Rev.Phil.Psych. (2013) 4:621–638
DOI 10.1007/s13164-013-0155-2

# Truth, Correspondence, and Gender

**Robert Barnard · Joseph Ulatowski**

Published online: 27 June 2013


**Abstract** Philosophical theorizing about truth manifests a desire to conform to the ordinary or folk notion of truth. This practice often involves attempts to accommodate some form of correspondence. We discuss this accommodation project in light of two empirical projects intended to describe the content of the ordinary conception of truth. One, due to Arne Naess, claims that the ordinary conception of truth is not correspondence. Our more recent study is consistent with Naess' result. Our findings suggest that contextual factors and respondent gender affect whether the folk accept that correspondence is sufficient for truth. These findings seem to show that the project of accommodating the ordinary notion of truth is more difficult than philosophers had anticipated because it is fragmentary.

The content of the ordinary notion of truth is a bit of intellectual terrain that needs to be mapped; it plays a central role in philosophical thinking about truth. Despite this, it is not well understood. As Frank Ramsey once noted: "[i]t is a word which we all understand, but if we try to explain it, we can easily get involved, as the history of philosophy shows, in a maze of confusion." (Ramsey 2001, 433). Specifically, it seems abundantly clear that philosophers tend to think that the ordinary notion of truth involves something like correspondence, and they often try to develop theories that conform to this insight. It is all too easy to find philosophers who express a commitment to something like agreement, copying, or correspondence between what (in the mind or in language) is true and what (in the mind or in the world) makes it true. Call this the *correspondence root* ("CR" for short). Similarly, it is common to find claims that the popular or common-sense theory of truth essentially involves CR. Sometimes expressions of CR are offered as possible analyses of the truth concept. At other times, correspondence notions are employed as constraints on theory development. Our point here is simply that CR plays a significant role in how philosophers think about truth. These views have developed over the centuries, but one can always

R. Barnard
University of Mississippi, University, MS, USA
e-mail: rwbjr@olemiss.edu

J. Ulatowski (✉)
University of Wyoming, Laramie, WY, USA
e-mail: oohlah@mac.com

plausibly claim that CR is *prima facie* part of our view of truth. Thus, when Aristotle claims that:

> To say of what is that it is not, or of what is not that it is, is false, while to say of what is that it is, or of what is not that it is not, is true. (Aristotle, *Metaphysics* 1011b25)

he is expressing a commitment to the CR. The centrality of CR has found expression in many forms. Russell (1912) argued that a correspondence notion was required in order to respect the difference between believing that *p* and *p* being true. James (2001) noted that the "popular notion is that a true idea must copy its reality" (212). Horwich (1998) also affirmed the centrality of CR: "The common-sense notion [is] that truth is a kind of 'correspondence with the facts'" (1). Or more simply, "[t]he most popular theory of truth has probably been the *correspondence* theory" (Devitt 2001, 579). Attempts to refine and reformulate correspondence accounts of truth continue to percolate (Vision 2004; Sher 2005, 2013; Barnard and Horgan 2006, 2013).

Whether or not the final *philosophical* account of truth ends up being a version of a correspondence theory, it seems implausible to say that CR does not influence or guide our thinking. Contemporary truth pluralists who question that truth has a singular nature respect correspondence type principles as platitudes or truisms (Cf. Wright 1994; Lynch 1998, 2009). Even deflationary and disquotationalist views trivially adhere to CR through their commitment to equivalence principles of various sorts (Cf. Horwich 1998; Wright 1994; Quine 1992). In part, this can be traced back to the central importance of CR for the highly influential "Semantic Theory" proposed by Tarski (1944). Tarski's hope was that his restricted formalized account of truth would "do justice to the intuitions which adhere to the classical Aristotelian conception of truth—intuitions which find their expression in the well-known words of Aristotle's Metaphysics" (Tarski 1944, 342). This Aristotelian expression, Tarski variously refers to as "the actual meaning of an old notion," the "classical" or "common sense usage" of truth (Tarski 1944, *passim*).

We have suggested that the ordinary notion of truth is committed to CR. Philosophical theories of truth are often presented as attempts to capture, clarify, formalize, or explicate the ordinary notion of truth. Consider two recent examples:

> The aim of this book is to illuminate the notion of truth and the role it plays in our ordinary thought, as well as in our logical, philosophical, and scientific theories (Soames 1999, 1).

> [B]efore setting off to discuss various theories of the nature of truth, let's briefly consider a few of our folk beliefs about it. […] One preconception most of us share is that truth is objective. To speak truly is to "say of what is, that it is", as Aristotle famously put it. And since what we say, at least when we are sincere, is an expression of what we believe or judge, a parallel truism holds about belief (Lynch 2009, 8).

So truth theorists, even those who are not correspondence theorists, seem to place a great deal of theoretical weight on the ordinary notion of truth and with it, we maintain, on CR.

That something is identified as the most popular view or as the common sense view does not necessarily mean that the view accurately reflects what the ordinary person thinks about truth. By "popular" one might just mean that it is the one most cited or employed most often *within* philosophical circles. By "common sense," one might mean 'familiar' or 'intuitive'. Nevertheless, if we take the remarks of Tarski, Soames, and Lynch at face value, the ordinary view of truth matters to many philosophers. There is clear evidence that when a philosopher claims that some conception is the most popular or the common sense view, they have in mind what the common person would believe.

Admittedly, there is a difference between the common-sense notion of truth as traditionally understood by philosophers and the use or employment of everyday truths. This difference should not escape us. People use the words "true" and "truth" nearly everyday. Likewise, they *use* truths, ordinary factual nuggets. Some philosophers recommend that an exploration of everyday truths is important to devise a theory of truth.

> Everyday truths are important, and their importance should be stressed, for several reasons. One is a central concern of this book: their role in an account of truth and meaning, and in constructing a philosophical anthropology (Williams 2002, 10).

Everyday truths are commonplace, e.g., "the Earth travels around the sun every 365 1/4 days," "the Pope wears mitres," and "bachelors are unmarried adult males." People use such truths all the time. Hence, at least according to philosophers like Bernard Williams, their role in a theory of truth should not be compromised by the relatively sophisticated analyses currently on offer from numerous epistemologists and metaphysicians interested in the nature of truth.

Philosophers want their preferred account of truth to broadly conform to the ordinary or folk notion of truth. One way in which many have tried to satisfy this implicit restriction has been through their acceptance of something like CR. This raises two questions that we will address in the remainder of this paper. First, can we really claim to understand the content of folk or ordinary notion of truth, i.e., is there any reason to think that our thinking about truth is aligned with the folk notion or alternatively, are we off target completely? Second, is the CR really part of the ordinary notion of truth? In order to illuminate the first question, we will discuss two empirical projects that aim to describe the ordinary or folk notion of truth.[1] Further, recent empirical results that appear to undermine the presumed centrality of CR will be introduced.

Part of what is at stake is whether our philosophical thinking about truth has been properly calibrated to the folk notion. Either the philosopher's intuition about the folk's views is properly calibrated or it's not. If it is properly calibrated, then we need not be concerned with the foundation of the philosopher's theory of truth. The philosophers have cottoned on to the folk notion! If it is not properly calibrated, then theories of truth have been built upon an incorrect assessment of CR. In either case, further philosophical theorizing about truth would clearly benefit from a better grasp of the folk notion of truth, one perhaps informed by empirical investigation.

[1] Throughout we will use locutions such as 'the ordinary notion' or the 'folk conception' interchangeably as mere stylistic variants. The key idea in each case is the supposed conception of truth had by ordinary people.

## 1 The Ordinary Notion of Truth and Correspondence

We are not the first people to ask whether philosophers are able to successfully grasp the ordinary or folk notion of truth. Consider the following more familiar case. Tarski (1944) proposes two standards a theory of truth should try to meet: formal correctness and material adequacy. *Formal Correctness* insists that we avoid formal contradiction and self-referential paradox. *Material Adequacy* requires that the account of truth capture the ordinary notion of truth. Tarski thinks that this notion is expressed by the passage from Aristotle's *Metaphysics*. But, in a moment of admirable intellectual humility, Tarski recognizes the possibility that he might be wrong about the content of the ordinary notion of truth.

In §17: *Conformity of the Semantic Conception of Truth with Philosophical and Common-sense Usage*, Tarski addresses the question of how we ought to think about the matter of material adequacy. Tarski reaffirms his belief that the semantic conception is in accord with the Aristotelian notion cited above, but he also suggests that if some maintain that the ordinary concept of truth is different from the classical Aristotelian notion, then the issue may be resolved empirically. Tarski writes,

> I happen to believe that the semantic conception does conform to a very considerable extent with the common-sense usage *although I readily admit I may be mistaken*. What is more to the point, however, *I believe that the issue raised can be settled scientifically, though of course not by a deductive procedure, but with the help of the statistical questionnaire method* (Our emphasis, Tarski 1944: 360).

In the subsequent note, Tarski cites the work of Norwegian philosopher Arne Naess as an example of someone doing empirical work of the sort that would be relevant to settling the issue.

Naess published some of the main empirical findings from his research in *Truth as Conceived by Those Who are Not Philosophers* (Naess 1938a) and in "Common Sense and Truth" (Naess 1938b). Before beginning his empirical studies of those who are not philosophers, Naess surveyed over 200 professional philosophical papers on truth. Bemoaning the indecision among philosophers over the nature of truth, Naess worried about the ability of philosophers to make meaningful claims about the ordinary notion of truth:

> How do the philosophers *know* these things? What is the source of their knowledge? What have they done to arrive at it? Much work with this treatise would have been saved (and—it may be added—many of our theses would in this circumstance turn out to be untenable) if the philosophers had indicated how they investigated the opinions of the non-philosopher (the amateur) and how they arrived at the conclusion that there are thorough-going differences between opinions (explicitly or implicitly) of philosophers and non-philosophers. But the fact remains their writings contain almost nothing of this matter. Perhaps some of them have asked their wives or assistants for their opinions on the truth–notion, but there is very little to prove that they actually employed such a method. If they had worked out a method to determine truth-

> theory of a man inspecting his general behavior, why do they not mention this method?
>
> Even very superficial questioning of non-philosophers would make it impossible for anyone to believe that the philosophers writing about the opinions of ordinary people actually ask others than themselves (Naess 1938b, 15).

His concern over the philosopher's ability to know what the ordinary person's conception of truth is was further exacerbated by his systematic empirical study of people using an open-ended questionnaire.

Naess' research program consisted of an analysis of a series of qualitative interviews and survey results for approximately 200 northern Europeans with widely varying socioeconomic and educational backgrounds. Naess described his method and experimental design in the following way: "I decided to try to produce truth theories "experimentally" by asking people without philosophic training all sorts of questions that would in a natural way lead them to speak about 'truth'" (1938a, 6. Cf. Naess 1938b, 18 ff.). Interviewers were not philosophically sophisticated and were given specific instructions on how to contend with an unresponsive study participant.[2]

Unlike the way in which today's experimental philosophers conduct surveys using targeted questions following the presentation of a brief vignette or story meant to prompt a participant's response, Naess employed open-ended questions allowing respondents' answers to arise organically in conversation. Investigators asked respondents questions like:

> Is there anything absolutely true?
>
> What are some common characteristics of things that are absolutely true?
>
> What is the common characteristic of that which is true?
>
> What is the common property of true statements?
>
> Why do you use the word true? (Naess 1938a, 9f)

Interviewers wrote out what each respondent said, and the collected data were coded and analyzed by Naess and a troupe of graduate students. The data yielded a wide array of truth notions operative among ordinary people.

Naess identifies five widely held truth formulation types among non-philosophers. The two formulations most often expressed were correspondence or agreement with reality and correspondence or agreement with facts. He called these two formulations A- and B-formulations, respectively. A-formulations are "short general statements on truth [and similar notions] except "fact", having the character of definitions" (Naess 1938b, 9) and include participants' responses like: *agreement with reality, a statement (is true) if its contents agree with reality, agreement with real things, it is the case, that it actually is so, it is so*, and *when I hold that it is like that and it appears to be like that*. B-formulations are "formulations corresponding to the [A-formulations],

[2] "To avoid suggestion due to preconceived opinions on truth-discussion, we deferred the task of systematic interviews to a person without any knowledge about the questions involved" (Naess 1938a, 20).

but dealing only with the notion of fact" and include participants' responses like: *a fact, it is a fact, agreement with facts, that it is pure fact, what one may ascertain is a fact, that one states lucid facts*, and *the fact of the case*.[3]

Neither A- or B-formulations nor any of the other formulations identified by Naess were common enough to be called the one and only common sense theory of truth. In fact, Naess reports that:

> Let us first consider the group with "agreement" and "reality" as central notions [i.e., A-formulations]. This group consists of 10 or 7 % of the [study's participants] 10 or 3 % of the [A- or B-formulations]. These values—if included among [groups based on superficial verbal similarity]—give it the place No. 7 in the "frequency candidate" column, place No. 6 in the "number of [A- or B-formulations]" column and place No. 8 in the "frequency points" column. The group in which "fact" occurs in the place of "reality" consists of 7 [study participants] or 5 %, 7 or 2 % of the [A- or B-formulations].[4] (Naess 1938a, 70)

Despite this cryptic expression, Naess wants his reader to recognize that neither correspondence formulation type (A- or B-) is widely held by participants in his study. Less cryptically, he acknowledges that "no group comprises as much as 15 % of the [A-formulation]. [Among] The 10 greatest groups according to frequency of occurrence contain, on an average, only 3.4 % of the [A- or B-formulations]" (Ibid.). Hence, Naess concludes that:

> It is very difficult to see why one of these (most frequent) groups [so-called A and B formulations] or both taken together should be called 'the common-sense theory of truth'. There is no evidence in support of the hypothesis that anyone has made any attempt to investigate "common sense" in the sense required. Philosophic "truth theories" seem wholly to be the fruits of "contemplation" and "intuition." (Ibid.)

In fact, Naess thought the project of defining truth may be hopelessly intractable:

> We have gathered more than 1,000 examples from non-philosophers and a great many from the philosophical literature, but it is by no means plain how we from this collection should be able to infer any general statement resembling definitions. How should we manage to arrive at statements having the character of definitions? We fear that this doubt must arise in whatever manner the interconnection between example production and view of the truth notion is

[3] As we mentioned above, there are other formulations besides the two most prevalent A- and B-formulations. Included among them are D-formulations, or those "that substitute the word "true" for the word "right" or vice versa," e.g., "what people with authority say is true" or "that it fulfills the requirements we ourselves make of that which we think is right," G-formulations, or those that definitions of truth "by opposites," e.g., "erroneous is what is not right," M-formulations, or those that are "concerned with moral standards," e.g., "that conscience does not protest against it" or that it's "the opposite of a lie," and T-formulations, or those that are "tautological formulations," e.g., "that is true," "that it is right," or "that it is certain." (Naess 1938a, 40, 57 –60)

[4] Naess used very specific definitions for "frequency candidate" and "frequency points." "Frequency candidate" describes the distribution among respondents of all ages, gender, and socio-economic status, while "frequency points" characterizes the distribution among respondents who offered more than one characterization of truth in comparison to those participants who offered only one definition (Naess 1938a, 11).

> conceived. We do not deny the possibility of someone being able—intuitively or by means of statistic—to find very deep rooted characteristics of what "non-philosophers declare to be true, but we seriously doubt that the results should be statable in the form of a definition or in the form of any other expressions similar to what philosophers call "criteria of truth", "meaning of the word 'true'", "nature of truth" etc. Our investigations leave us no hope. (Naess 1938a, 71)

Despite this sense of hopelessness, Naess felt confident enough to present a few key results: a) a majority of the participants rejected formulations involving correspondence (that do not also involve appeal to facts), b) the non-philosophers think professional formulations of the "truth problem" are better than amateur formulations, and c) the positions proposed by professional philosophers and the arguments offered in support of them are "refound among the amateurs" (see Naess 1938a, 152). Sadly, these findings do little to clarify things. While there was not one identifiable folk theory of truth standing alone among its competitors, the philosophers and non-philosophers seem to agree with one another that some views deserve consideration.

## 2 From Naess' "Experimental Philosophy" to Experimental Philosophy

In 1938 Naess wrote that the "diversity and consistency of amateur theories of truth, point to the possibility of an 'experimental philosophy'" in the sense that 'experimental biology or ecology' might involve the study of forests by going there and surveying it. Seventy or so years later, we find that such an approach has become more widespread. Recent efforts employing social scientific research methods to better understand how ordinary people think about philosophically significant concepts have raised important questions in many philosophical domains. Proponents and detractors alike (perhaps unknowingly) have followed Naess in calling this project "experimental philosophy." When these experiments reveal interesting variations in how a philosophically significant concept is understood by the folk, it is wise for the larger philosophical community to take note—the more central the notion at hand, the more pressing the need to understand what these results mean.

Much work in recent experimental philosophy has focused on the use of target concepts in philosophical psychology, ethics, and action theory. The methodological novelty of this approach and the relative narrowness of its early application might have suggested to some that the scope and influence of experimental approaches in philosophy might be somehow limited to these areas; however, others have not been so pessimistic. For example, Paul (2010) and Goldman (2007) have argued that in some cases empirical results should inform traditional philosophical debates in metaphysics. Naess (1938a, 1938b) belies such limits as well. In epistemology and philosophical semantics, several important studies have helped shape recent discussions: Weinberg et al. (2001) found cultural differences in Gettier cases. Machery et al. (2004) discovered differences in East Asian and Western subject linguistic intuitions. Swain et al.

(2008) reported order effects in familiar cases testing epistemic intuitions (e.g., Keith Lehrer's TrueTemp case). Beebe and Buckwalter (2010) disclosed an interesting asymmetry of ordinary people's responses regarding knowledge attributions. Sripada and Stanley (2012) found that stakes affect knowledge attributions.

Following Naess and more recent experimental work, we thought to employ empirical methods to take a descriptive snapshot of the ordinary notion of truth. Like Naess, our project is limited by factors such as limited sample size. So, we do not claim to offer the final word on the folk notion of truth. On the contrary, we hope that the results we report here will demonstrate the possible importance of empirical work on truth and help make a case for adopting empirical approaches in addressing problems in some core areas of philosophical research.

## 3 Study Design and Methods

Returning to the two questions proposed above, we sought to better understand the ordinary notion of truth. We drafted a series of vignettes and a set of probe questions including one designed to elicit participant responses to a non-technical expression of the correspondence theory. After participants responded to questions in light of the vignette, each person was asked to respond to a series of demographic questions.

Our project, as a whole, involved approximately 200 people from diverse regions of the world who responded to the Yale Experiment Month studies. Responses were collected using *Qualtrics*, an online survey tool. Participants were recruited from Amazon's *Mechanical Turk* and compensated approximately $1.25 (USD) for 10 to 15 min of their time. This was a between subject study where individual respondents were randomly assigned to 1 of 9 distinct conditions and asked to answer questions regarding the specific condition.[5] We named each condition after the main character of the vignette (e.g., "Bruno" or "Donna"). One question (Question #1) was condition specific and used to test whether the subjects were just giving random responses. Respondents were then asked, "with respect to the case of [agent's name in the condition], how much do you agree or disagree with the following statement?" Subjects rated each statement on a Likert scale from 1 ('strongly disagree') to 5 ('strongly agree'). Among 16 statements was one intended to track the degree to which respondents agree or disagree with something like CR. The specific probe statement was:

[**ST**:] If a claim reports how the world is, then it is true.

Our data reflect subjects' responses to ST. These responses reflect the degree to which the ordinary conception of truth involved or failed to involve correspondence as a

[5] We found the study design employed by Naess to be far too unwieldy and impractical for replication. We opted instead for a more limited survey based approach. The various conditions were designed to prime the thinking of our respondents so that they would be thinking about truth relative to contexts involving ordinary empirical truths, mathematical truths, cases involving authority, independence of truth from evidence or warrant, etc.

sufficient condition for truth.[6] There were two findings we would like to report here: that contextual factors affect whether respondents agree that correspondence is sufficient for truth and more unexpectedly (save for a recommendation by Naess), that there are statistically significant variations with respect to male and female responses to ST.[7]

## 4 Experiment: The Anna and Bruno Conditions

In theoretical discussions of the correspondence theory of truth, philosophers often employ simple descriptive situations to motivate and defend the correspondence view and complex situations involving abstract objects or complex social phenomena to criticize the correspondence view. We hypothesized that if we were to present respondents with scenarios whose contexts vary in these ways, then we would find differences in how participants respond to ST. Specifically we compared a familiar empirical context with a mathematical context.[8]

This hypothesis was borne out. 83 participants in the Yale Experiment Month studies were given one of the two following scenarios. Each respondent was randomly assigned to either the "Anna condition" or the "Bruno condition":

**Anna condition:**

Anna has performed a simple calculation and discovered that 30+55=85.

**Bruno condition:**

Bruno has just finished painting his house. Bruno painted his house the same color as the sky on a clear summer day. Bruno claims his house is blue.

The Anna condition was representative of a mathematical context while the Bruno condition was representative of a straightforward empirical context. Subjects were then asked how much they agreed or disagreed (on a scale from 1 to 5) with ST. As

[6] It has been suggested by some commentators that the probe statement ST would have yielded more useful information had it actually employed the term 'corresponds' or a cognate term in place of 'report'. This is, we think, at root a philosophers' worry. The purpose of the study as we conceived it was to track the ordinary conception of *truth*, not any particular philosophical theory about truth. And we did not specifically aim to describe the ordinary understanding of correspondence. We opted for simple non-technical phrasing of the truth theories we looked at whenever possible to allay triggering latent philosophical training or mathematical training (*mapping relations that define functions*) and to not confuse correspondence with, say, the exchange of notes, emails, and letters. Future projects might include the term "corresponds" for respondents to consider. Since the data we collected revealed statistically significant results, we believe that the non-technical language we employed is sufficient to report.

[7] Naess' highly provocative suggestion: "feminine persons have a greater tendency to believe in absolutes than masculine" (Naess 1938a, 124). This remark is offered in a short stand alone section of his monograph, with no substantive explanation.

[8] An empirical statement, like "the cat is on the mat" or "the cake is navy blue," reports something about the way the world is. The 'fact' that makes them true would be obvious to someone in such a context. By comparison, a proposition with mathematical content, such as "$\pi$ is an irrational number" or "the sum of one and six is seven," does not obviously report how the world is. The truth-making fact seems to be of a distinct sort. Because of the differences between the two contexts, we should expect that responses to ST will vary according to the particular contexts.

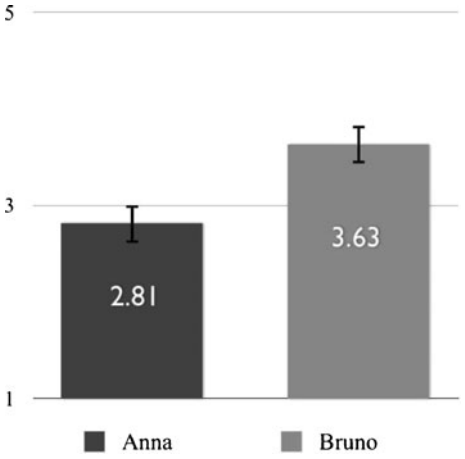


**Fig. 1** Contextual variation

predicted, the two conditions elicited two different patterns of responses. In the Anna condition, the mean response to ST was 2.81 out of 5. In the Bruno condition, the mean response to ST was 3.63 out of 5. This difference was statistically significant ($N$=83, $t$ (81)= −2.943, $p$<.004) (See Fig. 1.).

## 5 Discussion

Since the mean response in the Anna condition was below the mid-line, it is appropriate to say respondents did not agree that correspondence was sufficient for truth in the mathematical context.[9] This seems to indicate that the ordinary notion of truth in mathematical cases does not strongly involve correspondence. Contrast this result with the Bruno condition where the mean response (3.63 out of 5) was an expression of agreement with the statement ST. In the familiar empirical context, correspondence plays a central role in the ordinary notion of truth.

These results comport well with the general intuition that correspondence works in familiar empirical cases while it loses much of its intuitive plausibility in cases where the fact or state of affairs that a truth must correspond with is epistemologically or metaphysically difficult to identify or track.[10] The comparison of the Anna and Bruno conditions shows that commitment to correspondence is contextually variable.

Contextual variability within the ordinary notion of truth has been suggested in recent years (by Lynch 1998 among others). If the ordinary conception of truth is different in different contexts, then the philosopher's theory of truth must either be flexible enough to accommodate the variability, or there must be many local theories of truth. So, the news is mixed for anyone who wants their truth theory to accommodate *the* ordinary notion of truth.

[9] Because we employed a 5-point Likert scale in each of our experiments, we took the mid-line to be 3.
[10] This result is, for example, suggested by work such as Benacerraf (1973), which argues that treating mathematical truth in correspondence terms is epistemically impractical.

So far, we have suggested that the ordinary notion of truth is sensitive to contextual variation in ways that some philosophers might have predicted. When philosophers attempt to accommodate the ordinary notion of truth, this ordinary notion is usually understood to be monolithic in the sense that it is the same for everybody in the same circumstances. Additional empirical findings show that this may not be the case. Instead, there is reason to believe that in some contexts, the ordinary notion of truth might vary with gender.

## 6 Experiment: The Bruno and Donna Conditions

For this experiment, our focus is on two of the nine conditions. First, we return to the Bruno condition. 41 participants, 24 male and 17 female, were asked to consider the following vignette involving an ordinary empirical experience:

**Bruno condition:**

Bruno has just finished painting his house. Bruno painted his house the same color as the sky on a clear summer day. Bruno claims his house is blue.

Participants were then presented with a series of questions, including ST. With respect to ST, the mean male response was 3.96 out of 5, and the mean female response was 3.07 out of 5. This difference is statistically significant ($N$=41, $t$ (39)=2.305, $p$<.027) (See Fig. 2.).

When subjects were primed by the vignette to think about truth in an ordinary empirical context, men embraced the sufficiency of correspondence for truth while women were indifferent. Males, more so than females, agreed that if a statement reports how the world is, then it is true. This result is particularly striking given that many versions of the correspondence theory of truth are motivated by such ordinary empirical cases. A similar result was found when a distinct group of subjects was primed to think about truth in a simple pragmatic context.[11]

While the Anna condition primed subjects with a mathematical context, i.e., one where the subject of the condition performed a simple arithmetical operation, and the Bruno condition primed subjects with an empirical context, i.e., one in which the subject of the condition was presented with coming to grips with a visual color experience, the Donna condition involved a subject who sets about to resolve a practical problem. Donna, the subject of the condition, is unable to speak German, is in a store where the shopkeeper seems only to be able to understand German, and she needs to find her way around the city. In order to find her way about the city, she needs to ask for a map. Noticing that another patron asked the shopkeeper for *der Stadtplan* and received a map she too thinks that asking the shopkeeper for *der Stadtplan* will yield a map. The condition is pragmatic in that the subject described in the condition seeks to solve a practical problem.

[11] One referee has pointed out that there are claims made by the thought experiments' protagonist in the Anna and Bruno conditions, while in the Donna condition the protagonist does not claim anything. Respondents are told merely that "Donna believes $x$". While we are sympathetic with this concern, these vignettes were developed to prime participants to respond to the various statements exemplifying alternative conceptions of truth. The prompts, like ST, were not tailored to the conditions; instead, they were general statements about truth.

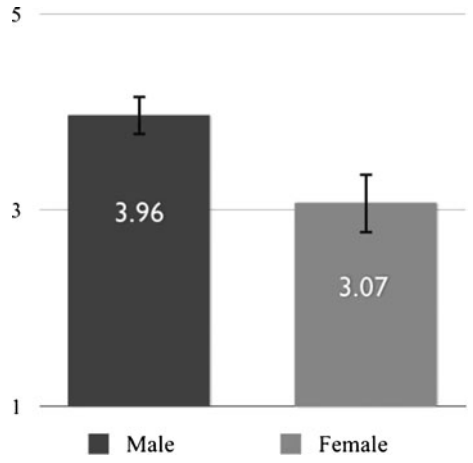


**Fig. 2** Bruno condition

In this pragmatic case, 40 subjects (25 male and 15 female) were asked to respond to the following vignette:

**Donna condition:**

Donna is traveling in Germany, but does not speak German. She watches as a sailor asks for *der Stadtplan* and is handed what looks like a map of the city. Donna asks for *der Stadtplan* in a shop and is sold a city map. Donna still speaks no German, but believes that asking for *der Stadtplan* is a good way to obtain a city map from a German shopkeeper.

For ST, the mean male response was 3.56 out of 5 and the mean female response was 2.6 out of 5. This difference is statistically significant ($N$=40 (25 male, 15 female), $t$ (37.701)=2.521, $p$<.016) (See Fig. 3.). The data were even more striking in the Donna condition than in the Bruno condition. When primed by the Donna condition, the mean male response was above the mid-point and expressed agreement with the view that correspondence is sufficient for truth, but the mean female response was below the mid-point and indicated rejection of correspondence as a sufficient condition for truth.[12]

## 7 Discussion

The *Bruno* and *Donna* conditions indicate that gender is among the factors that will influence how a person thinks about truth. In an empirical context described by the Bruno condition, the average male response was much higher than the mid-point

[12] We also ran a variant of the Donna condition where the words "only English" replaced "no German." We developed the "only English" alternative of the Donna condition in the hope of uncovering a word-framing effect. 39 respondents, 19 male and 20 female, were given this modified Donna condition. The mean male response was 3.53 and 3.05 for females ($t$ (37)=1.258, *ns*). Interestingly, regarding ST, the data failed to yield a statistically significant difference between male and female responses, *and* there were no word framing effects detected, either. It should be noted that not all is lost on the "only English" alternative. Just as in the "no German" variant, more men agree with ST than women.

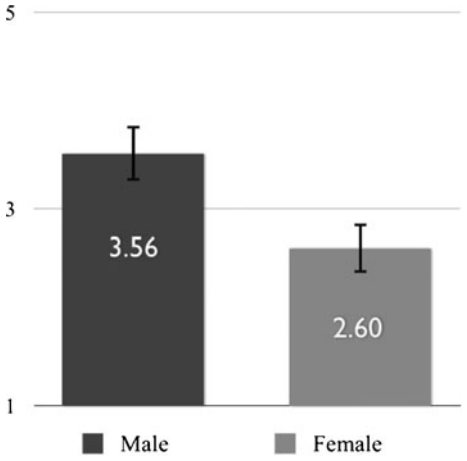


**Fig. 3** Donna condition

while the average female respondent straddled the mid-point. In the more pragmatic Donna condition, female respondents actually weakly disagreed with ST while male respondents endorsed it. Assuming these results are correct, the project of devising a philosophical account of truth accommodating the ordinary notion, usually understood as involving a respect for CR, must be rethought.

Our data reveal that CR is not a generally dominant feature of the ordinary notion of truth, *sans phrase*. As we have reported here, gender is one factor that shapes the ordinary notion of truth.[13] These results are problematic; we do not have a firm grasp of just how volatile the truth notion is when it comes to demographic and socioeconomic factors other than gender. A full understanding of the ordinary notion of truth would require further research and this is what we recommend.

These findings, we maintain, do more than merely report an incidental disagreement. The effect of gender on responses to ST was replicated in two separate studies (Bruno and Donna) with two distinct populations; this suggests that we are looking at a robust phenomenon. Gender differences were not found in all of the experimental conditions we considered. The result is important, nevertheless, because the contexts where gender effects were observed included precisely the contexts that are customarily invoked by philosophers to motivate correspondence theory as a plausible account of truth, i.e. ordinary empirical contexts where the apparent 'correspondence' between a belief or statement and the fact in the world that makes it true would be most obvious.

[13] Further empirical research might find differences according to age, race, philosophical training, political or religious affiliation, and income level. This suggestion is not merely rhetorical. Naess 1938a chapter IV contains several basic analyses of the variability of truth theories relative to factors such as gender, age, and educational attainment. Given that Machery et al. (2004), as well as Weinberg et al. (2001) have shown that there is evidence of cross-cultural variability in philosophically significant concepts, we believe that our study does not rule out finding such cross-cultural variability in the ordinary conception of truth.

## 8 Some Broader Theoretical Points

In light of Naess' findings it would seem untenable to maintain that the folk notion of truth is a singular or monistic idea. Instead, it is probably more accurate to say that ordinary people express a variety of views about truth. Our findings indicate that individuals readily affirm theses native to a wide range of traditional truth theories, just as Naess had found that participants would sometimes endorse more than one common characteristic of truth. The question of whether correspondence or correspondence-like ideas play a leading role in such bundles, or for most people, is not easy to answer. Naess' results suggest that it does not. Our findings suggest that the ordinary conception is sensitive to context and sometimes to gender.

We are left with the following concern: *How should philosophers proceed given that the ordinary notion of truth is more complex than we had originally thought?* In some limited way, the worry has already been addressed in debates over the question of whether the correct theory of truth is singular and substantive, deflationary, or pluralistic. Several points plausibly follow: first, philosophical views claiming that truth is best understood as a monolithic kind of correspondence and also maintain that this is an expression of the ordinary notion of truth are likely untenable. Second, the apparent complexity of the ordinary notion could also be seen as evidence in favor of the primitivist claim that truth has no meaningful analysis (Meinong 1983, 71 –73; Merricks 2007). Third, pluralists might find some support in the sheer variety of views respondents appear to endorse, especially if they also vary with other contextual factors. Fourth, deflationists might be able to claim empirical support for the claim that there is no property, per se, picked out by the truth predicate.

But what about the complexity introduced by gender differences in the folk notion of truth? There are several possible interpretations of these results that deserve consideration. First, nihilism. One option is to interpret these results as evidence for the view that truth has no nature. This possibility deserves to be discounted because there are regular patterns of response in our data as well as in Naess' results. So, it seems more plausible to say that the respondents cited by Naess and in our work are tracking something when they offer accounts of whether or not truth has a common characteristic or whether correspondence is sufficient for truth.

Second, bimodalism. Alternatively, one could maintain that relative to certain contexts (perhaps not all), the folk truth notion divides into a male notion and a female notion. It is hard to make sense of such a claim absent a better understanding of the phenomenon and some sort of compelling explanation of the divergence.

Third, complexity. The results reported by Naess seem to suggest that rather than being a monolithic or one-dimensional notion, the ordinary notion of truth is variable. It is a composite realized by different clusters or bundles of notions in different people. Our results also suggest that at any given moment a person's notion of truth is in some sense a summation of many factors. This seems plausible to the extent that we might interpret male and female differences not as differences of theory, but rather as differences in how various factors are ranked or ordered.

Fourth, given the way that ST was phrased, asking whether or not correspondence was sufficient for truth, it may be that men or women read the case as about the criterion of truth rather than about its nature (Cf. Russell 1912, Ch XII). If people were reading the probe as a query about the criterion for truth, then the gender

differences could be surface phenomena only. Deciding between these interpretations will probably require additional empirical research.

The status of CR has been called into question by Naess' findings as well as our evidence of contextual and gender variation. The depth of this complication should not be underestimated. According to the folk, the truth of a statement may or may not involve correspondence depending on context, and in contexts where correspondence seems to matter, it might only matter for men and not for women! Teasing these effects apart will require more research and more detailed statistical analyses than those we have reported here.

## 9 Potential Objections: Methodology and Philosophical Relevance

Numerous members of the philosophical community have complained that experimental work is uninformative. Because of this, we feel that we should contend with some potential objections to our project. First, some critics have asked why we did not ask people directly if they accepted specific theories of truth, e.g., correspondence. Our hope was to avoid the charge of building theoretical content into the question. Accordingly, the statements we asked respondents were intended to use only ordinary language and be theoretically "shallow." We did not ask subjects if they thought truth was correspondence or coherence or pragmatic, etc.

One criticism we have heard from a particularly vocal truth theorist critical of experimental philosophy: *The folk are hopelessly confused by the nature of truth debate; so, an empirical study of the hoi polloi would reveal nothing of philosophical relevance with respect to how we ought to think about truth.*[14] We agree with this critic's sentiment *only if* we are talking about the normative features of a truth theory. Like any philosophical endeavor, the theory of truth debate has two interlocking dimensions: the normative and the descriptive. Naess' work and our results attempt to describe how people think about truth. Neither project tells us anything about how we *ought* to conceive of truth. Our aim is more narrow. We have suggested that many philosophers of truth try to capture the ordinary notion of truth in their theories. This project often involves an attempt to accommodate what we have called CR because of a widely held intuition that CR is a central part of the ordinary notion of truth. What we are saying is that *philosophers* ought not claim to have captured the ordinary notion of truth by means of accommodating CR.

Finally, we acknowledge that not all philosophers are motivated by a desire to embrace the ordinary conception of truth. Many theorists want to give an account of truth that accords with various formal applications, avoids anomalies of language, forestalls semantic paradox, etc. (e.g., Barwise and Etchemendy 1987).[15] There are many ways to motivate and characterize the project of giving a philosophical account of truth. This paper speaks to many but not all of these approaches.

[14] We would like to thank James Woodbridge for alerting us to this potential objection.

[15] One attempt to employ experimental approaches to enlighten these alternative motivations, especially with respect to the liar paradox is Barnard et al. (In preparation).

## 10 Conclusion

Tarski's project assumed that the ordinary notion of truth was singular and universal, that it was expressible in broad strokes by something like Aristotle's dictum. We have suggested that similar assumptions are widely held and manifest themselves through a widespread commitment to CR. Our results, together with those provided by Naess, suggest that the ordinary conception of truth is not captured by Aristotle's dictum or any other common expression of correspondence. Empirically it is not the case that we all agree with ST. While ST is not the only way to express correspondence, Naess' result that there is widespread rejection of some forms of correspondence gives us reason to think that our results are reasonably robust.

Does the absence of a singular ordinary notion of truth signal that there is a disagreement about the ordinary notion of truth? In many areas of philosophical concern the possibility of disagreement about X is treated as philosophically significant evidence. Here we have empirical evidence of actual disagreement about an important philosophical notion. As in familiar cases of moral disagreement, there are various possible ways to interpret the apparent disagreement. First, the disagreement could be real and well founded; men and women could disagree because for whatever reason, at some level, they really do possess distinct conceptions of truth. Second, there could be a real, objective, and singular notion of truth that men and women understand or operationalize differently for whatever reason. Third, it might even be that there is no fact of the matter about truth and that the male and female conceptions of truth are manifestations of some other factor. Fourth, it may be that truth is real, but comes in many different versions or flavors. If so, then men and women are just cleaving to these in different degrees. Our data cannot speak to deciding between these possibilities. The data do not rule any out. Further, there is a sense in which we would need to be able to know the truth about truth to decide this question.

Regardless of which direction one is pulled on these issues, the existence of empirical disagreement between men and women among the folk does seem to speak to broader discussions of gender in epistemology (e.g., Alcoff 1996; Code 1991; Lloyd 1984), to recent discussions of whether truth is pluralistic (e.g., Lynch 2009), and even to the relevance of discussions of gender within the sociology of our discipline.[16]

This paper has suggested that traditional philosophical theories about truth share a tendency toward accommodating the ordinary or common sense notion of truth. This ordinary notion is usually understood to involve a commitment to what we have called CR. The work of Naess and our own studies offer an empirical basis for questioning the assumption that philosophers understand the content of the ordinary notion of truth. This work also provides an empirical foundation for denying the centrality of CR within the ordinary notion. Evidence of contextual variation and gender differences with respect to correspondence further complicates the project of characterizing the ordinary notion. Still, our findings should not worry the broader philosophical enterprise. This complicated picture of the ordinary notion of truth is far removed from the simpler theories philosophers have hoped to offer. But

[16] For example, these results will no doubt provide fodder for discussions of the sort found in Buckwalter and Stich (forthcoming).

philosophy has long been a discipline where we come to recognize the strange and perplexing in what we thought was familiar. The ordinary notion of truth, we maintain, is familiar in this philosophical way: it is stranger and more perplexing than we thought. It is a notion that deserves further study.[17]

## References


Alcoff, L.M. 1996. *Real knowing*. Ithaca: Cornell University Press.

Barnard, R., and T. Horgan. 2006. Truth as mediated correspondence. *The Monist* 89: 31–50.

Barnard, R., and T. Horgan. 2013. The synthetic unity of truth. In *Truth pluralism: Current debates*, ed. Nikolaj Pedersen and Cory Wright, 180–196. Oxford: Oxford University Press.

Barnard, R., J. Ulatowski, and J. Weinberg. In preparation. Liar, liar! Armchair on fire.

Barwise, J., and J. Etchemendy. 1987. *The liar: An essay on truth and circularity*. Oxford: Oxford University Press.

Beebe, J., and W. Buckwalter. 2010. The epistemic side-effect effect. *Mind and Language* 25: 474–498.

Benacerraf, P. 1973. Mathematical truth. *Journal of Philosophy* 70: 661–679.

Buckwalter, W. and S. Stich. forthcoming. Gender and philosophical intuition. In *Experimental Philosophy, Volume 2*, eds. Joshua Knobe and Shaun Nichols, 1–32. Oxford: Oxford University Press.

Code, L. 1991. *What can She know? Feminist theory and the construction of knowledge*. Ithaca: Cornell University Press.

Devitt, M. 2001. The metaphysics of truth. In *The nature of truth*, ed. Michael P. Lynch, 579–611. Cambridge: MIT Press.

Goldman, A.I. 2007. A program for "naturalizing" metaphysics, with application to the ontology of events. *The Monist* 90: 457–479.

Horwich, P. 1998. *Truth*. Oxford: Oxford University Press.

James, W. 2001. Pragmatism's conception of truth. In *The nature of truth*, ed. Michael P. Lynch, 211–228. Cambridge: MIT Press.

Lloyd, G. 1984. *The Man of reason: "male" and "female" in western philosophy*. Minneapolis: University of Minnesota Press.

Lynch, M. 1998. *Truth in context*. Cambridge: MIT Press.

Lynch, M. 2009. *Truth as many and one*. Oxford: Oxford University Press.

Machery, E., R. Mallon, S. Nichols, and S. Stich. 2004. Semantics, cross-cultural style. *Cognition* 92: B1–B12.

Meinong, A. 1983. *On assumptions*. Berkeley: University of California Press.

Merricks, T. 2007. *Truth and ontology*. Oxford: Oxford University Press.

Naess, A. 1938a. *"Truth"as conceived by those who are not professional philosophers (Skrifter Utgitt av Det Norske Videnskaps-Akademi I Oslo Il. Hist.-Filos. Klass 1938 No. 4)*. Oslo: I Kommisjon Hos Jacob Dybwad.

Naess, A. 1938b. Common sense and truth. In *The selected works of Arne Naess*, vol. VIII, ed. H. Glasser and A. Drengson, 3–21. Dordrecht: Springer 2005.

Paul, L.A. 2010. New roles for experimental work in metaphysics. *Review of Philosophy and Psychology* 1: 461–476.

Quine, W.V.O. 1992. *The pursuit of truth. Revised edition*. Cambridge: Harvard University Press.


[17] This paper has benefited from interactions with Ken Aizawa, Dave Beisecker, Wesley Buckwalter, Christopher Ciocchetti, Jordan Davis, Heath Hamilton, Michael Lynch, Ron Mallon, Kaija Mortensen, Tom Nadelhoffer, Elijah Millgram, Shaun Nichols, Mark Phelan, Bill Ramsey, Dave Ripley, Steve Stich, Chris Weigel, Jonathan Weinberg, Chase Wrenn, Cory Wright, participants of the 2012 NEH Summer Institute on Experimental Philosophy, and audience members at Centenary College of Louisiana, Weber State University, the 2010 MidSouth Philosophy Conference, 2011 Mississippi Philosophical Association Meeting, the 2011 American Philosophical Association-Eastern Division. We would especially like to thank Yale University Cognitive Science and the American Philosophical Association for sponsoring Experiment Month without whose financial and technical support our data could not be collected.

Ramsey, F.P. 2001. The nature of truth. In *The nature of truth*, ed. Michael P. Lynch, 433–446. Cambridge: MIT Press.
Russell, B. 1912. *The problems of philosophy*. London: Allen and Unwin.
Sher, G. 2005. Functional pluralism. *Philosophical Books* 46: 311–330.
Sher, G. 2013. Forms of correspondence: the intricate route from thought to reality. In *Truth Pluralism: Current Debates*, ed. by Nikolaj Pedersen & Cory Wright, 157–179. Oxford: Oxford University Press.
Soames, S. 1999. *Understanding truth*. Oxford: Oxford University Press.
Sripada, C. and J. Stanley. 2012. Empirical Tests of Interest-Relative Invariantism. *Episteme* 9: 3–26.
Swain, S., J. Alexander, and J. Weinberg. 2008. The instability of philosophical intuitions: running hot and cold in truetemp. *Philosophy and Phenomenological Research* 76: 138–155.
Tarski, A. 1944. The semantic conception of truth and the foundations of semantics. *Philosophy and Phenomenological Research* 4: 341–375.
Vision, G. 2004. *Veritas: The correspondence theory and its critics*. Cambridge: MIT Press.
Weinberg, J., S. Nichols, and S. Stich. 2001. Normativity and epistemic intuitions. *Philosophical Topics* 29: 429–460.
Williams, B. 2002. *Truth and truthfulness: An essay in geneaology*. Princeton: Princeton University Press.
Wright, C. 1994. *Truth and objectivity*. Cambridge: Harvard University Press.