proto-Intersubjectivity

THE MASTER KEY?

Any theory of consciousness must (eventually) show all of these invariant structures are integrated into one unified process (assuming, of course, that the unities of consciousness are not illusions).

One might have either philosophical reasons for thinking or just hunches about which feature or set of features of consciousness is likely to yield The Key.

Modeling different features will tend to push one in the direction of specific kinds of mathematical models; and totalizing is always a temptation (i.e., reducing all the other salient features to one (or to as few as possible)).

PERSPECTIVE & SELF-CONSCIOUSNESS

Here is a “philosophical” reason for thinking that perspectival character and pre-reflective self-consciousness are basic:

Consciousness is, most fundamentally, the appearance of _(something)_ to _(someone)_.

No free floating pains, etc.

Consciousness seems to involve subject-object polarities (or at least has the capacity to generate them)

This *appearance of__to___* structure suggests that consciousness is inherently relational.

Yet the subject relatum (that *to which* objects appear or the world appears) can be identified neither with phenomenal-sensory data nor with ”medium-size dry goods”.

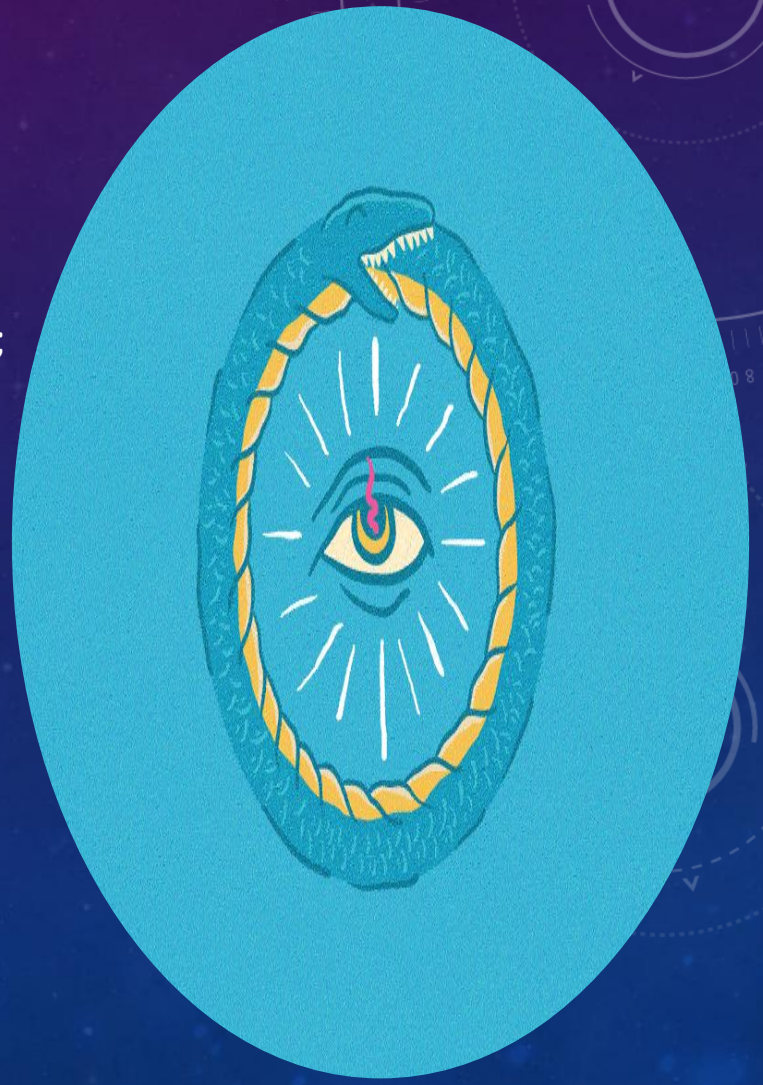
If this can be accounted for in a non-homuncular way, that would good.

If a theory of perspectival character or pre-reflective self-consciousness could do this, that would be good. If they could do this in a model according to which they have the same “root”, so to speak, that would be even better.

We think the PCM can do this, but we want to invite others to think about it. Here I want to talk about the theory of pre-reflective self-consciousness at first independently of the PCM an d then end with some open questions.

THE UR-DATUM: CONSCIOUSNESS IS ALWAYS SELF-CONSCIOUS (IN SOME WAY)

- Call this the Self-Consciousness Thesis (SCT): Aristotle, Brentano, Locke, Husserl, Sartre…
  - Episode, Stream, and Subject Versions of SCT
- Some people have the intuition, some don't. Follow your Phenomenological Muse; build models. Ultimately only model building and testing can resolve the issue.
- Reflexivist vs. Non-Reflexivist Versions of SCT
  - Reflexivist: Consciousness (the conscious episode, stream, etc.) represents (directly or indirectly) or is acquainted with *itself* (e.g., SOM, SAT, SR).
  - Non-Reflexivist: Conscious states (episodes) are represented by *other* states (or state parts) that belong to the same subject (e.g., HOT, HOP, WIV) or are just a matter of representing the subject or ego-object.
- Representationalist vs. Non-Representationalist Versions of SCT
  - SOM, SR, HOT, HOP vs. SAT (Self-Acquaintance Theory)



THE REGRESSES THREE

- The ”Extensive” Regress
- The “Intensive” Regress
- The Fichte-Henrich-Shoemaker (FHS) Regress (will not discuss today)

THE EXTENSIVE REGRESS

(1) Every act (episode, state, etc.) of consciousness is the object of another act of consciousness (in the same conscious mind).

(2) There are no cycles of conscious acts (c_1 □ c_2 □ …c_n □ c_1).

(3) There is at least one act of consciousness.

(4) Therefore: There are infinitely many acts of consciousness (in the same mind).

THE INTENSIVE REGRESS

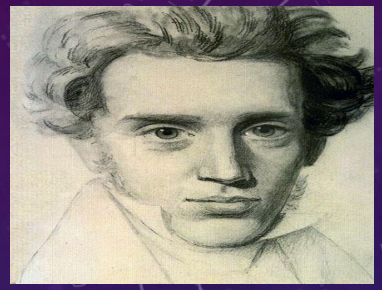
(1) Any act c that is conscious of itself is conscious of *its consciousness of* anything it is conscious of.

(2) The set C of objects of c, including c and all the objects formed by iterating the *its consciousness of* "operation", is well ordered and has no greatest element. (c, cR[cRc], cR[cR[cRc]]…) For easier notation: c, s(c), ss(c), sss(c)....

(3) There is at least one act c that is conscious of itself.

(4) Therefore: c is conscious of infinitely many objects (has an infinite internal structure).

C = [CRC] THE KIERKEGAARD SOLUTION!



- The solution to the Extensive Regress I now prefer involves denying that the sequence c, s(c), ss(c)... is a sequence in which each distinct term corresponds to a distinct object (or property of consciousness).
- In other words, for some c in the sequence, $c = s_n(c)$ (where n marks the number of s's)
- *Modulo* parsimony, we might as well let this be the first term. Thus c = s(c) or c = [cRc].
- Thus an episode (act, state) of consciousness *is identical to* its *relation* to itself (and to its relation to its other objects, of course).
- This is a bit like Kierkegaard's "definition" of the self in *The Sickness Unto Death* (1849): "The self is a relation that relates itself to its own self…"
- Let's call this solution (or model) SK. How can we make sense of its claim that something could *be* its relation to itself (and to something else)?

HYPERSETS!

Hypersets or Non-Wellfounded sets (at least the ones we are interested in) are sets that are in their own membership chains, elements of themselves or elements of elements of themselves, elements of elements of element or themselves and so on.

More generally a (cyclic) hyperset *c* is such that $c \in TC(c)$ where TC(x) is the *Transitive Closure* of x—that is, a set that contains the elements of *c,* the elements of the elements of *c*, the elements of the elements of the elements of *c* and so on.

We can use hypersets to model the gross structure of conscious episodes at a very high level of abstraction (i.e., leaving out a lot of information).

A FORMAL HYPERSET "MODEL"

(1) $c_n = \langle o_1, \ldots o_t, c_{n+1}, c_n, c_{n-1} \rangle$

(2) $c_{n+1} = \langle o_1, \ldots o_t, c_{n+2}, c_{n+1}, c_n \rangle$

. . . and so on.

Ordering = Attention, Integration, Binding, etc.

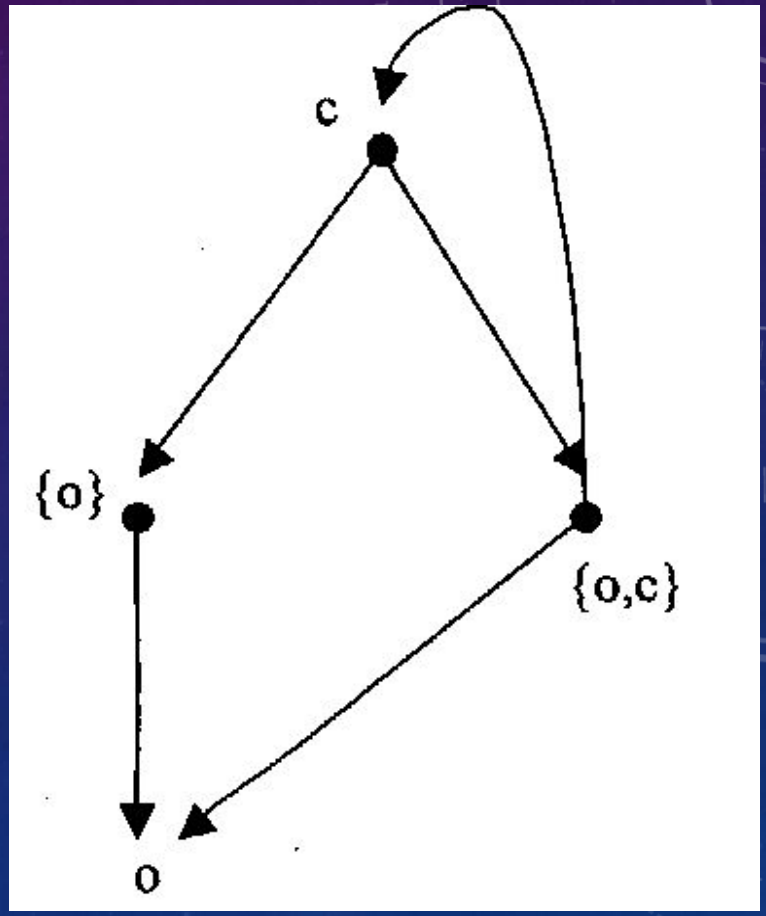
Protention & Retention probably really like Representational "Functions": R(c), P(c)

Self-Acquaintance = Being Fundamental nwf set in one's own Membership Chain—Whole Acquainted with Whole

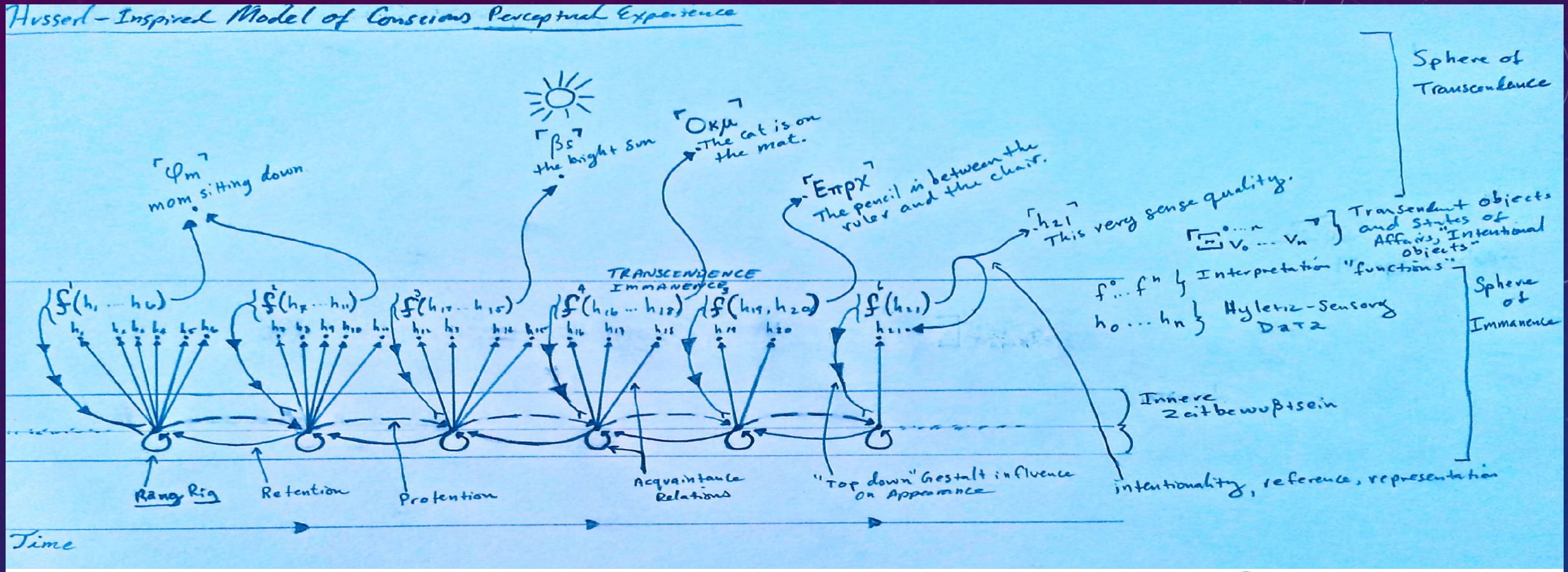
Ur-elements = "Hyletic Data", structures

Transitive closure over Membership = "Acquaintance"

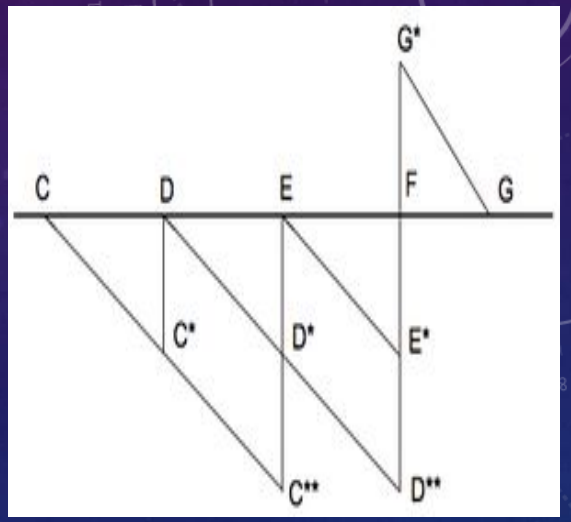
Elusiveness = Whole not separable from Parts



A HUSSERL-SARTRE INSPIRED "BON" MODEL



TIME-CONSCIOUSNESS AND THE HYPERSET MODEL



- $\mathbf{C_n} = <[f_o(h_{1.1}...h_{1.n}) \circ f_r(\mathbf{C_n}) \approx C_{n-1}] \approx (o_{1.1}...o_{1.n}), f_r(\mathbf{C_n}) \approx C_{n-1}, f_p(\mathbf{C_n}) \approx C_{n+1}, \mathbf{C_n}>$
- $\mathbf{C_{n+1}} = <[f_o(h_{2.1}...h_{2.n}) \circ f_r(\mathbf{C_{n+1}}) \approx C_n] \approx (o_{2.1}...o_{2.n}), f_r(\mathbf{C_{n+1}}) \approx C_n, f_p(\mathbf{C_{n+1}}) \approx C_{n+2}, \mathbf{C_{n+1}}>$
- $\mathbf{C_{n+2}} = <[f_o(h_{3.1}...h_{3.n}) \circ f_r(\mathbf{C_{n+2}}) \approx C_{n+1}] \approx (o_{3.1}...o_{3.n}), f_r(\mathbf{C_{n+2}}) \approx C_{n+1}, f_p(\mathbf{C_{n+2}}) \approx C_{n+3}, \mathbf{C_{n+2}}>$

- Protention (f_p) and Retention (f_r) depend on self-acquaintance
- To know where you are in time you need to now what is happening *right now*—in a way that does not require reflection.

- Cf. Husserl's absolute self-manifestation of the "flow". At each "now point" consciousness is pre-reflectively aware of where *it itself* is in relation to the episode that has just been (which it retends) and the episode that is likely to occur in a moment (which it protends), a sort of "vertical" temporal "map" including a "You are here" point that coincides with its real location on the "horizontal" time line.

HYPERSETS AND SOLUTION SK

- Consider a minimal case: c = <h,c>
- Note that c is both like a relation instance or structure (since it *is* <h,c>) and like an element—something that can be in the very ordering or relation that it itself is
- It's not unusual in set theory to treat relations as on a par with elements in some sense, but it is interesting that in hyperset theory a relation can, as it were, be related to something else by *itself* (which reminds one of one of Kierkegaard's definition).
- Second, c, like other sets, has a "parasitic" identity. It is (partially) defined in terms of its elements. In that sense, it is not a self-standing entity separable from them. Which is nice because it avoids homuncularism. The "subject" is the relation (Kierkegaard again).

HOW THIS SOLVES THE REGRESS PROBLEMS

- Importantly, note that hypersets, as such, need not be infinite or have infinite transitive closures. That is, they are not infinite just because the are hypersets. Circularity, if you like, is a finite structure.
- It is true that for a self-singleton, for example, call it Ω = {Ω }, Ω = {{Ω }} = {{{Ω }}} =…
- But this is merely a notational matter. Ω itself is a finite structure, it contains only one element.
- Ω is hereditarily finite. In general, if the TC(x) is finite, then x is finite. (In this particular case TC(Ω)= Ω).
- To take another example: Let A = {O, {A,{B, A, {C}}}}. TC(A) = {O, A, B, C}—it contains 4 elements.
- Thus the claim that for every state of consciousness c, c ∈ TC(c) where we treat membership in the TC of a hyperset of the form c = <h, c> as modelling acquaintance, does not entail an ontology of infinitely many elements.
- Moreover, adopting this solution to the Extensive Regress *automatically* gives us the equivalent of Solution SK to the Intensive Regress problem.
- And it allows us to make sense of the idea that consciousness has a finite circular structure *in virtue of which* includes a consciousness of that very structure (itself). It *is* its relation to itself and its objects.

THE ANTI-SYMMETRY OF CONSCIOUSNESS

Let A = <a,A>

Let B = <b, B>

Suppose a and b are ur-elements

Suppose: $A \in TC(B)$ & $B \in TC(A)$

Then: A = B

(The converse also holds)

Motivation: There is a general subject/world asymmetry in consciousness. There is symmetry only in the reflexive case.

The acquaintance relation as specified is appropriately anti-symmetric.

This yields a way for consciousness to distinguish itself from objects: the conscious episode itself is the only thing in the field of acquaintance for which acquaintance is symmetric.

INDIVIDUATION

- Consider these sets:
- A = {O, A}
- B = {O, B}
- Is A = B?
- Notice that the usual Axiom of Extensionality will not allow you to answer this question.
- In what has become standard Hyperset theory (ZFA) one adds the Anti-Foundation Axiom (AFA) to yield an answer (that, indeed, A=B). (Ultimately AFA just means, roughly, that if the set of graphs that can depict A is isomorphic to the set of graphs that can depict B (not abstracting from ur-elements, if you have them), then A = B. AFA makes set identity parasitic upon (tagged) directed graph identity.)
- AFA, however, is not forced upon us. Indeed, Maurice Boffa and Peter Aczel have shown that, in principle, we could regard A and B as being distinct. Indeed, there could be as many self-singletons, for example, as we like, while under AFA there can be only one, viz., Ω.
- I want to suggest that this answers to the sense of contingency that attends self-reflection—*Why me here now?*
- It also helps illustrate the idea that the final metaphysical individuators of consciousness (and its realization) are inaccessible.
- And it allows us to reconstruct a robust sense of self without a reified self.

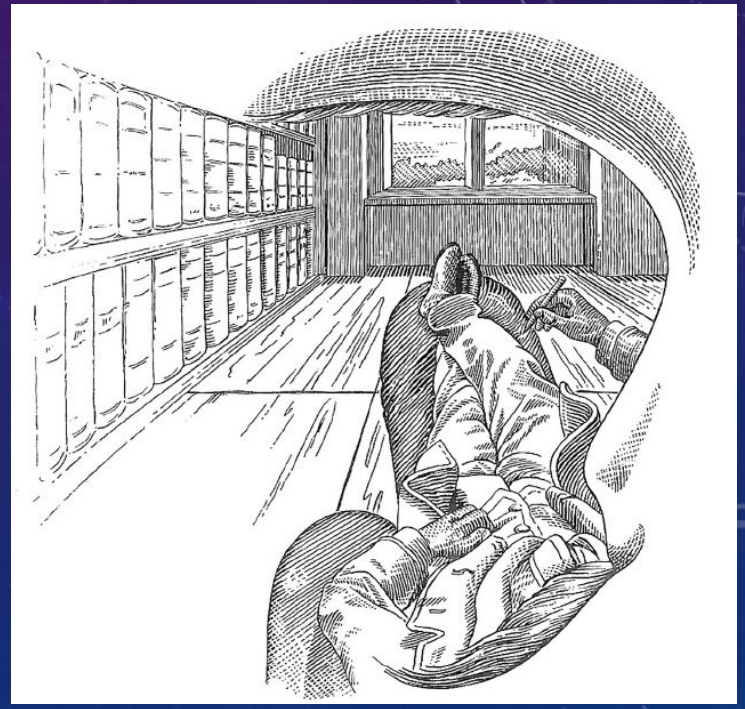
NO HOMUNCULUS 1: PRSC

- Consciousness defined by its “objects” and its self-acquaintance, by its reflexive relational structure and the different deformations of its “surface” (and all the processing and integration involved in that).
- By self-acquaintance it knows of its own existence or occurrence and “surface contents”
- By the “surface contents” and their “interpretation” it updates its “model” of the world it is in.
- But is not defined by a separate, homuncular individual or substance or transcendental ego presiding over the appearances. Self -acquaintance is enough to ground a moment-to-moment sense of individuality.
- But what about perspective? The “missing point of view”?
- This brings us to the PCM.

NO HOMUNCULUS 2: PERSPECTIVE

One attractive feature of the PCM is that it provides an account of the perspectival character of consciousness in a non-homuncular way.

The point of view is implied in the structuring of consciousness—conceived of as structured by a 3D projective geometry.



RELATION BETWEEN SK & PCM?

In our 2022 paper, we argued for making sense of PRSC in terms of duality and reciprocity inherent in phenomenal space as characterized by the PCM.

What I'd like to know is whether SA theory (as described here) can be completely recovered from the PCM in a non-trivial way?

In particular, can we understand understand the circularity of model SK (its "nonwellfoundedness") in terms of the "circularity" involved in projective duality?

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Check for updates

Pre-Reflective Self-Consciousness & Projective Geometry

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Abstract
We argue that the projective geometrical component of the Projective Consciousness Model (PCM) can account for key aspects of pre-reflective self-consciousness (PRSC) and can relate PRSC intelligibly to another signal feature of subjectivity: perspectival character or point of view. We illustrate how the projective geometrical versions of the concepts of duality, reciprocity, polarity, closedness, closure, and unboundedness answer to salient aspects of the phenomenology of PRSC. We thus show that the same mathematics that accounts for the statics and dynamics of perspectival character also accounts for PRSC. More generally, we argue that introducing higher-level geometrical concepts into the theory of PRSC, and into the theory of consciousness broadly, as the PCM does, promises to break longstanding theoretical impasses and dialectical stalemates.

PRSC, especially $PRSC_0$. In particular, this inherent ambiguity in projective space translates into an inherent ambiguity in conscious perspective taking, which might be pivotal for the generation of PRSC. Roughly, because of duality, every perspective that can be taken on a configuration of space is simultaneously ("virtually") an alternate dual perspective, one that reverses relations of inclusion, points of view and locations in a reciprocal manner (Fig. 4).