

Multiple drafts: An eternal golden braid?

Daniel Dennett and Marcel Kinsbourne

Center for Cognitive Studies, Tufts University, Medford, MA 02155.

ddennett@diamond.tufts.edu

Abstract: Glicksohn and Salter both raise good questions that force us to clarify our position. We agree with much of their commentary, with a few caveats. Glicksohn wrongly assumes that later drafts must be “more advanced” and Salter speaks of “recruitment into consciousness,” which invites (but does not require) a Cartesian interpretation. Their suggestions about the time course of “editorial” revision of the multiple drafts and the possibility of restoration of the information in abandoned drafts are possible extensions of the Multiple Drafts Model.

We have learned that the issues we raised are very difficult to think about clearly, and what “works” for one thinker falls flat for another and leads yet another astray. So it is particularly useful to get these reexpressions of points we have tried to make. Both commentaries help by proposing further details for the Multiple Drafts Model, and by asking good questions. They either directly clarify, or force us to clarify, our own account. They also both demonstrate how hard it is for even sympathetic commentators always to avoid the very habits of thought the Multiple Drafts Model was designed to combat. While acknowledging and expanding on their positive contributions, we must sound a few relatively minor alarms.

Glicksohn assumes that later drafts are “more advanced,” but this flirts with the pervasive mythology of the trip to the summit of consciousness, “advancing” all the way. At any time, we may suppose, there are just as many drafts that are, as it were, over-the-hill and degenerating. Better yet: There is no nonarbitrary way to identify a summit – a place where the “most advanced” drafts pass by for inspection.

The main thrust of Multiple Drafts is well captured by **Salter** in his penultimate paragraph. Enough information may often be available to fuel more than one version of reality. Then drafts compete in Pandemonium-like rivalry (Dennett 1991), and the rivalry is resolved in favor of one over the rest (the one that “makes most ecological sense”) – but not for good. The competition is never-ending. There is no definitive or archival draft. As Salter remarks, update frequency, great in the early stages, declines as perception recedes into memory. Reinterpretation in memory may continue indefinitely—is this perhaps Hofstadter’s (1979) “eternal golden braid?” – depending on the contextual (cuing) conditions that from time to time arise.

As **Glicksohn** observes, percepts do not instantaneously arise in the mind in their full richness. Not only microgenesis, but any perceptual theory would acknowledge this, and would posit intermediary (“incomplete”) stages or representations that precede in rapid succession the (definitive?) conscious percept. Microgenetic theory differs from current information processing stage theories in that it characterizes this progression as gradual differentiation (of initially global percepts) rather than stepwise integration (of fragmentary sense data). **Glicksohn** and **Salter** both wonder what might be the fate of preliminary stages

(drafts). Once superseded, could they be recovered? As Salter contends, we "relegate their status to a relatively background category of residual brain activity." That makes them poor candidates for episodic remembering, but leaves them the potential to exert "unconscious" priming effects. But before being superseded, Glicksohn asks, could a draft that is customarily preconscious under extreme circumstances be experienced? After all, as Salter points out, a draft can be meaningful although preconscious. Glicksohn raises the interesting possibilities that "contemplation" could simulate such a lesion effect and that hypnotic regression might reinstate in awareness a draft that long ago faded into oblivion. A radically altered context might so powerfully bias the competition between drafts that a new winner takes all.

The Multiple Drafts Model should not be taken to rule out these possibilities. We suggest, for instance, that if a transformation from draft to draft is slowed down by pathology, then before it is revised the earlier draft might persist long enough to enter into the patterned activity that underlies current experience (Kinsbourne 1988).

In spite of these useful clarifications, both commentators exhibit lapses into Cartesian thinking, or at least ominously Cartesian ways of expressing themselves. There does not exist, to use **Salter's** words, a process such as "recruitment of consciousness" (into what?), nor any place where the "vehicle's arrival" is recognized (by whom?). As both commentators acknowledge in other contexts, no central experiencer confers a durable stamp of approval on any particular draft.

Salter asks, "what is the source of editorial control"? We consider the "editing" to be accomplished by top-down feedback from circuitry that embodies constraints garnered from experience, expectancy, and context. The editing is not an exogenous act of supervision, but part of the self-organizing functioning of the network, at the same level as the circuitry that conveys information bottom-up.

Salter suggests an average "editorial" period of about 200 msec. Perhaps this is about as long as a representation can be modified before it has been around long enough to be incorporated into consciousness's dominant focus? (Kinsbourne 1994). An event that is anticipated might more summarily pass through the editing process than an ambiguous one. Like Salter, we avoid the trap of treating editing time as a constant (the perceptual moment) and thereby conserve the flexibility of the Multiple Drafts Model.

References

- Breitmeyer, B. G. (1984) *Visual masking*. Clarendon Press. [DS]
- Brown, G. P. (1977) A model for the levels of concentrative meditation. *International Journal of Clinical and Experimental Hypnosis* 25:236-73. [JG]
- Cheesman, J. & Merikle, P. M. (1985) Word recognition and consciousness. In: *Reading research: Advance in theory and practice*, Vol. 5, D. Besner, T. G. Waller & G. E. MacKinnon, eds. [DS]
- Deikman, A. (1977) Bimodal consciousness and the mystic experience. In: *Symposium on consciousness*, P. R. Lee et al., eds. Penguin. [JG]
- Dennett, D. C. (1991) *Consciousness explained*. Little, Brown. [rDCD, DS]

- Dennett, D. C. & Kinsbourne, M. (1992) Time and the observer: The where and when of consciousness in the brain. *Behavioral and Brain Sciences* 15:183-247. [JG, DS]
- Flavell, J. H. & Draguns, J. (1957) A microgenetic approach to preception and thought. *Psychological Bulletin* 54:197-217. [JG]
- Glicksohn, J. (1987) Hypnotic behaviour revisited: A trait-context interaction. *Behavioral and Brain Sciences* 10:774-75. [JG]
- Goodblatt, C. & Glicksohn, J. (1989-90) The poetics of meditation: Whitman's meditative catalog. *Imagination, Cognition and Personality* 9:75-86. [JG]
- Grey Walter, W. (1963) Presentation to the Ostler Society, Oxford University, Oxford, England. [DS]
- Harnad, S. (1987) Category induction and representation. In: *Categorical perception: The groundwork of cognition*, S. Harnad, ed. Cambridge University Press. [DS]
- Hofstadter, D. R. (1979) *Gödel, Escher, Bach: An eternal golden braid*. Basic Books. [rDCD]
- Holender, D. (1986) Semantic activation without conscious identification in dichotic listening, parafoveal vision, and visual masking. A survey and appraisal. *Behavioral and Brain Science* 9:1-23. [DS]
- Kinsbourne, M. (1988) Integrated field theory of consciousness. In: *Consciousness in contemporary science*, A. J. Marcel & E. Bisiach, eds. Clarendon Press. [rDCD]
- Kinsbourne, M. (1994) Models of consciousness: Serial or parallel in the brain. In: *The Cognitive Neurosciences*, M. S. Gazzaniga, ed. MIT Press. [rDCD]
- Langer, J. (1970) Werner's comparative organismic theory. In: *Carmichael's manual of child psychology*, Vol. 1, P. H. Mussen, ed. Wiley. [JG]
- Libet, B. (1985) Unconscious cerebral initiative and the role of conscious will in voluntary action. *Behavioral and Brain Sciences* 8: 529-66. [DS]
- Marcel, A. J. (1980) Conscious and preconscious recognition of polysemous words: Locating the selective efforts of prior verbal context. In *Attention and Performance VIII*, R. S. Nickerson, ed. Erlbaum. [DS]
- Nash, M. (1987) What, if anything, is regressed about hypnotic age regression? A review of the empirical literature. *Psychological Bulletin* 102:42-52. [JG]
- Penrose, R. (1989) *The emperor's new mind*. Oxford University Press. [DS]
- Piaget, J. (1970) Piaget's theory. In: *Carmichael's manual of child psychology*, Vol. 1 in P. H. Mussen, ed. Wiley. [JG]
- Pinard, A. & Laurendeau, M. (1969) "Stage" in Piaget's cognitive-developmental theory: Exegesis of a concept. In: *Studies in cognitive development: Essays in honor of Jean Piaget*, D. Elkind & J. H. Flavell, eds.. Oxford University Press. [JG]
- Rayner, R. (1983) *Eye movements in reading*. Academic Press. [DS]
- Salter, D. (1970) *Delays and decisions in Language*. Ph.D. thesis, University of Sheffield, Sheffield, England.
- (1973) Shadowing at one and at two ears. *Quarterly Journal of Experimental Psychology* 25:549-56. [DS]
- (1989) Voluntary process and the readiness potential: asking the right questions. *Behavioral and Brain Sciences* 12:181-2. [DS]
- Sellen, A. J. & Norman, D. A. (1992) The psychology of slips. In: *Experimental slips and human error*, B.J. Barr, ed. Plenum Books. [DS]
- Shacter, D. L., McAndrews, M. P. & Moscovitch, M. (1988) Access to consciousness: dissociations between implicit and explicit knowledge in neuropsychological syndrome. In: *Thought without language*, L. Weiskrantz, ed. Clarendon Press. [DS]
- Shaffer, H. (1985) Performances of Chopin, Bach and Bartok: Studies in motor programming. *Cognitive Psychology* 13:327-76. [DS]
- Siegler, R. S. & Crowley, K. (1991) The microgenetic method: A direct means for studying cognitive development. *American Psychologist* 46:606-20. [JG]
- Smith, G. (1957) Visual perception: An event over time. *Psychological Review* 66:304-13. [JG]
- Spanos, N. P. (1986) Hypnotic behavior: A social-psychological interpretation of amnesia, analgesia, and "trance logic." *Behavioral and Brain Sciences* 9:449-466. [JG]
- Werner, H. (1948) *Comparative psychology of mental development*. International Universities Press. [JG]
- (1956) Microgenesis and aphasia. In: *Developmental processes: Heinz Werner's selected writings*, Vol. 2, S. S. Barten & M. B. Franklin, eds. International Universities Press [JG]
- (1957) The concept of development from a comparative and organismic point of view. In: *Developmental processes: Heinz Werner's selected writings*, Vol. 1, S. S. Barten & M. B. Franklin, eds. International Universities Press [JG]