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The under-appreciated drive for sense-making

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ABSTRACT

This paper draws attention to a powerful human motive that has not yet been incorporated into economics: the desire to make sense of our immediate experience, our life, and our world. We propose that evolution has produced a 'drive for sense-making' which motivates people to gather, attend to, and process information in a fashion that augments, and complements, autonomous sense-making. A large fraction of autonomous cognitive processes are devoted to making sense of the information we acquire: and they do this by seeking simple descriptions of the world. In some situations, however, autonomous information processing alone is inadequate to transform disparate information into simple representations, in which case, we argue, the drive for sense-making directs our attention and can lead us to seek out additional information. We propose a theoretical model of sense-making and of how it is traded off against other goals. We show that the drive for sense-making can help to make sense of a wide range of disparate phenomena, including curiosity, boredom, 'flow', confirmation bias and information avoidance, esthetics (both in art and in science), why we care about others' beliefs, the importance of narrative and the role of 'the good life' in human decision making.

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1. Introduction

In his 1864 masterpiece, *Utilitarianism*, John Stuart Mill embraced Bentham's Utility Principle, but proposed a more expansive conception of utility than the purely pleasure and pain-based concept proposed by Bentham. With his famous statement that "it is better to be a human being dissatisfied than a pig satisfied; better to be Socrates dissatisfied than a fool satisfied," (260) Mill drew attention to the importance of insight and wisdom, and of appreciating 'higher' pleasures such as art and music. Insight and knowledge, Mill felt, were goals, above and beyond the seeking of pleasure and avoidance of pain, that people should and do strive for. Yet subsequent implementations of different conceptions of utility in economic theory have rarely dealt with the types of 'higher' pleasures discussed by Mill in a substantive fashion. Even the broadest notions of utility that have been proposed, for example 'ego utility' or belief-based utility, fail to account for the enormous time, money and attentional resources that people devote to sense-making.

In this paper we posit the existence of a 'drive for sense-making' which, we argue, is analogous to better known drives such as hunger, thirst and sex. We review diverse research on sense-making from psychology, then lay out the basic elements of a theoretical model of utility maximization that incorporates sense-making as an ingredient of utility. In our model, individuals have two goals that drive their behavior: (1) to construe our lives in a positive fashion (valence); and (2) to

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construe our lives in a way that makes sense (sense-making). Given that both involve events occurring purely in the mind, they might seem to favor a life consisting of purely mental activity—e.g., fantasizing that one’s life is desirable and makes sense. However, both of these tendencies are severely constrained by the brain’s autonomous sense-making capabilities, which are involuntary and have the sole objective of maximally simplifying information (i.e., are not influenced by valence). We can make deliberate (non-autonomous) decisions about *whether* to collect information, but we have no ability to dictate how we will interpret the information we collect, nor, of course, to choose what we will discover when we choose to collect information.

The model has novel implications both for when people choose to obtain or avoid information, but also for more ordinary economic decisions. Given the constraints on self-deception inherent in the autonomous processes’ sole concern with sense-making, in most situations the safest and most direct route toward ensuring that our image of our lives is favorable and makes sense, is to live a life that has positive features and that can be made sense of. We discuss a wide range of applications of the model, including curiosity (the desire for information for its own sake), boredom, flow (the pleasure of sense-making), confirmation bias, information avoidance, consumer choice, esthetic preferences (including both art and science), concern about others’ beliefs, conspiracy theories and religion, the importance of narrative, and the role of the ‘good life’ in decision making and life satisfaction.

2. Sense-making and simplification

The Oxford English dictionary defines a drive as “an innate, biologically determined urge to attain a goal or satisfy a need” (Stevenson, 2010, p. 535), and this is the sense in which we use the term here. Due to profound limitations on how much information the brain can process and store, as well as the desire for efficiency in communication, evolution has produced elaborate neural mechanisms for the simplification and distillation of information. Such processes guide perception, language, memory, and a wide range of other cognitive processes. Knowing that the object in front of one is a table, for example, we can safely assume that it is solid, flat, elevated from the ground, can hold a laptop and drinks, as well as myriad other properties that are difficult to enumerate because they are so fully assimilated in our mental representations of tables that we are unaware of their existence.

The view that perception and cognition seeks to make sense of the world has a long and varied history. For example, Gestalt psychology, a school of psychology that thrived in the early 20th century, was concerned with the acquisition of meaningful perceptions in a chaotic world. Gestalt psychologists enumerated a series of ‘laws’ or ‘principles’ dictating how the mind makes sense of the environment by constructing global wholes—‘Gestalts’—from otherwise chaotic stimuli (Koffka, 2013/1935; Rock and Palmer, 1990).

Fig. 1 shows some classic stimuli that demonstrate Gestalt principles. In the left hand stimulus (due to the celebrated Italian psychologist Kanizsa, 1979), postulating an invisible square that covers some of the black blobs ‘makes sense’ of the missing elements. Similarly, the central stimulus can best be made sense of by postulating a 3D white ‘wire frame’ cube which partially occludes the black circles seen as behind it. The integrated nature of this interpretation is made particularly evident in virtue of the ambiguity of the wire-frame cube—it is a so-called Necker cube, much discussed psychology and neuroscience). When the cube ‘flips’ from appearing to be viewed from above and tilted to the viewer’s left, to appearing to be viewed from below and tilted to the viewer’s right, the black circles at the vertices of the cube correspondingly appear to change ‘depth.’ The third figure, Idesawa’s (1991) sphere, is perhaps even more remarkable. The brain creates a smooth white sphere (which appears, to many observers, to be a brighter white than the surround) radiating conical black spines in three dimensions, from a collection of flat black geometric shapes. According to Gestalt theory (e.g., Chater, 1996; Pomerantz

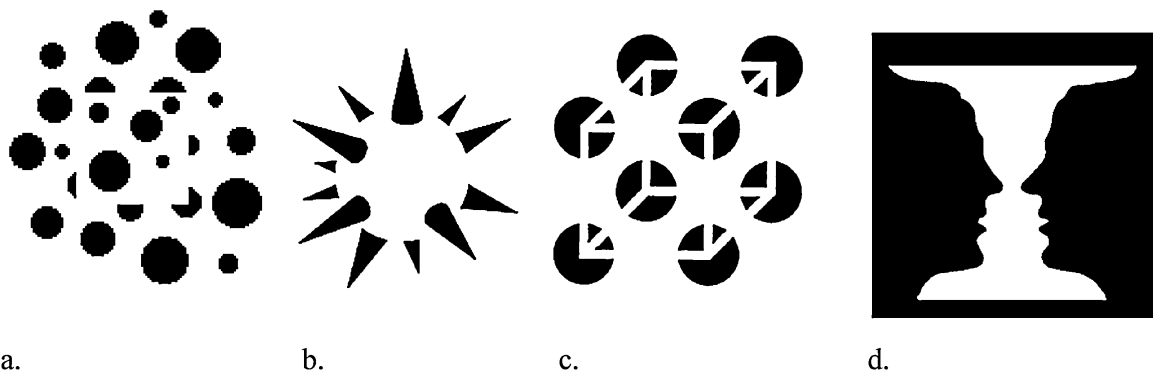


Fig. 1. Sense-making in perception. The brain prefers organizations which provide a simple encoding of the sensory input. (a) A white square that the brain creates in order efficiently to encode the various ‘lost’ chunks of some of the filled black circles (figure devised by Italian psychologist Gaetano Kanizsa); (b) a white sphere, with projecting black ‘spikes’ encodes this otherwise haphazard set of roughly triangular 2D shapes (figure devised by Japanese vision scientist Masonori Idesawa); (c) a virtual white ‘wire-frame’ cube encodes the 2D pattern of missing lines on the filled black circles; (d) the face-vase illusion, devised a century ago by Danish psychologist, Edgar Rubin.

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