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The Symbolic Work of Prices

Akash Miharia,^{*} Jan Osborn,[†] and Bart J. Wilson[‡]

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Abstract: We posit that prices are signs, not just signals, that work in the same symbolic way as words. Both are complex, generative systems of shared meaning that rely on a web of intricate symbolic references. Just like the meaning of a word is a product of our social and linguistic action, the meaning of a price is a product of our relationship to the physical world phenomena of people in markets. The fundamental conception of both is to communicate and construct worlds with ourselves and others, enabling us to act in the world. Prices, like words, do symbolic work.

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There is a common misconception that words are simply the “thing” itself, the physical object, or what they point to in the physical world. Prices share a similar general fallacy, namely that a price is simply the “amount paid,” the money spent, or the cost of some good or service. In reality neither words nor prices are so simple and arbitrary. Both words and prices are complex, generative systems of shared meaning that rely on a web of intricate symbolic references. They allow us to think about the physical and the abstract, to navigate the here and now, to consider the past and future. They are used to express a perception of reality, not given to anyone in its entirety, but connecting individuals as they perceive and act upon the world.

Language is an integral part of social life, communicative action caught up in multi-dimensional human experience and social institutions. Even though Pierre Bourdieu sees language as a “*code*, in the sense of a cipher enabling equivalences to be established between sounds and meanings” (1991, 45), he emphasizes that the code is embedded in social institutions. Words have social effects (Kathryn A. Woolard and Bambi B. Schieffelin 1994, 58). There is a relationship between language and the material conditions of the language community. Lisbeth Lipari (2014), for example, expresses a fundamental conception of language: “communicating is how we construct worlds with ourselves and others...bring worlds into being” (12). Suresh Canagarajah (2020) challenges us to “think of language as embodying experiences, not only giving body to them but also embedded in material conditions” (105). This relationship is central to language as symbolic action, words are “a *reflection of reality...a selection of reality*” (Kenneth Burke 1966, 45). They serve as symbolic connections among the individual, the social, and the physical, connecting our experience of the world with previous interpretations, connecting what we sense with what we know and what we mean. Through the act of communicating, with countless articulation-interpretation interactions, we share meaning and form new ideas with one another.

Leveraging the notion that language is symbolic, we explore how prices, like words, are also symbols. We argue that price is a sophisticated system of meaning that organizes our decision-making and differentiates between what is and what is not, doing its work across space and time. Just like the meaning of a word is a product of our social and linguistic action, the meaning of a price is a product of our relationship to the physical world phenomena of people in markets for goods and services, a product of our social and economic action. A price, like a word, does symbolic work.

I. The Symbolism of Words

Our interpretation of the world is a symbolic process that allows us to comprehend our experiences, articulate our thoughts about them, and imagine other worlds. Although we live in the physical world, we think in an abstract one, a world that is both in and independent of the present where we can think about the past and plan for the future. Our ability to seamlessly operate between the physical and the abstract is what makes us, as Terrence Deacon coins, *The Symbolic Species*, one that crosses the “symbolic threshold.”

Words are the symbolic means by which we communicate our comprehension of the world to others. Rather than directly changing the physical world around us, words transmit concepts that impact the way we perceive it (Ferris Jabr 2014, 3). Words reflect our perceptions of reality: we use words to develop, understand, and communicate our thoughts (Burke 1966, 45). For example, picture a child playing with a pencil and a ruler. Through their imagination, the pencil can become an airplane and the ruler a skyscraper. Simply by calling the pencil an airplane or picturing the ruler as a tall building, their mind reflects a changed reality. Of course, the pencil remains a pencil and the ruler a ruler on one level, but on another they are now airplane and skyscraper. Through symbolic thought, we can make sense of this reality, both literally and figuratively (Jay Parini 2009, 42). Words work in a web of associative relationships that allow us to reference the abstract, the non-material, and the material (Deacon 1997, 70).

A. Sign, Signifier, and Signified

Ferdinand de Saussure (1966) theorizes that language is a self-contained whole and a system of classification (9). Take, for example, an image of trees (Figure 1). Saussure’s theory of sign outlines two key components in our interpretation process: the *signifier* and the *signified*. The *signifier* is the sound(s) for a concept: [tɪz].¹ The *signified* is the concept: TREES.² The sign is made up of both the signifier and the signified; they cannot be separated, for here is where sound and meaning are connected. While the same sound may signify multiple concepts, each combination of sound and meaning is a separate sign. For example, consider the sound [tu]. It can signify *to*, *too*, or *two*. Each time the sound [tu] signifies a different concept: TO, TOO, or TWO, it is an entirely different sign. In writing, we see the lexigram change, which clarifies the sign we are referencing. In speaking, context does the

¹ International Phonetic Alphabet (IPA).

² Small capitals denote concepts; italics denote words as a sign.

same job. When hearing a sentence, “The cat walked *to* the tree” or “It is *too* cold to go outside” or “The store closes at *two*,” we appropriately reference the sign *to*, *too*, and *two*, based on the context.



Figure 1. An Image of Trees

Humans share concepts via signs. The linguistic sign *trees* unites not a name to a thing but a concept with a sound-image: the signifier *trees* [tɹiːz] evokes the signified TREES. This unilateral relationship between the signifier and signified, allows, in any language community, a mutual understanding about the words we use to communicate our reality. Without moving our lips or tongue, we can even talk to ourselves or recite mentally a selection of verse because we regard the words of our language as sound-images (Saussure 1966, 66).

Our interpretation of the world lies in this symbolic interpretive process. We reference the sign *tree* when referring to an object with leaves, branches, bark, and roots. Using the concept TREE, we conceptualize the entire image of leaves, branches, bark, and roots in an instant. We associate the concept TREE to the word *tree*, so we are able to talk about the concept without the physical. This is symbolic. Burke contends that though humans are a symbol-using animal, they cling to a kind of naïve verbal realism—the word names the thing—that refuses to let them realize the full extent of symbols in their notions of reality (1966, 48).

People reference the same physical stimuli with distinct interpretations. The signs we select reflect our interpretation of reality. For example, an environmentalist might use the word *habitat* for an image of trees, while a lumberjack might use *resource* for the same image when communicating what they interpret to another person. The words *habitat* and *resource* refer to the same set of trees; however, they each convey their own set of meanings. *Habitat* reflects the trees as a natural origin, provider, or cause. A simple set of trees is articulated as a place for other living things. *Resource*, however, conveys the set of trees as a means of supply, a source of wealth. The variation in the selection of sign, *habitat* or *resource*, reflects reality as the speaker interprets it. Users of *habitat* might be inclined to

preserve and sustain the forest, while users of *resource* might be prone to extract from it. Such is the function of words. They arise out of our perception that connects to a web of mental references based on our experience of the world.

B. Referential and Internalist Meaning

Paul Elbourne (2011) posits there are two theories of meaning: the referential and the internalist. According to the referential theory, meanings are referents, *the meaning* is the actual thing it refers to (Elbourne 2011, 15). In this theory, words encompass referents, allowing them to hook up with the world. The internalist theory of meaning is that words are concepts in our heads (Elbourne 2011, 14). Both explain human language. For example, take the word *water*. The referential meaning is the very liquid that we are referring to at a particular time while the internalist meaning is the concept WATER that we hold in our mind. My concept of water and your concept of water are related. The meaning of *water* is not simply the liquid we refer to but also the concept WATER: wet, frozen, boiled, lake, Aquafina, ocean, H₂O, the color blue. The meaning includes its water-ness. We each have a similar concept that informs the word, so when we use the word, we utilize the concept, as well as reference the physical object. This is why the meanings of words are not only referential or internalist but also relational.

When we interpret language, we naturally reference an imaginary web of associations that we have come to realize over time. As soon as we hear *tree*, we don't simply picture a tree, but we naturally think of associations: leaves, bark, sunlight, roots, a forest and anything else that we uniquely associate with the symbol *tree*. Alternatively, if we see a tree outside, we naturally think of the word *tree* to describe what we see. This is possible because we have associated the collective scenery of trees with the concept TREE which is encompassed in the sign *tree*; and our interpretive response when seeing an object with leaves, bark, roots, and branches is to reference the word *tree*.

We might be inclined to say that *tree* is a symbol for an actual, physical tree. Or that *green* is a symbol for the color green. Yet, when interpreting these words, we naturally think about a host of things associated with them. Take, for example, *green*: green foods, green animals, a green traffic light, or perhaps even a green movement. *Green* isn't simply a symbol for the color green, we associate it with a set of potential meanings, with the concept GREEN. When interpreting either word, *tree* or *green*, we engage the imaginary web of associations with meaning, both for the individual and for the language community. The words - *green, leaves, forest, grass, or tree* are all different threads of thought, and our

interpretive response results in the final meaning. Deacon emphasizes that reference is derived from the process of generating some cognitive action, an interpretive response (1997, 63). The referential requires the internalist to reference something in the world while the internalist requires the referential to imagine a concept. Reference is not intrinsic to the word, sound, or image; the interpretive process creates it.

C. *The Word as a Symbol*

Symbols require us to step outside the here and now into a symbolic space. Aristotle analyzes the arts of language in terms of symbolic properties; he characterizes words as “expressing thoughts that image things” (Richard McKeon 1946; 193, 202). Words present and represent the world and the ideas we have about it. Consider the image of an airplane in Figure 2. In interpreting the image, we enter a realm of abstract words and concepts. When we see the image, we think about such words as *airplane* and *airport* and such concepts as TAKING OFF and DEPARTURE. Alternatively, if we hear the word *airplane*, we might reference the image in Figure 2 as well as the web of related words and concepts.



Figure 2. An Image of an Airplane

Both the image and the word, the figure of an airplane and the word *airplane*, point to more than a strict ostensive definition of an airplane. A word never refers to a singular object or possesses a singular meaning; rather, it refers to a group or class of objects or possible meanings as each word is a generalization (Lev Vygotsky 1986, 6).

Symbols lie at the core of our understanding and our ability to communicate with one another. The word *airplane* elicits a sort of airplane-ness. We derive the different meanings of *airplane* through our interpretation of the word; we discover its meaning in context. For example, by inserting *small* before *airplane*—*small airplane*—we shape the airplane we are talking about. Or inserting *mode* after *airplane*—*airplane mode*—we change the meaning and refer to a setting on our smartphone.

II. The Symbolic Space

When someone uses a word, their conception of reality becomes part of the shared meaning in a language community. The symbolic nature of words stems from the intricate web of references that allow us to connect what we sense with what words we use. This process takes place in the mind, in the symbolic space. As Deacon theorizes, the co-evolution of language and the brain inscribed us with a capacity for symbolic reference. Our minds form complex webs of relationships between a word and other words, a word and concepts, and a concept and other concepts, connected but independent of external reality. At the core of this space, our symbolic interpretation determines our reality and vice-versa. When we stitch together different words to create a conceptual whole, we connect words and the concepts they embody as well as their sense and their reference. Our minds are not operating word-to-word but using all the symbolic resources available to communicate our conception of reality.

For example, we know that it is not the word *tree* that explains or shows us what a tree looks like or what it means; it is the interpretive process within the symbolic space of the mind which associates the word *tree* with the concept TREE, or the sound-image with its meaning. If someone in an English language community says, “The tree is yellow,” the listener instantaneously accesses the concepts TREE and YELLOW to make meaning of the sentence: the tree is dying, or it’s fall in Vermont. All word meanings are internal mental relationships, or in a simpler term, concepts (Elbourne 2011, 29). When interpreting sentences, we combine the meanings of different concepts linked to different words to understand the meaning of the whole. The task of interpreting a word, phrase, or sentence seems simple and effortless, but within the mind’s symbolic space there is a complex process that guides our interpretation.

Let’s take the saying “The apple doesn’t fall far from the tree,” in which the abstract nature of language is explicit: we aren’t talking about apples or tress or falling but, rather, using these concepts to express an idea. The aphorism communicates meaning as a whole. *Tree* isn’t even referring to a physical tree but describing a parent or mentor and *apple* isn’t referring to a fruit but describing the child or mentee. It is also a reminder that all language is conceptual, abstract in nature. The words *tree* and *apple* are always used to express a perception of reality; they are never the physical thing. The metaphorical is heightened in the aphorism; these words are used to express an idea connected to but beyond initial terms. Each meaning is understood within the language user’s symbolic space where they access their

own web of potential references. Because language is symbolic, we make sense of a word by drawing references from our world and our experiences within it.

Having presented the most prominent theories of how words work as symbolic signs, we now argue how prices work as symbolic signs.

III. The Symbolism of Prices

Humans are natural born traders. Although we exchange in the physical world, we transact in an abstract one, a world that is both in and independent of the present where we can think about the past and plan for the future. We have an ability to seamlessly operate between the physical and the abstract. Prices are the symbolic means by which we communicate our comprehension of the world to others. Rather than directly changing the physical world around us, prices transmit concepts that impact the way we perceive the world, reflecting our perception of reality. Prices work in a web of associative relationships that allow us to reference the abstract, the non-material, and the material.

A. *Sign, Signifier, and Signified*

Economics as a system of exchange is a self-contained whole. Our aim is to understand how prices are to economic exchange as words are to language. Take, for example, an image of a carton of milk (Figure 3). The price of this carton of milk is \$4. Such a price is a sign, an inseparable signifier and signified.³ The signifier is a sound or image for a concept, for example, [fəʊr dɒlɪz] or [\$4]. The signified is the concept FOUR DOLLARS. The sign, \$4, is made up of both the signifier and the signified; they cannot be separated, for here is where sound/image and meaning get connected.⁴ Each time the sound [fəʊr dɒlɪz] or image [\$4] signifies the concept FOUR DOLLARS.



Figure 3. An Image of a Carton of Milk

³ Steven Horwitz (1992) analogizes money with language to argue that the communicative function of money extends social communication. We posit that prices are not merely communicative tools that convey knowledge but are in fact signs themselves that work in the same symbolic way as words.

⁴ Italics denote prices as a sign.

While the same sound may signify multiple concepts, each combination of sound and meaning is a separate sign. For example, consider the image [\$4] on a menu in Australia versus the United States. Even though the signifier is the same—[\$4], we determine the correct sign based on the context. Just like words in a sentence, it is the context that provides the clarification to interpret the sign and pull out of our wallet the plastic bills or the paper bills.

Humans share concepts via prices as signs. The economic sign \$4 unites not a number to a thing but a concept with a sound or image. The signifier [fəʊr dɒlərz] or [\$4] evokes the signified FOUR DOLLARS. The relationship between the signifier and the signified is unilateral. This means that only the signifier can evoke the signified and not vice versa. For example, only when we hear the signifier [fəʊr dɒlərz] do we think about the signified FOUR DOLLARS. We do not simply think of a concept (FOUR DOLLARS) and then remember the sign \$4. Rather, it is the sign \$4 that allows us to think of the concept FOUR DOLLARS which is what makes it symbolic. This unilateral relationship between the signifier and signified, allows, in any economic community, a mutual understanding about prices. Prices mean like words mean, and such meaning is shared by their users.

Our interpretation of the world lies in such a symbolic interpretive process. We reference the sign \$4 when referring to a sticker attached to a carton of milk. Using the concept FOUR DOLLARS, we conceptualize a transaction, exchanging four one-dollar bills for a carton of milk, or forgoing the transaction altogether. We associate the concept FOUR DOLLARS to the price/sign \$4, so we are able to talk about the concept without the physical. This is symbolic. We contend that though humans are a symbol-using animal when they exchange one thing for another, they cling to a kind of naïve economic realism—that the meaning of the \$4 is simply the four one-dollar bills—that refuses to let them realize the full extent of symbols in their notions of economics.

People reference the same physical stimuli with distinct interpretations. The prices we select reflect our interpretation of reality. For example, a grocery store might employ the price \$0.99 for a candy bar, while a movie theatre might use \$3.99 for the same candy bar. The prices \$0.99 and \$3.99 refer to the same candy bar; however, they each convey their own unique set of meanings. \$0.99 reflects the opportunity cost of time of finding an alternative snack. \$3.99, however, reflects the opportunity cost of missing the opening credits and the pleasure of eating chocolate while watching them. The variation in the selection of the sign, \$0.99 or \$3.99, reflects reality as the buyers and the sellers interpret it. Such is the function of

prices. They arise out of our perception that connects to a web of mental references based on our experience in the world.

B. Referential and Internalist Meaning

A referential theory of meaning for economics is that prices encompass referents, allowing them to hook up with the world. An internalist theory of meaning for economics is that prices are concepts in our heads. Both explain economic exchange. For example, take the price \$3 for a dozen eggs. The referential meaning is the very money that we are referring to at a particular time while the internalist meaning is the concept THREE DOLLARS that we hold in our mind. My concept of three dollars and your concept of three dollars are related. The meaning of \$3 is not simply the money we refer to but also the concept THREE DOLLARS: how much I could buy, how much you could not buy, everything else we could buy with three one-dollar bills, everything else the grocer could put on the shelf instead, etc. The meaning includes its \$3-ness. We each have a similar concept that informs the price, so when we use the price, we utilize the concept as well as reference the physical money. This is why the meaning of prices are not only referential or internalist but also relational.

When we interpret prices, we naturally reference an imaginary web of associations that we have come to realize over time. As soon as we hear \$3, we don't simply picture three one-dollar bills, but we naturally think of associations: how long we have to work for \$3, something else we bought for \$3, something we sold on eBay for \$3, and anything else that we uniquely associate with the symbol \$3. Alternatively, if we see a price tag marked \$3 on a shelf, we naturally think of the price \$3 to describe what we see. This is possible because we have associated the physical price tag marked with \$3 with the concept THREE DOLLARS which is encompassed in the sign \$3; and our interpretive response when seeing a price tag marked \$3 is to reference the price \$3.

We might be inclined to say that \$3 is a symbol for the amount of money the eggs cost or how much cash we exchange for the eggs. Or that \$4 is the symbol for the amount of cash paid for a carton of milk. Yet, when interpreting these prices, we naturally think about a host of other things associated with them. Take, for example, \$7.25: a notebook, some green slips of paper and some coins, a single meal (breakfast, lunch, or dinner), or perhaps the U.S. minimum wage. \$7.25 isn't simply a symbol for the money spent or the cash exchanged, we associate it with a set of potential meanings, with the concept SEVEN DOLLARS AND TWENTY-FIVE CENTS. When interpreting a price, either \$3, \$4, or \$7.25, we engage the imaginary web of associations with meaning, both for the individual and the exchange community. The

prices \$3, \$4, or \$7.25 are all different threads of thought, and our interpretive response decides the final meaning. Our point is to emphasize that reference is derived from the process of generating some cognitive action, an interpretive response. The referential requires the internalist to reference something in the world while the internalist requires the referential to imagine a concept in the mind. Reference is not intrinsic to the price, sound, or image; the interpretive response creates it.

C. *The Price as a Symbol*

Symbols require us to step outside the here and now into a symbolic space. Prices are symbols of our mental experiences. They present and represent the world and the ideas we have about it. Consider the image of a price tag in Figure 4. In interpreting the image, we enter a realm of abstract prices and concepts. When we see the image, we think about things we can buy for \$10, such as a gift card or some stationery, and such concepts as HOURS OF WORK and MONEY. Alternatively, if we hear the price \$10, we might instantly reference the image in Figure 4 as well as the web of related things and concepts.



Figure 4. An Image of a Price Tag

Both the image and the price, the figure of a price tag and the price \$10, point to more than ten slips of green paper. A price never refers to a singular object or possesses a singular meaning; rather, it refers to a group or class of objects or possible meanings as each price is a generalization.

Symbols lie at the core of our understanding and our ability to communicate with one another. The price \$10 elicits a sort of \$10-ness. We derive the different meanings of \$10 through our interpretation of the price; we discover its meaning in context. For example, by inserting “3 for” before \$10—*3 for \$10*—we shape the price we are talking about. Or inserting “plus tax” after \$10—*\$10 plus tax*—we change the meaning and refer to the local government’s regressive sales tax policy.

IV. The Symbolic Space for Exchange

When someone makes use of a price, their conception of reality becomes part of the shared meaning in an economic community. The symbolic nature of prices stems from the intricate web of references that allow us to connect what we sense with what prices we pay or charge. This process takes place in the mind, in the symbolic space. We theorize that the evolution of language and symbolic reference inscribed us with a capacity for symbolic prices. Our minds form complex webs of relationships between a price and other prices, a price and concepts, and a concept and other concepts, connected but independent of external reality. At the core of this space, our symbolic interpretation determines our reality and vice-versa. When we stitch together different prices to create a conceptual whole, we connect prices and the concepts they embody as well as their sense and their reference. Our minds are not operating price-to-price but using all the symbolic resources available to communicate our conception of reality.⁵

For example, we know that it is not the price \$6 that explains or shows us what six one-dollar bills look like or what \$6 means; it is the interpretive process within the symbolic space of the mind which associates the price \$6 with the concept SIX DOLLARS, or the sound-image with its meaning. If someone sees a pound of apples listed for \$6, they instantaneously access the concepts POUND, APPLE, and SIX DOLLARS to make meaning of the exchange: the price is a typo, or it's a grocery store in Nome, Alaska. All price meanings are internal mental relationships, or in a simpler term, concepts. When interpreting prices, we combine the meanings of different concepts linked to different prices to understand the meaning of the whole. The task of interpreting a price seems simple and effortless, but within the mind's symbolic space there is a complex process that guides our interpretation.

Just like for words, the abstract nature of prices is explicit: we aren't talking about the physical thing or dollar bills but rather using the concept X DOLLARS to express an idea. The price communicates meaning as a whole. \$6 isn't simply referring to the pound of apples but expressing a whole world of action. A shopper buys a half pound instead of a pound of the apples, adds two oranges to the shopping list, and considers switching to a new grocer. A grocer reduces the order for apples, increases the order for oranges, and considers switching to a new wholesaler. An orchard grower considers purchasing more land. And so on. *All*

⁵ At first blush it may appear that M. Keith Chen (2013) is directly on point, but he does not address the symbolic nature of language or price. He conducts a comparative language study to determine if economic behavior is affected by how a language encodes tense. The two papers are worlds apart.

economic exchange is conceptual, abstract in nature. Prices are always used to express a perception of reality; they are never the physical thing. Each meaning is understood within the agent's symbolic space where they access their own web of potential references. Because exchange is symbolic, we instantly make sense of a price by drawing references from our world and our experiences within it.

Economic exchange is an integral part of social life, communicative action caught up in multi-dimensional human experience and institutions. We can think of price as a cipher enabling equivalences between amounts of money and things, but price is embedded in institutions and has social effects. The fundamental conception of price is to communicate and construct worlds with ourselves and others, enabling us to act in the world. We can think of the price system as embodying experiences, not only giving body to them but also embedded in material conditions. Prices serve as symbolic connections among the individual, the social, and the physical, connecting our experience of the world with previous interpretations, connecting what we sense with what we know and what we mean. They are a reflection of reality and a selection of reality. Or, as F. A. Hayek (1945) puts it,

the most significant fact about [the price] system is the economy of knowledge with which it operates, or how little the individual participants need to know in order to be able to take the right action. In abbreviated form, by a kind of symbol, only the most essential information is passed on, and passed on only to those concerned. (526–527)

V. Signals or Signs?

As it quickly becomes evident, we make our argument—that prices are signs that work in the same symbolic way as words—by directly paralleling the most prominent theories of how words work, element by element, and even, sentence by sentence. Inspired by Paul Ricoeur, Richard Ebeling (1990) draws a parallel between Ricoeur's question, "What is a text?" and the economist's question, "What is a price?" Ricoeur distinguishes explaining the logic of language in a text from the understanding and interpretation of a text in language. Using such a difference, Ebeling shows how Samuelsonian economists focus on the explanation of the logic of prices and omit the understanding and interpretation of prices. The thrust of Ebeling's critique is directly on point: prices are more than "quantitative ratios;" they are something that requires interpretation (184). But as we detail in this novel paper, the precise analogy is not between a text and a price, but between a word and a price.

Just as we interpret the meaning of a written text via the meaning of individual words, we interpret the meaning of an economic *context* via the meaning of individual prices.

As Olav Velthuis (2004) astutely notes, the Austrian critique of Samuelsonian economics generally stops short at interpreting prices with the economic meanings of incentives, profit opportunities, and entrepreneurial discovery [see, for example, Israel Kirzner (1992)]. Virgil Storr (2008) takes up some of that challenge arguing that economic relationships are embedded in activities with social content, that “meaningful conversations” among people say much more than the price at which they exchange something (137). The common criticism is that if we take an anthropological or sociological lens, or look at how prices actually work in practice, we can see broader “extraeconomic” meanings in commerce (Storr 2008, 135; see also Deirdre McCloskey 2006).

Peter Boettke (1995) and Ebeling (1990, 1995) stress the importance of the interpretation of prices to the process of coordinating economic activity, for “in a world of continuous change,” Ludwig Lachmann (1956) explains, “prices are no longer in all circumstances a safe guide to action ... information therefore requires interpretation (the messages have to be ‘decoded’) in order to be transformed into knowledge, and all such knowledge is bound to be imperfect knowledge ... success depends largely on the degree of refinement of one’s instruments of interpretation” (22). The Boettke and Ebeling project is to explain that prices are more than the allocative mechanism of Samuelsonian economics. People use prices to communicate with each other on how to coordinate economic activity. Their starting point is Hayek’s (1945) characterization of the economic problem as “the utilization of knowledge which is not given to anyone in its totality” (520). Because the world is continuously changing, “the market process solves the problem of economic calculation,” Boettke (1995) explains, “by generating ‘signals’ of individuals to orient their behavior to one another” (65). Tyler Cowen and Alex Tabarrok (2018) succinctly teach students that “a price is a signal wrapped in an incentive” (119). We argue that a price is more than a signal, more than a blinking taillight or a starting pistol firing into the air. A price pertains to more than a sign, has more than the form of a sign, and is more than a kind of a sign. A price *is* a sign, and a symbolic one at that. We can drop the *-al* suffix altogether.

Prices are as much a marvel of the human symbolic mind as words are. Words carry meaning in an amazingly deep way that animal calls as signals do not (Bart Wilson 2020, ch. 2). Both words and animal calls compose a communication system that coordinates their species’ activities. And both human and many other animal communication systems involve reference (something in the world) and internal sense (something in the head) (Gottlieb Frege

1879). The difference is that human language uses a categorically different kind of reference (Deacon 1998, Derek Bickerton 2009). Human language is not merely a highly advanced version of animal communication systems. It is an entirely new communication system in the natural history of the planet.

Animal calls are signals that point. A vervet monkey call points in one direction, say, to the diving eagle, right here, right now. Blinking taillights, too, point in one direction, right here, right now. Neither would be very good at what they do if they pointed simultaneously in two different directions, nor if they were used before the eagle appeared or after the car had already changed a lane. Signals refer to something in the present environment, and they point directly to something specific in the physical world. They don't point to another signal first and then to something in the environment.

Words are categorically different. They do point to each other, and they point to each other *first* before our minds use them to refer to something in the environment. A child listening to their parent read *Alice in Wonderland* uses the other words in the sentence to interpret what the Mouse means when he says, "Mine is a long and sad tale!" Unlike dear Alice, the child knows that the meaning of the word for a mouse's appendage cannot connote sadness like a story can. The words in the sentence point to each other and then refer to the world.

If words point to each other before referring to the world, and a word generally does not mean something all by itself, then what holds the abstract system of communication together? Abstract links. As a symbol, a word conveys meaning *m* only in a context in which not(*m*) could occur but didn't (Deacon 1998). The Mouse could have said, "long and slender" but didn't, which would have pointed to a very different meaning upon hearing the sounds [teɪl] (*tɛyl*).⁶ What is not the case but could have been is as important as what is the case in the meaning of words. Trees are green, except when they're oak trees in the fall. Or dead. Or an artificial Christmas decoration. Trees have leaves, except when they're coniferous. Or dead. Or it's winter. Abstract concepts are indeed promiscuous.

Prices are categorically different than signals. Our claim is not that prices do not or cannot work as signals. They clearly do. Our claim is that prices are much more than a signal pointing to something specific in the here and now, for the here and now. Prices point to each other, and they point to each other *first* before our minds use them to refer to something

⁶ Lewis Carroll brilliantly prepares the listener's mind for Alice's nonsense by starting the description with the word *long*, which can point to a word with the abstract concept of either time duration or physical length. Only a symbolic sign can do such double work.

in the world. If prices point to each other before referring to the world, and a price does not mean something all by itself, then what holds the abstract system of communication together? Abstract links. As a symbol, a price conveys meaning μ only in a context in which not(μ) could occur but didn't. What is not the case but could have been is as important as what is the case in the meaning of prices. Opportunity cost is not an arbitrary concept created by economists for economic analysis or for students to memorize. Opportunity costs are symbolic, a product of our abstract minds and part and parcel of how prices work to convey meaning in commerce. The concept of opportunity cost may not come naturally to people, we submit, because even though prices are symbols, people cling to a kind of naïve economic realism that a price only points to what is visibly the case, when what is not the case, but could have been, is just as important to what makes a price mean something. Meaning μ is not just a quantitative ratio, *pace* Andreu Mas-Collel, Michael Whinston, and Jerry Green (1995). Nor do meanings μ and not(μ) only include the meanings of other prices, *pace* Hayek (1945). As a symbol, a price conveys extraeconomic meaning too. Think Velthuis (2004), McCloskey (2006), and Storr (2008). And Burke (1966) and Bourdieu (1991) too. Prices are promiscuous abstract concepts.

The price system is not a highly advanced version of turn signals. It is a product of our symbolic minds and an entirely new communication system in the natural history of the planet. Boettke (1995) takes the first step to argue via F. A. Hayek (1952, 1978) that “the mind filters physical reality through abstract concepts” which includes interpreting market institutions as “a guide to human action within a complex and uncertain world” (67). We take the important second step to detail how prices are a particular kind of guide, a symbolic sign, not a mere signal.

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