



## Street smarts

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### Abstract

A pluralistic approach to folk psychology must countenance the evaluative, regulatory, predictive, and explanatory roles played by attributions of intelligence in social practices across cultures. Building off of the work of the psychologist Robert Sternberg and the philosophers Gilbert Ryle and Daniel Dennett, I argue that a relativistic interpretivism best accounts for the many varieties of intelligence that emerge from folk discourse. To be intelligent (in the sense invoked in folk psychological practices) is to be comparatively good at solving intellectual problems that an interpreter deems worth solving.

**Keywords** Intelligence · Folk psychology · Cross-cultural psychology · Interpretivism · Relativism

### 1 Some people are smarter than other people

Folk psychological practices are largely geared towards identifying differences between people's minds, and intelligence is one salient mental dimension along which people differ. In the leadup to the 2020 U.S. presidential election, commentators have incessantly informed the public about the intelligence of its would-be leaders. Harris, herself “very smart” (Weil 2019), wrote *Smart on Crime*. “On substance, Warren and Sanders are close, except Warren has clearer plans, in part because she is smarter” (Leiter 2019). Indeed, if Sanders (who has called himself “dumb” (Ring et al. 2019) for ignoring heart attack symptoms) and the “moron” Biden (Baumann 2019) falter in the Democratic primaries, we may be looking forward to “Warren versus Buttigieg: Battle of the eggheads” (Strauss 2019). Trump is either an “extremely stable genius” (Wiedenkeller 2019) or “grade-A idiot” (Echavarri 2019), depending on whom you ask, and is himself enamored of calling his political rivals “dumb as a rock” (Trump 2013–2020).

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This is pluralistic folk psychology in action. Attributions of mental characteristics other than beliefs and desires are being used to evaluate, and to a lesser extent to predict, explain, interpret, and—via media pressure and the voting booth—regulate candidates' behavior. This folk psychological practice is not restricted to the political domain. As Ken Richardson remarks,

Such a concept, and a word (or words) for it, has been found in every known society, including contemporary tribal societies, in various parts of the world. In everyday discourse today, “intelligent” must be one of the most commonly used terms for describing people. Indeed, people tend to use the term remarkably freely to describe others, and seem to be able to spot it extremely quickly. Interview panels think they can find it, or not, in their candidates in half an hour of searching questions. Teachers usually have no hesitation in describing their pupils as intelligent or not (often in the form of euphemisms like “bright” or “dull”). Parents often look for telltale signs of it in their own children—according to some reports, even in the first few days of life! (Richardson 2000, pp. 1–2)

As a rule, humans believe that some people are smarter than other people. We are deeply concerned with figuring out who is smart and who is not, in order to better understand and more fruitfully interact with the intelligent and unintelligent alike.

In the 20th century, the folk recruited a new scientific way of assessing smarts—the IQ test—in service of the same old folk psychological ends. [Trump, for example, has called Biden “another low IQ individual” (Lai and Yourish 2019)]. Despite the fecundity of research on  $g$ —a statistical factor capturing the intercorrelations between individuals' scores on different IQ tests—in differential psychology, the construct has been little discussed by philosophers. This neglect can be partly explained by the lack of any sustained discussion of intelligence in the subfields of cognitive science—including cognitive psychology—traditionally studied by philosophers of mind and science. Researchers are beginning to build bridges between differential and cognitive psychology, but to this day they remain largely separate enterprises (Neisser et al. 1996; Haier 2017, pp. 124–126). Thus, despite an ever-growing philosophical literature analyzing scientific research on cognition and reasoning, the last major work in philosophy of science on the interpretation of IQ tests was written forty-five years ago, when Ned Block and Gerald Dworkin (1974) offered a series of strong arguments against the view that  $g$  is a reliable measure of intelligence (as conceived in folk discourse).<sup>1</sup>

As a folk psychological kind, intelligence is even less discussed in the philosophical literature.<sup>2</sup> Substantive discussion of attributions of intelligence (or stupidity) was absent from the folk psychology wars of the 80s, 90s, and 00s (Stich 1983; Fodor 1987; Dennett 1987; Churchland 1988; Nichols and Stich 2003; Goldman 2006), and has not shown up in the pluralistic folk psychology revival (McGeer 2007; Andrews 2012; Zawidzki 2013; Spaulding 2018; Westra 2018). People are obsessed with taking stock

<sup>1</sup> An exception: Clark Glymour's (1998) incisive critique of the methodology of *The Bell Curve*.

<sup>2</sup> A partial exception: Hubert Dreyfus's (2014) masterful work on skillful coping, which has important affinities with the account of intelligence developed in this article.

of people's intelligence. Yet there is no extant scientifically informed philosophical account of this phenomenon.

In this article, I develop a philosophical account of what I term 'folk psychological intelligence': the object of lay intelligence attributions. In Sect. 2, I discuss empirical evidence which suggests that a pluralistic account of folk psychology must explain how lay attributions of intelligence function in diverse manners across cultures and generations. Part of the required explanation is metaphysical: what, if anything, is this attribute—intelligence—which fascinates humans? In Sect. 3, I canvass extant psychological theories of intelligence which purport to address this metaphysical question. In Sect. 4, I supplement Robert Sternberg's theory of successful intelligence with insights from the philosophy of mind in order to make the case for a relativistic interpretivism about folk psychological intelligence. On my view, when folks call somebody smart (or stupid), they are not speculating about cognitive mechanisms. Instead, they are claiming that the person is (not) comparatively good at solving intellectual problems that the attributor deems worth solving. In Sect. 5, I suggest further directions for research on folk psychological intelligence, the scientific construct *g*, and the relationship between the two.

## 2 Intelligence in folk psychology

Like the philosophy of intelligence, the psychological study of conceptions of intelligence across cultural contexts is surprisingly underdeveloped, especially relative to the reams of cross-cultural psychometric data collected over the last century. Nevertheless, evidence backs up three claims that should be obvious, on reflection, to anyone embroiled in human social life: (a) that attributions of intelligence pervade social affairs, serving (b) predictions and explanations, as well as (c) evaluations and regulation, of behavior. In this section, I review the evidence for these three claims in turn. Together, these reviews amount to an argument that a pluralistic approach to folk psychology must explain how lay attributions of intelligence function diversely across cultures, while remaining attributions of intelligence (rather than something else).

### 2.1 Pervasiveness of attributions of intelligence

All people everywhere think about intelligence. We often attribute intelligence (or its dearth) to characterize people of all ages (Berg and Sternberg 1992), including ourselves (Freund and Kasten 2012). And the 'we' here is universal: notions of intelligence have been found in every culture investigated (Serpell 2000; Cocodia 2014; Saklofske et al. 2015), and "expert" intelligence researchers often attribute intelligence in the same manners, and for the same purposes, as nonexperts (Sternberg et al. 1981; Nevo and Khader 1995). At the same time, the empirical literature reveals that attributions of intelligence serve a panoply of purposes across cultures. These include the purposes traditionally associated with folk psychology: the prediction and explanation of behavior.

## 2.2 Prediction and explanation

People across cultures conceptually link intelligence and earned success (Sternberg 1997). Indeed, the strongest argument that IQ tests adequately measure intelligence relies on the fact that IQ is strongly correlated with a wide range of measures of success in life (Neisser et al. 1996), including educational attainment, job complexity, income, and even “individuals’ odds of dealing successfully with the ordinary demands of modern life (such as banking, using maps and transportation schedules, reading and understanding forms, interpreting news articles)” (Gottfredson 1997, p. 79). With the possible exception of conscientiousness, *g* is the single best predictor of job performance among psychological constructs (Gottfredson 2018). Intelligence is so strongly linked to success in the popular imagination that the correlation between test scores and success has convinced many that the test scores must directly measure intelligence (cf. Richardson and Norgate 2015).

The conceptual link between intelligence and earned success is strong enough that conceptions of the two consistently covary. Parents of schoolchildren belonging to different ethnic groups in the United States emphasize different varieties of success, and, accordingly, conceptualize intelligence differently. Caucasian and Asian parents who emphasize scholastic achievement tend to conceptualize intelligence as centrally involving analytical abilities, whereas Latinx parents who emphasize interpersonal success tend to conceptualize intelligence as centrally involving social competence (Okagaki and Sternberg 1993). The Chewa people of Zambia, meanwhile, take intelligence to centrally involve obedience and cooperation: traits which are conducive to the success of the community as well as the individual (Serpell 1974; 1976). The Luo people of Kenya use four distinct terms to mean knowledge-based intelligence, respect-based intelligence, practice-based intelligence, and initiative-based intelligence, respectively, and conceive of four corresponding varieties of success (Grigorenko et al. 2001). In each of these cases, differing conceptions of earned success imply equally differing conceptions of intelligence.

The folk frequently exploit this conceptual connection to predict and explain successful behavior on the basis of intelligence. We predict that smart people are likely to succeed, and often explain people’s earned successes in life by reference to their smarts. Similarly, we predict struggles for the stupid, and often explain people’s failures by reference to their stupidity. These generalizations about folk psychological practice are remarkably apt across cultural contexts (Sternberg 2004). Nevertheless, the varieties of success and failure that people predict and explain by reference to intelligence vary widely, due to cross-cultural covariance in conceptions of success and intelligence (Berry 1997; Greenfield 1997; Sternberg and Kaufman 1998).

Consider a study conducted by Robert Sternberg and Elena Grigorenko (2004, pp. 1429–1430) in Usenge, Kenya. Usengean children, greater than 95% of whom are afflicted with parasite-borne illnesses, use herbal medicines to treat themselves and others. Sternberg and Grigorenko tested the children’s knowledge of, and ability to apply, these natural remedies. They also gave children standard IQ tests designed to measure fluid intelligence—domain-general abstract reasoning ability—and crystallized intelligence—domain-specific, knowledge-based reasoning

ability—respectively. They found that Usengean children’s facility with herbal remedies was uncorrelated with measures of fluid intelligence. More strikingly, they found that it was negatively correlated with a measure of crystallized intelligence that tested Usengean children’s facility with English vocabulary. (Usengeans speak English in school.)

In interpreting this result, Sternberg and Grigorenko note that scholastic achievement does not do much, practically speaking, for Usengean children. Dropping out of school is not seen as a failure, much less an indicator of stupidity; on the contrary, “many families in the village do not particularly value formal western schooling.” They value survival and healing skills “that will lead to successful adaptation to the environments in which they will really live” (Sternberg and Grigorenko 2004, p. 1429). Dedication to school is taken as a sign of lack of dedication to the skills required for success in Usengean society: some people refuse to take eggheaded kids (with their screwed-up priorities) on as apprentices. In this context, the smart kids predictably skip school. Likewise, an Usengean might explain the neighbor kid always having her nose in a book by noting that she always seemed a bit dull. Such predictions and explanations rely on a reversal of the stereotypes for intelligence and stupidity that dominate “WEIRD”—Western, Educated, Industrialized, Rich, Democratic—contexts (Henrich et al. 2010). Usengean and WEIRD children do not have radically different cognitive makeups, such that people’s intrinsic intelligence leads to radically different behaviors in the two contexts, thereby validating opposite predictions and explanations. Rather, differing conceptions of intelligence arise alongside differing conceptions of earned success, which have more to do with the environments in which people are raised than people themselves.

The preceding paragraphs admittedly paint with too broad a brush. WEIRD countries like the United States are home to many subcultures and ideologies, with distinctive conceptions of intelligence and success (Dweck and Bempechat 1983; Sternberg and Grigorenko 2004, p. 1433). Moreover, folks often recognize distinctions between varieties of intelligence, such as ‘book smarts’ versus ‘street smarts’. But the central present point is that many conceptions of intelligence, tied up with many conceptions of success, pervade folk psychological discourse. That variation in conceptions exists within cultures—and even within individuals—as well as between cultures is further evidence that an empirically adequate account of folk psychological intelligence must mind the differences.

The link between conceptions of intelligence and earned success is also suggestive of another important role of intelligence attribution. Pluralistic approaches to folk psychology rightly draw attention to the normativity built into folk psychological practice (McGeer 2007; Andrews 2017; Spaulding 2018; Holgado and Castro forthcoming). This emphasis on normativity is crucial for understanding folk psychological intelligence in particular. Even when attributions of intelligence are geared toward prediction and explanation, they are geared toward the prediction and explanation of certain varieties of *successful* behavior, which is an irreducibly normative notion. In particular, across cultures, to attribute intelligence seems to be to deem somebody good at solving certain intellectual problems (which I term ‘puzzles’). (Intelligence is presumably predictive and explanatory of broader success in life because solving puzzles is cru-

cial to earning success.) This built-in normativity enables evaluations—and responses thereto—which go well beyond cold assessments of success or failure.

### 2.3 Evaluation and regulation

In addition to being irreducibly normative, attributions of intelligence are irreducibly comparative: they are attributions of how good people are at solving puzzles as compared to other people. Smart people tackle puzzles better than most of their peers. Dumb people tackle puzzles worse than most of their peers. Being comparatively good at puzzle-solving is a multi-dimensional affair. For intellectual problems that have solutions, being good at puzzle-solving partly means being able to come up with those solutions. But even among successful puzzle-solvers, there are degrees and respects of adeptness; some are better than others at finding the optimal (rather than just any old) solution to puzzles they already know how to solve, or are quicker on the uptake when learning how to tackle novel puzzles, or have a deeper or broader understanding of general puzzle-solving techniques (which allows for greater transferability). These (and other) dimensions of aptitude are incorporated in many folks' conceptions of intelligence.

What counts as puzzle-solving—and aptitude for puzzle-solving—differs from context to context. But the normative and comparative aspects of folk psychological intelligence are constants across contexts. Together, these aspects subserve the evaluative and regulatory goals of lay intelligence attribution. In many cultures, earned success—and thus intelligence, as a propensity therefor—is considered indicative of moral virtue (Das 1994). Social norm flouting is perceived as indicating low intelligence, whereas virtuous action is perceived as indicating high intelligence (Levine and White 1986). Meanwhile, people seek intelligent romantic partners, and overestimate the IQs of the romantic partners they end up with, even more than they overestimate their own (Gignac and Zajenkowski 2019).

Although attributions of intelligence play some such evaluative and regulatory roles across cultures, many studies reveal culture-bound quirks which suggest that the precise normative roles they play vary widely (Wober 1974; Ogbu 1988; Mugny and Carugati 1989; Rogoff 1990, 2003; Chen and Chen 1998; Zhang and Wu 1994; Yang and Sternberg 1997; Swami et al. 2008). Usengean parents pressure their promising children to drop out of school and find apprenticeships; American parents sign them up for SAT classes (and allow their tax dollars to pay truancy officers' salaries).

This literature provides a nice backdrop for interpreting the Flynn Effect—the finding that mean IQ test results improved dramatically over the course of the 20th century (Flynn 1987)—and its recent reversal in some European countries (Dutton et al. 2016). James Flynn himself interprets IQ trends as “dictated by altered social priorities that affect the cognitive problems habitually confronted and deemed worth solving” in changing social contexts. If Flynn is right, and the evidence suggests he is (Nisbett 2009; Bratsberg and Rogeberg 2018), then massive IQ gains in the 20th century can be chalked up to “these priorities and habits of mind [which] have changed radically as societies begin to industrialize” (Flynn 2016, p. 121). A scientific understanding of the Flynn Effect will thus require diachronic research programs which correlate

changes in IQ test performance with environmental changes, including shifts in habits of mind.

As conceptions of intelligence change, more resources are put into training young people on relevant skills, leading to more of the corresponding variety of intelligence in the next generation. This is a prime example of “mindshaping” (Zawidzki 2013): folk psychological practices regulate people’s cognitive capacities, nudging them into adhering more to the idiosyncratic conceptions of intelligence that folks find useful for predicting, explaining, and evaluating behaviors in context. You likely have a higher IQ than your grandparent. But that does not mean you are smarter *tout court*; rather, your grandparent honed their intelligence in light of a different conception thereof, which prepared them for different puzzles. Again, across generations as well as across cultures, there is a constant amidst the flux. How we conceptualize intelligence changes over time. But that we conceptualize intelligence—that we care about who is better than whom at solving puzzles—is a human universal.

The point of the preceding bird’s-eye literature review is twofold. First, the evidence establishes the pervasiveness of intelligence attributions in folk psychology. Second, the evidence characterizes conceptions of intelligence (and its associated puzzles) as varying from context to context, even while intelligence is universally considered a capacity to solve puzzles comparatively well.

So, are people around the world onto something when they talk about intelligence? And, if so, what in the world are they onto?

### 3 Psychological theories of intelligence

There may be at least as many conceptions of intelligence as there are people. Likewise, there are as many theories of intelligence as there are intelligence researchers (Thorndike et al. 1921; Sternberg and Detterman 1986; Neisser et al. 1996). Nevertheless, most theorists agree with the folk that intelligence—whatever else it may be—is a capacity (broadly understood) to solve problems (broadly understood) comparatively successfully (broadly understood) (Deary 2000; Gottfredson 2018; Sternberg 2018). Putting disputes about the particulars aside, it is nigh indisputable that the folk are (sometimes) onto something when they call people smart, and that what they are onto is approximately what they think they are onto: that smart people are better at solving puzzles than dumb people. In this section, I canvass three archetypical theories—*g*-centered theory, the theory of multiple intelligences, and the theory of successful intelligence—which indicate the range of scientific attempts to countenance this normative and comparative core of (otherwise cross-culturally variant) conceptions of intelligence.

#### 3.1 Objectivisms

First, most active researchers promote what Flynn (2016, p. 130) calls “*g*-centered theories.” The single most important psychometric finding—rivaled only by the Flynn Effect—is that IQ tests and subtests are all intercorrelated. If you do well on one you

are likely to do well on all. *g*-centered theorists thus take *g*—the single statistical factor that best captures this fact—to be an accurate measure of general intelligence.<sup>3</sup> Many *g*-centered theories propose reducing IQ-test-taking-abilities to cognitive mechanisms—such as cognitive speed (Jensen 2006) or working memory capacity (Oberauer et al. 2005)—or their neural bases—such as the frequency of brainwaves (Jensen 2011) or integrated parieto-frontal efficiency (Jung and Haier 2007). Despite disagreeing amongst themselves about whether *g* (Jensen 1999; Gottfredson 2018) or its sub-components (Horn 1965; Cattell 1971; Carroll 1993) are functionally fundamental, *g*-centered theorists all agree that intelligence is objective—it is the thing measured by *g* on a single, context-independent, interval scale—and unitary—although general intelligence may have functional sub-components, there is no variety of intelligence which is not accurately measured by *g*.

The second archetype is Howard Gardner's theory of multiple intelligences. Gardner's insight is that people who exhibit intelligence at some tasks (e.g. doing arithmetic) do not necessarily exhibit the same degree of intelligence at other tasks (e.g. composing music). According to the theory of multiple intelligences, an intelligence is a computational capacity which originates in biology and entails the ability to solve problems or fashion products that are valued in a cultural setting (Gardner et al. 2018). By defining intelligences as computational capacities originating in biology, Gardner aligns himself with the reductionist tendency of *g*-centered theories. For Gardner as for most *g*-centered theorists, a theory must, in the end, characterize (an) intelligence as a cog which contributes to the successful functioning of cognitive systems. Gardner distances himself from *g*-centered theorists by downplaying *g* as a decent but imprecise measure of logical-mathematical and linguistic intelligences. Nevertheless, Gardner insists that everybody has each of his eight intelligences to some degree. He advocates the development of intelligence-specific psychometric tests which can be used to compare each of everybody's intelligences on an interval scale. Gardner thus takes intelligences to be plural but objective.

### 3.2 Relativism

The third archetype is Robert Sternberg's theory of successful intelligence. Sternberg's insight, derived from the literature discussed in Sect. 2, is that conceptions of intelligence covary with conceptions of success. Sternberg infers that “intelligence is one's ability to achieve success in life in terms of one's personal standards, within one's socio-cultural context” (Sternberg and Grigorenko 2004, p. 1428). He allows that there may be multiple intelligences, insofar as people recognize multiple capacities to achieve different varieties of success. However, Sternberg's definition avoids reference to computational capacities or their biological underpinnings. The theory of successful intelligence dictates that people's smarts are assessed relative to their abilities to solve puzzles relevant to their lives, without reductionist concern for how their cognitive systems function to furnish them with those abilities.

<sup>3</sup> Stephen Jay Gould (1996: Ch. 6) provides an accessible breakdown of the factor analytic techniques that generate *g*. Even Jensen's (1982) otherwise unflinching negative review praises Gould's explanation of factor analysis.



Sternberg does not deny the explanatory importance of cognitive mechanisms. To complement the theory of successful intelligence, he has developed a theory of how “intelligence is realized through a set of information-processing components ... of three kinds” (Sternberg 2018, p. 307). Nevertheless, Sternberg stresses that this triarchic theory serves only to explain how cognitive systems generate intelligence, without allowing the reduction of intelligence to information processing. For Gardner, there is cross-cultural variance in how people value each objective computational intelligence. For Sternberg, abilities (underlain by information processing) emerge as intelligences in some cultures, while not being intelligences in others. Sternberg thus takes intelligence(s) to be culture- (and indeed individual-) relative, as well as plural.

## 4 Metaphysics of folk psychological intelligence

I aim to develop an empirically adequate metaphysics of folk psychological intelligence—of the phenomenon folks invoke when they call Buttigieg ‘smart’ or Warren ‘smarter’. The evidence supports Sternberg’s view that folks have varying (as well as plural) conceptions of intelligence. As Sternberg stresses, people in different contexts do not merely value some intelligences more than others. Rather, they recognize distinct patterns of behavior as intelligent, which can lead to incommensurate ascriptions. To reject relativism in favor of either variety of objectivism—as an account of folk psychological intelligence—would thus be to ascribe systematic error to folk ascriptions. Such ascription does not seem justified: Usengeans track intelligence—their idiosyncratic idea of intelligence, but intelligence all the same—when they call illiterate school dropouts ‘smart’. Their ascriptions enable fecund predictions, explanations, and evaluations, and contribute to regulatory folk psychological practices which mind-shape their community’s youth.

However, apparent tensions within Sternberg’s account remain. How can intelligence be real while being relativized to idiosyncratic ideas thereof? And are low-IQ people not stupider than high-IQ people, no matter their cultural backgrounds? Sure, low-IQ people might meet more success in some settings. But the fact of their lower IQ remains! Similarly, are some people not more musically gifted than others, full stop? Must we refrain from recognizing objective intelligence(s) in order to countenance variation in the appreciation (and even recognition) of intelligence(s) across contexts? In this section, I import some theoretical structure from the philosophy of mind to help resolve these tensions.

### 4.1 Dispositionalism

Gilbert Ryle characterized intelligence as being a matter of knowing how to think and act correctly. An agent knows how to think and act correctly just in case they have the inclination as well as the wherewithal to bring the requisite propositional knowledge and physical capacities to bear. Ryle (1945, p. 15) thus defined intelligence as “a certain dispositional excellence”: a propensity for correct thought and action.

Dispositionalist accounts of personality traits (Westra forthcoming) and related phenomena ranging from sexual orientation (Dembroff 2016) to war crimes (Talbert and Wolfendale 2018) are remarkably uncontroversial. Even philosophers who argue against the existence of cross-contextually stable traits accept that, were such traits to exist, they would exist qua patterns of dispositions (Flanagan 1991; Harman 1999; Alfano 2013). Doris (2002) starts with the premise that folk psychological personality traits are dispositions, and then argues that those dispositions do not exist. Instead, Doris countenances local traits qua dispositions with more context-specific activation conditions than the comparatively context-proof traits commonly invoked in folk psychology. The question of reducing dispositions to cognitive mechanisms does not arise. It is accepted as obvious that, if they exist, personality traits are personal-level dispositional properties.

Folks likewise do not invoke intelligence—nor, indeed, engage in any folk psychological craft—in order to speculate about mechanisms of subpersonal cognitive systems (Dennett 1998; Hutto 2011; Curry 2018; McGeer 2018; Holgado and Castro forthcoming). They do so in order to assess people’s capacities to solve puzzles. It should thus be as uncontroversial that folk psychological intelligence is dispositional as it is that personality traits are dispositional. After all, intelligence is another trait. As Ryle (1945, p. 14) argued, calling somebody ‘smart’ or ‘stupid’ is “describing a part of his character”, and “correspondingly when we describe some particular action as clever, witty or wise, we are imputing to the agent the appropriate dispositional excellence”: the consonant propensity for correct thought and action.<sup>4</sup>

Like Sternberg, Ryle contrasted his account with attempts to reduce intelligence to the neural or cognitive mechanisms that productively cause people to think and act correctly. Sternberg could readily accept Ryle’s nonreductive dispositionalism—he would simply add that what counts as correct thought and action depends on context-bound conceptions of success in puzzle-solving. This addition can fruitfully be understood in terms of interpretivist accounts of folk psychological phenomena developed by Ryle’s successors.

## 4.2 Relativistic interpretivism

Daniel Dennett amends his mentor’s dispositionalism by introducing the “intentional stance”: the strategy of predicting behavior by treating the behavior “as an agent of sorts, with beliefs and desires and enough rationality to do what it ought to do given those beliefs and desires” (2009, p. 3). On Dennett’s view, having intentional mental states is nothing more than being usefully and voluminously predictable from the intentional stance (see also Davidson 2001). Taking a traditional approach to folk psy-

<sup>4</sup> Ryle’s discussion of knowledge-how has inspired more discussion of skills than intelligence (Kremer 2016; Fridland 2017; Riley 2017; Stanley and Williamson 2017; Weatherson 2017). The two are closely related, but intelligence is intrinsically comparative—saying that somebody is skilled in some domain is not necessarily to compare their skill to others’—and more general—being intelligence requires sharp thinking as well as smart moves, though which precise bunch of skills it requires depends on the relevant interpreter’s stereotype. Whereas this article provides an account of intelligence—qua trait—the literature on skill focuses on intelligent action. Of course, since intelligence is a propensity for correct thought and action, the two are explanatorily intertwined.

chology centered on belief, desire, rationality, and prediction, Dennett largely ignores intelligence and the evaluative and regulatory roles of folk psychology. However, from a pluralistic folk psychology perspective, it is easy to see how the intentional stance is also geared towards attributions of intelligence. Folks often evaluate people they are treating as agents as having the intellectual wherewithal (as well as the beliefs and desires) to solve particular puzzles. Folks also often evaluate people as not having the intellectual wherewithal, while still treating them as rational agents.

For the interpretivist, being intelligent is nothing more than being usefully predictable, explicable, evaluable, and regulatable when treated as intelligent via the intentional stance. What does it take to be usefully treated as intelligent? Just what Ryle and Sternberg say: it takes being comparatively good at solving relevant puzzles. What makes intellectual problems (ir)relevant, and what are the pertinent normative standards? That depends on whose intentional stance has been brought to bear in order to assess somebody's intelligence.

As several philosophers have argued, folk psychological practices often rely on stereotypes or other models (Schwitzgebel 2002; Godfrey-Smith 2005; Maibom 2009; Newen 2015; Spaulding 2018). When trying to figure out if somebody is smart, we compare their dispositional profile to our stereotypical model of an intelligence person. Indeed, Sternberg and lab have found that “people have well-formed prototypes corresponding to the various kinds of intelligence [which] are used in the evaluation of one's own and others' intelligence” (1981, p. 2). Interpreters bring different prototypes to bear when assessing ‘intelligence’, ‘academic intelligence’, and ‘everyday intelligence’. The differences between these prototypes depend on the varieties of puzzle-solving ability the interpreter is interested in assessing. Stereotypically book-smart people ably read and write and do arithmetic; stereotypically street-smart people ably make a quick buck and read a situation; stereotypically generally intelligent people ably solve whichever puzzles the interpreter considers most intellectually challenging.

In order to defuse charges of instrumentalism and antirealism, Dennett (1991) explains that phenomena detectable solely from the intentional stance are nevertheless “real patterns” in agents' propensities. Intelligent people really have the capacity to solve puzzles well, independent of any given interpretation. What taking up the intentional stance and wielding models (that help interpreters detect real capacities to solve puzzles) makes possible is the emergence of the relevant capacities as intelligences—as capacities which somebody recognizes as marking capable people as smart. Because conceptions of intelligence differ, capacities only become intelligences relative to this recognition.

Intelligence—the propensity to solve puzzles comparatively well—is a real pattern which emerges as intelligence relative to interpreters' models of the intelligent person. On Sternberg's view, people in different cultures adopt different intentional stances, replete with idiosyncratic stereotypes, and thereby detect different real patterns when they look for intelligence. Without citing the philosophical literature, Sternberg writes that “intelligence really is nothing in particular, as it is a construct humans have invented, largely to explain why some people are better at performing some classes of tasks than others” (2018, p. 308). Dennett's notion of real patterns shows why Sternberg is wrong about the first part, even though he is right about the second part. Intelligence is real, despite being a construct which humans (unwittingly) invented for

the purpose Sternberg identifies, and despite assuming different forms in relation to different stereotypes.

Sternberg is also wrong to define intelligence as one's ability to achieve success in terms of one's personal standards. The relevant standards are not (only) the intelligent person's own. A teacher from San Jose could aptly assess an Usengean child's intelligence according to her own parochial stereotype, from her idiosyncratic intentional stance, even while recognizing that the child's uncle aptly assesses her intelligence differently, according to his own parochial stereotype, from his idiosyncratic intentional stance. As I have argued elsewhere (Curry 2020), interpretivists ought to countenance mental phenomena that emerge relative to each and every interpreter's point of view. Like Dennett, I embrace the consequence that folk psychological phenomena like intelligence are (at least sometimes) intersubjectively indeterminate: the American teacher and Usengean uncle's respective ascriptions of stupidity and smartness are incommensurate, even though neither of them is wrong. There is no single, objective fact of the matter about whether or not the Usengean child is intelligent. Instead, there are two objective facts: she is intelligent for her uncle, but unintelligent for the American teacher.

So, must we refrain from recognizing objective intelligence(s) in order to countenance variation in the appreciation (even recognition) of intelligence(s) across contexts? No. Instead, we must refrain from taking the existence of objective facts about folk psychological intelligence to preclude (the further objective fact) that it emerges relative to folk psychological models. Some people are objectively stupider than others, relative to some models, no matter their cultural backgrounds. The real lesson of Sternberg's research is that those people are not necessarily stupider relative to every model. Thus, scientists who wish to unveil objective facts about intelligence—qua object of folk psychological practices—must study folk psychological models as well as puzzle-solving capacities.

### 4.3 Modelling intelligence

Model-theoretic accounts of folk psychology improve on their traditional counterparts by neatly accounting for interpreters' dual abilities to think abstractly about the general conditions on possession of a given mental state and to think practically about what it would take for a particular agent to possess that mental state in a particular context. Like scientists, folks have both "an understanding of a general structure or schematic pattern that can have many specific instantiations" and "the ability to construct *specific* hypothetical systems to deal with particular empirical cases"; thus, "folk-psychological attributors can rapidly put together specific, filled-out psychological profiles, to explain and predict the actions of individual agents" (Godfrey-Smith 2005, pp. 4–6). By accounting for both general-purpose and target-specific models, model-theoretic accounts uniquely reveal how interpreters "manage to systematize an extraordinary range of phenomena and understand them as different manifestations of the same general principles" (Maibom 2009, pp. 374–375). A model-theoretic interpretivism about intelligence should thus aspire to account for the varieties of intelligence that emerge in relation to both general-purpose and target-specific mod-

els. It should also illuminate the modelled relationships between intelligence and other folk psychological phenomena, such as beliefs, desires, and personality traits.

The empirical research reveals a diversity of general-purpose models of intelligence, which subsume a diversity of relationships between intelligence and other phenomena. Extremely thin general-purpose models of intelligence—focused solely on fluid intelligence, for example—might be belief-, desire-, and personality-neutral. In other words, being intelligent in relation to a thin model might entail nothing whatsoever about what somebody believes or desires, or what kind of person they are. Assuming interpretivism about all folk psychological phenomena,<sup>5</sup> the patterns of dispositions that constitute beliefs, desires, and traits might have zero overlap with the pattern of dispositions that constitutes intelligence (relative to a thin model thereof).

At the same time, thick general-purpose models of intelligence—focused on crystallized intelligence, for example—often incorporate beliefs, desires, and personality traits. Being intelligent in relation to a thick model might entail having ample (or the proper) true beliefs, desiring to act in productive manners, or being focused, persistent, or ambitious. For example, the Usengean uncle’s model of intelligence might entail true beliefs about herbal remedies, and the wherewithal to apply those beliefs in stressful situations. If somebody lacks the patterns of dispositions that constitute the relevant beliefs, desires, or traits (relative to the Usengean uncle’s model thereof), then they also lack the pattern of dispositions that constitutes intelligence (relative to the Usengean uncle’s model thereof).

Many general-purpose models of intelligence plausibly fall in-between these thin and thick extremes. In most models, there may be substantial overlap between the patterns of dispositions that constitute intelligence and the patterns that constitute certain beliefs, without being intelligent entailing that somebody has all such beliefs. (There may be ways of fitting one pattern while evading another, even though most people who fit one fit both.)<sup>6</sup>

Target-specific models lend further complexity. Folks who know enough about somebody’s intellectual talents often construct a model of their idiosyncratic ability to solve idiosyncratic puzzles better (or worse) than others. Buttigieg, Harris, Sanders, and Warren are intelligent—they each sufficiently fit my general-purpose model of intelligence. But they are intelligent in different ways; they are each distinctively good at solving distinctive puzzles. Buttigieg “is a classic [bookish] Smart Dude” (Featherstone 2019), whereas Sanders is “thoughtful” (Stein 2016). I accordingly complement

<sup>5</sup> I entertain this assumption for the sake of illustration, but it plays no role in my argument. Indeed, I think it is false if read literally; folk psychological models incorporate phenomena, such as perceptual representations, that exist absolutely (not relative to interpretation). The conclusion of this article is that interpretivism is the best account of intelligence (whether or not it accounts for any other folk psychological phenomena).

<sup>6</sup> It might be asked, with regard to these cases of overlap, whether attributions of intelligence or attributions of belief take precedence. I doubt there is any straightforward answer to this question. One of the salutary advances of pluralistic approaches to folk psychology has been to challenge (Andrews 2012) or complicate (Westra 2018, 2019) the Dennettian/(Davidsonian) claim that belief, desire, and rationality lie at the heart of all folk conceptions of the mental—and are thus the primary targets of every intentional stance. It is plausible that, sometimes, folks start with the ascription of a certain level and variety of intelligence, and ascribe beliefs only secondarily, to flesh out their psychological profile of a smart (or stupid) agent. However, in my view, the relationships between folk psychological phenomena cannot be determined a priori; we must await detailed evidence about how folks actually model agents.

my general-purpose model with target-specific models of each of the Democratic candidates' idiosyncratic varieties of intelligence. My target-specific model of Sherlock Holmes's intelligence is thinner—less messily loaded with particular beliefs—than my model of Hercule Poirot's intelligence. (Holmes's detective work hinges on deducing (or abducting) the natural meaning of clues; Poirot's hinges on beliefs about people's psychological proclivities.)

There is unity amidst this variation in models: they are all models of how comparatively good people are at solving puzzles. Otherwise, they would not be models of intelligence. Even my pluralistic, relativistic interpretivism does not allow that literally anything goes. Moreover, there is undoubtedly substantial overlap between how folks model intelligence across many contexts. Many—perhaps all—folks model aptitude for puzzle-solving as incorporating the abilities to produce correct answers (and achieve useful results) when tackling known puzzles and to learn quickly how to solve novel puzzles.

Nevertheless, folks do not identify intelligence with its universally agreed upon features, much less its sparse universal definition. Instead, folks identify intelligence with the actual patterns of propensities that fit their context-bound conceptions of intelligence. When wielding thick models, folks take as part and parcel of intelligence dispositions to act in line with true beliefs, wise desires, and sage-like personality traits. As Ryle (1949, p. 328) put it, the distinctive ways people live in accordance with folk psychological models—"their doings, sayings, and imaginings, their grimaces, gestures and tones of voice"—are "the stuff and not the mere trappings" of intelligence. My interpretivism thus does countenance lots—and lots of kinds—of variation amidst the unity; that is what an account of folk psychological intelligence should deliver, given the multitudinous varieties of intelligence that have actually been invoked in folk psychological practices around the globe throughout history.

#### 4.4 Against reduction

Resistance to interpretivism about propositional attitudes usually shares its roots with the emphasis on belief and desire in traditional approaches to folk psychology: the twin convictions that cognitive science offers an explanatory framework which casts beliefs and desires as cogs in cognitive systems, and that folk psychological ascriptions target these cogs. Whatever one makes of these convictions,<sup>7</sup> it is more difficult to make the case that folk psychological ascriptions of intelligence latch onto cogs in cognitive systems. Rampant cross-cultural variation in models of intelligence suggests that we ought not assume that everybody, everywhere, is always accurately tracking the same cog (or set of multiple cogs) whenever they ascribe intelligence.

Moreover, in stark contrast to the facsimiles of folk psychological models of belief that pervade cognitive science (Quilty-Dunn and Mandelbaum 2018), notions of intelligence play next to no role in cognitive scientific explanations. Intelligence is a huge topic in differential psychology, but is almost never discussed in cognitive psychology or neuroscience. Richard Haier—a leading proponent of the cognitive neuroscience of intelligence—allows that "more than a few ... cognitive neuroscience studies of

<sup>7</sup> Arguments for: Fodor (1987), Quilty-Dunn and Mandelbaum (2018). Against: Ryle (1949), Curry (2018).

reasoning do not use the word intelligence” (2017, p. 124). What attempts there have been to individuate a functional (computational or neural) role for intelligence have had mixed results. Haier’s influential *g*-centered parieto-frontal integration theory purports to localize intelligence, but does not attempt to identify it with a functionally individuated neural mechanism (Jung and Haier 2007, p. 176). And there is no empirically supported theory of computational architecture grounding Gardner’s theory of multiple intelligences.

Nevertheless, notions of intelligence pervade folk psychological practices. Intelligence is thus a perfect candidate for a mental phenomenon which exists relative to interpretation, rather than being reducible to cognitive functioning.

I am not asserting that any variety of intelligence floats free of underlying cognitive processes, nor that the cognitive etiology of intelligence is unworthy of study. I am asserting that cognitive processes do not themselves constitute intelligence—qua object of folk psychological practices—and that the patterns of dispositions they generate constitute intelligence only relative to folk psychological models. The latter assertion is backed up empirically—via the existence of significant cross- and intra-cultural diversity in conceptions of smarts—and conceptually—via the normativity at the heart of intelligence, which requires that intelligence be understood relative to folks’ standards of successful thought and behavior. The former assertion is backed up by the fact that cognitive scientists have no use for facsimiles of folk psychological models of intelligence at mechanistic levels of explanation. None of this is to deny the fecundity of differential psychology. But it is to deny—as cognitive psychologists (implicitly) deny by leaving intelligence out of their models of cognition—the objectivist thesis that the ascriptions of intelligence pervading folk psychological practices target functional cogs in cognitive systems.

Indeed, I would deny objectivism about folk psychological intelligence even if cognitive psychological intelligence were vindicated. Although the present paucity of intelligence-talk in cognitive psychology is telling, I will not pretend it is probative. Working memory capacity could be intelligence in sheep’s clothing (Oberauer et al. 2005; Carruthers 2015; cf. Shipstead and Engle 2018); although the case for this identification rests on strong correlations with measures of fluid *g* in particular, it is possible that working memory plays a key role in generating each and every variety of intelligence invoked by folks around the world and throughout history. Interpretivists about folk psychological intelligence can afford to be agnostic about this possibility (and other possible realizations of folk psychological intelligence by cognitive or neural mechanisms). Even if working memory does lie at the root of all varieties of folk psychological intelligence, it is not their functional underpinnings that make them varieties of intelligence. On the contrary, if they bear the right relation to folk psychological models thereof, then patterns of dispositions constitute folk psychological intelligences no matter how they are realized at cognitive or neural levels of explanation. (They may be multiply realized.) Interpretivism is a sound account of folk psychological intelligence whether or not scientists devise a unifying etiological story about the mechanisms responsible for folk psychological intelligence.

## 5 Further puzzles to solve

To recap: intelligence is a real pattern of dispositions to tackle puzzles (that a pattern-detector deems worth solving) comparatively well. That is how intelligence can be real yet relativized to idiosyncratic ideas thereof. This interpretivism is an account of folk psychological intelligence, but not a complete account of the folk psychology of intelligence. The latter will require a fuller understanding of how folks model intelligence in relation to other folk psychological phenomena, and of how various folk psychological methods employing these models together serve various folk psychological goals (Spaulding 2018; Westra 2019).

Sympathetic and skeptical readers alike may still be wondering what IQ tests measure, such that they strongly intercorrelate with each other and with prestigious varieties of success in life. This question deserves a substantive reply, which I look forward to providing in future writing. In the meantime, it will suffice to adumbrate that reply, and preemptively point out that interpretivists about folk psychological intelligence can afford to be agnostic in the debate about *g*, just as we can afford to be agnostic about intelligence qua object of cognitive (neuro)psychology. It is possible that *g* cleanly measures the latter (by tracking working memory capacity, perhaps). Regardless, interpretivism best accounts for folk psychological intelligence, since not all folks everywhere value intelligence qua (correlative of) IQ.

Although I formally recommend agnosticism, I am attracted to extending interpretivism to countenance intelligence-as-measured-by-*g*. To be smart—either in the way measured by IQ tests or in the ways commonly depicted in folk discourse—is not just to process information faster, or to have greater integrated parieto-frontal neural efficiency, or to have greater working memory capacity. Instead, to be smart is to be comparatively good at solving intellectual problems. Intelligence is an irreducibly normative notion: it is not just a capacity to think, but to think well—indeed, to think better than others. And what counts as thinking better depends on the normative standards set by whoever endeavors to detect the relevant capacity (be they Binet or your Usengean uncle). To be smart relative to the WEIRD standards set by psychometricians is to be comparatively good at solving the puzzles that constitute IQ tests (van der Maas et al. 2014). The real patterns of success in thinking detected by IQ tests are also detected in some folk discourse, especially since IQ testing has warped popular conceptions of intelligence in standardized-test-obsessed American culture. In other folk psychological practices, IQ and intelligence are conceived as strikingly distinct. So, *g* is a measure of something (often) different from, though related to, folk psychological intelligence. Both the scientific construct and the many folk constructs warrant more careful study.

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