

The Unity of Understanding

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ABSTRACT: Understanding comes in a variety of forms. This essay argues for the unity of these forms, against the common tendency to view them as fundamentally heteronomous or disunified. After identifying nine features of genuine understanding, which enable an argument for the existence of two distinct types of understanding, theoretical and practical, I pose a dilemma for theories which view them as disunified. Subsequently, I develop and defend a general account of understanding in terms of conceptions. What unifies diverse forms of understanding, on this account, is a generic cognitive structure—given by the notion of a *noetic conception*—that is realized in different ways in various cases.

*** There is a comment after §6.2 indicating that those who wish may skip the last few pages. ***

The exemplary scientist understands the why and how of things. The exemplary musician understands her instrument and how to play it. The exemplary athlete understands her sport, while the exemplary car mechanic understands engines, carburetors, and the tools she uses to manipulate them. And so on for the farmer, painter, designer, comedian, lover, conversationalist, businessperson, philanthropist, fitness planner, tour guide, moral exemplar, and myriad others who possess understanding of various kinds. The observation here should be familiar: understanding displays *variety*, coming in diverse forms. The question I wish to pursue is how these forms are related. Against the common tendency to see various forms or species of understanding as fundamentally distinct, perhaps so different as to warrant disbelief in a single, univocal genus to which they all belong, my aim will be to unearth unity amidst diversity.

I will focus throughout—as a sort of case study—on understanding in the realms of theory and practice. We seek to comprehend the world, to render intelligible what is, was, will be, and could or must be—sometimes simply for the sake of illumination, other times in an effort to control our surroundings. This kind of *theoretical understanding* is paradigmatically manifested in scientific advances, which offer insight into, *inter alia*, laws, causes, mechanisms, and unifying principles. Yet this form of understanding also has a clear place in the ordinary course of things, lending meaning and context to our lives and enabling us to acquire some perspective on our human situation.

But our lives are not mere feats of contemplation. Being in the world involves engaging in a wide range of practical activities, both meaningful and mundane. At times, we navigate these activities perfectly well, but on other occasions our understanding fails and we are left confused or frustrated, unable to proceed effectively—as when one eventually admits in the course of an effort at assembly, “I guess I don’t understand how to put the thingamajiggy together, after all.” In these ways, the phenomenon of *practical understanding* (or, sometimes, its absence) is manifest. Such understanding does not always show itself in action, as in a case where it goes unused. Yet its paradigm exercise remains skillful activity, which is importantly different from reflexive or instinctive

behaviors, mechanical mimics, and spurts of raw talent or mere knack. This is not because skilled action is more effective in comparison (it need not be¹), but rather because it is guided by the agent's grasp of the action in a way that understanding-less behavior—even when overtly indistinguishable from expert performance—is not.

Investigation of the relation between theoretical understanding and practical understanding is related to, but distinct from, inquiry concerning the relation between knowledge-that and knowledge-how, as these are standardly conceived, namely, as the states or relations designated by the English expressions 'x knows that p' and 'x knows how to φ', respectively. Knowledge-that and knowledge-how may offer specific examples of our categories. But our categories not only summon *understanding*, as opposed to knowledge (I return to this contrast below); in addition, our categories are more general, potentially including also, or instead, what is designated by a wide array of other expressions. In the case of practical understanding, the expressions may not include 'how-to', nor any other infinitival clause headed by a question-word (e.g., 'where-to'), as when an accomplished dancer is said to 'understand ballet', a virtuoso musician to 'understand counterpoint', or a master carpenter to 'understand that this tool (the one she is using, as opposed to another) is best' for the task at hand. Likewise, the theoretical understanding of an exemplary scientist might be expressed without reverting to any 'that'-clause, as when a nuclear engineer is said to 'understand fission', a biologist to 'understand why a particular species has certain traits but not others', or a linguist to 'understand Mycenaean Greek' or to 'understand how to interpret Linear B'.² The objects of the attitude at stake (or, in linguistic terms, the verb's complement clauses' designata) are broader than those associated with knowledge-how and knowledge-that.

The relation between understanding and knowledge of various sorts merits further scrutiny, and we will have an opportunity to discuss it below. The intention right now is not to argue that they are not intimately connected, but to avoid taking such a connection for granted, in a way that might bias our current investigation of the relation between the theoretical understanding of the "thinker", whose paradigmatic manifestation is scientific advance, and the practical understanding of the

¹ This was seen clearly by Aristotle (*Metaphysics* I.1): "With a view to action experience seems in no respect inferior to *technē* [skill]..." Cf. Ryle (1949, 40): "there need be no visible or audible differences between an action done with skill and one done from sheer habit, blind impulse, or in a fit of absence of mind."

² It follows that reductions of knowledge-that to knowledge-how (e.g., Hartland-Swann 1956) or knowledge-how to knowledge-that (e.g., Stanley and Williamson 2001) do not by themselves entail reductions of one of our forms of understanding to the other; they do not secure the unity of understanding. And while non-reductionist positions—such as Ryle's dispositionalist anti-intellectualism, or my own objectualist intellectualism (Bengson and Moffett 2011a)—may be conjoined with bifurcation of the sort described below, they do not entail it (indeed, I will deny it). We should also bear in mind the possibility of non-theoretical knowledge-that (see, e.g., Glick 2011, 412-13) or theoretical knowledge-how (see, e.g., Lihoreau 2008, 281-2); these might actually underwrite practical understanding and theoretical understanding, rather than the reverse. In sum: the know-how/know-that debates are not irrelevant to our question, but they do not answer it.

“doer”, whose paradigmatic manifestation is skillful activity.³ In fact, it is only once we gain a better grasp of understanding in its various forms that we can productively address its connection to knowledge in *its* various forms—or so I believe.

Despite the significance we seem to place individually on both theoretical understanding and practical understanding, philosophers have tended to treat them as largely distinct. Much recent work on understanding in philosophy of science and epistemology has examined the former, focusing on such questions as whether and in what sense understanding is factive, transparent, or explanatory; how understanding interacts with skepticism; and why understanding is a (or the) cognitive aim of science. By contrast, practical understanding shows up primarily in discussions within philosophy of mind, action theory, and phenomenology, where the focus is instead on questions concerning its automaticity, (non)conceptuality, and embodiment—as in Maurice Merleau-Ponty’s declaration, “It is the body that *understands*”.⁴

The division is rarely explicitly addressed or acknowledged. But when it is, it is often treated not simply as a convenient division of labor, but as a compulsory division in nature. For example, Martin Heidegger claimed in *Being and Time* that practical skill possesses “*its own* kind of sight”, involving a proprietary type of non-theoretical cognition, which Heidegger labeled “circumspection”.⁵ Such a view is not specific to a particular period or tradition. Recent work in mainstream analytic philosophy of science has seen Peter Lipton similarly emphasize a division between theoretical understanding and practical understanding, the latter of which Lipton describes as “*sui generis*”.⁶ Jonathan Kvanvig goes further, influentially defending the epistemic value of understanding in such a way that practical understanding “gets left out”, and remarking confidently that this “is as it should be”.⁷

In the existing literature, then, we appear to be confronted with bifurcation, the idea that theoretical understanding and practical understanding are two very different phenomena, which can be analyzed, and comprehended, in isolation from one another. Perhaps they are tied together by some historical or etymological connection, but philosophically they are not of a piece. Understanding is thus in an important sense heteronomous or disunified: like jade, which famously is either one of two disparate minerals, nephrite *or* jadeite, at bottom understanding is not one, but many.

³ I say that φ (e.g., skillful activity) is the *paradigmatic manifestation* of a form of understanding F (e.g., practical understanding) if and only if what φ manifests (e.g., skill) is an instance of F, and for any x , x is an instance of F if and only if x is identical to what φ manifests (e.g., x is a skill) or x is a qualified version of—i.e., approximates—what φ manifests (e.g., x approximates skill). The intuitive idea is that φ serves as the ideal or fundamental case, by reference to which all other cases of the kind are understood.

⁴ Merleau-Ponty (1962, 142).

⁵ Heidegger (1926/1962, 99).

⁶ Lipton (2009, 54).

⁷ Kvanvig (2003, 186 and 190). Additional examples will be given below.

The common assumption of disunity would, if correct, have vast and deep implications for our conception of understanding and its nature, value, acquisition, dynamics, function, and extension. A few of these implications have already been recognized (recall, for example, Kvanvig on its epistemic value and Merleau-Ponty on the role of the body); several others will emerge in the subsequent discussion. If, however, my arguments in what follows are on the right track, one of the upshots is that basically all extant approaches to understanding—which, as I shall explain, are committed to bifurcation—are suspect. I will explore the possibility of bringing the practical and theoretical together so as to secure the unity of understanding. While I will acknowledge that there are important differences between them, my claim will be that theoretical understanding and practical understanding possess a common underlying nature, and I will seek to explain how this could be so, by identifying what it is that unites them.

1. Two Forms of Understanding

I began with an intuitive contrast between understanding in the realms of theory and practice, which is meant to indicate what I mean by ‘theoretical understanding’ and ‘practical understanding’ without prejudging substantive questions about their proper philosophical treatment. Eventually I will propose a theory of understanding designed to reveal what they have in common and why this commonality is important. What I wish to do now is simply to suggest that (i) each is a form of genuine understanding, and (ii) they are distinct (i.e., not identical). Let us consider each of these claims in turn.

1.1 *Genuine Understanding: The U-Profile*

It is possible to describe both thinkers and doers using locutions of the form ‘ x understands ...’. (Several possible examples were given above.) But this form of words does not invariably designate instances of *genuine* understanding.⁸ So, this essentially linguistic observation about the terms in which we sometimes describe thinkers and doers does not by itself offer an adequate basis for claim (i).

What would substantiate that claim is an intuitive, and relatively theory-independent, specification of central features of understanding (i.e., what the philosophy of understanding is the philosophy of), together with reasons to think that they are shared by both scientific advance and skillful activity, our paradigms of theoretical understanding and practical understanding.

Let’s begin with a platitude: to genuinely understand something is to grasp it—whatever is understood—in such a way that it *makes sense* to you. Among the principal characteristics of such

⁸ See, e.g., Anderson’s (1986, 276) seminal discussion of evidentials.

grasp is, first, its status as a *standing state*, distinct from its exercises or effects (e.g., subsequent predictions or actions).⁹ Although, second, this state is *psychological*, or at least has a psychological component, genuine understanding is not merely psychological, but, third, is *objective*: more than a personal feeling of competence or comprehension, it involves genuinely grasping some portion of reality, and not simply enjoying a subjective sense of grasping it.¹⁰ Fourth, it is *intelligent*, in a way that mindless behavior and rote memorization—however objective—are not. Fifth, as shown by the possibility of mindful, non-rote engagement with what one does not yet understand, it is also *robust*, in a way that mere acquaintance with particular deeds or facts—even if intelligent and objective—is not.

Genuine understanding also contrasts with confusion and muddle. It does this by, sixth, displaying *coherence*, rather than inconsistency or bare association (as in confusion), and, seventh, attaining *order*, of the sort absent from a miscellaneous list lacking arrangement or organization (as in muddle).

An eighth feature of genuine understanding is its *multiple gradability*: it can be or become better, greater, deeper, stronger, or richer along various dimensions, for example, with respect to some of the features just mentioned, including orderliness, coherence, robustness, intelligence, and objectivity. Finally, ninth, possession of genuine understanding—especially full understanding, but also even minimal understanding—is a *praiseworthy good*. Attributing understanding to an individual is not merely to credit her with some kind of success (though it is of course that), but to compliment, or praise, her for it—it is, as Plato said of *epistémê*, to indicate that an individual is, at least in that respect and to some extent, “honorable and excellent”.¹¹

Let me emphasize that I am not proposing to analyze genuine understanding in terms of this cluster of features. This is not yet an attempt at a *theory* of understanding, but a relatively uncontroversial, theory-neutral *description* that identifies its central features, which jointly constitute understanding’s profile—hereafter, the ‘U-profile’. Later I will propose a theory of understanding that seeks to accommodate and explain the U-profile. Here we may leave its constituent features at an intuitive level, at which their basic content, and their applicability to genuine understanding, should not be controversial.

I take it to be obvious that in the realm of theory, thinkers sometimes satisfy the U-profile. Perhaps less obvious, but equally real, is satisfaction of the U-profile in the realm of practice. Recall

⁹ Throughout I use the term ‘state’ to designate standing properties or conditions, as opposed to (say) events.

¹⁰ While the precise analysis of understanding’s objectivity is controversial, this should not obscure general agreement that understanding possesses this feature (*cf.* Elgin 2007, 35). Similarly for the other features of understanding identified in the main text (that it is a standing state, psychological, etc.).

¹¹ The modifier ‘in that respect’ is important: an evildoer who understands evil is not honorable and excellent all around.

that practical understanding is paradigmatically manifested by skillful activity. Skill, as I understand it, contrasts with various forms of ineptitude, such as clumsiness, sloppiness, and klutziness. It also requires know-how. If one is skilled at playing the piano, one knows how to play the piano. If one is skilled at chess, one knows how to play chess. If one is skilled at using a fret-saw, one knows how to



Illustration 1. *A typical fret-saw.*

use a fret-saw. But skill at an activity requires more than mere knowledge how to do that activity: after all, two individuals can both know how to play the piano, or play chess, or use a fret-saw, although one is a master who is skilled (e.g., skilled at piano-playing) while the other, a novice, is not. By all reasonable standards, the latter is clumsy (e.g., clumsy at piano-playing), or sloppy (i.e., his openings are messy, midgame reckless, and endgame chaotic), or klutzy (i.e., he is prone to catch the blade, make haphazard cuts, and bang the frame against the wood), and does not yet possess the skill. It is not simply that the novice's actions are less effective.¹² Rather, the imperfection resides, first and foremost, in the novice's grasp, which is limited and gives out quickly.¹³

It is a common refrain that if one is skilled, then one has what it takes to fluently navigate a wide range of different, even quite novel, scenarios or situations. John Campbell, focusing on skillful tool use, as opposed to mere “phrasebook” knowledge,¹⁴ finds here both *systematicity* and *generality*:

[I]f you understand [in a practical way] how a tool works, there will be a certain systematicity [and generality] in your understanding of it. You will know how to use this tool in a wide variety of contexts, under various permutations of its intrinsic characteristics.¹⁵

The modulation of the pattern of use is systematic, in that the pattern of use covaries with variation in the standing properties of target and tool. And the modulation of the pattern of

¹² Recall note 1.

¹³ The thesis, which I am opposing, that skill and know-how are *equivalent* is widely assumed and has recently been explicitly endorsed by Stanley (2011, 5 and 11). Cf. Dickie (2012, 737) and Stanley and Williamson (2016).

¹⁴ Campbell (2011, 170): “we can contrast someone who merely has grasped the use—someone who only knows how to make the correct moves with the thing...—from someone who is making [skillful] use of the thing.”

¹⁵ Campbell (2011, 174-5). Cf. Haugeland (1998, 199) on ‘complexity’ and ‘precision’; Annas (2011a, 101-2) on how expertise is ‘dynamic’; and Fridland (2014, 2732) on experts’ ‘control’.

use is general, in that the same underlying sets of connections can be exercised in connection with endlessly many different tools.¹⁶

That skill requires know-how but goes beyond it in these ways allows us to make good on the idea that the practical grasp of the doer—whose paradigmatic manifestation is skill—satisfies the U-profile. Knowledge how to act is an *objective, intelligent, gradable, standing psychological state*. But as the contrast between the clumsy novice (perhaps a confused muddler) and the master illustrates, know-how is not always systematic and general, and thus it need not possess the sort of *robustness, coherence, and orderliness* characteristic of genuine skill.¹⁷

We are now in a position to see why it is reasonable to endorse claim (i): both the theoretical grasp of the thinker and the systematic, general practical grasp of the doer satisfy the U-profile. In both cases, the grasp in question is a multiply-gradable, standing psychological state, constituting a praiseworthy good, involving sense-making that is more objective than a mere feeling of competence or comprehension, more intelligent than mindless behavior or rote memorization, more robust than simple acquaintance with particular deeds or facts, and possessing coherence and orderliness. Thus, I submit, the realms of theory and practice both afford instances of genuine understanding.

1.2 *The Distinctness of Theoretical and Practical Understanding*

Once the U-profile has been used to establish claim (i), one might deem it safe to return to locutions of the form ‘ x understands ...’ in order to vindicate claim (ii) through different ways of filling in ‘...’, or (in linguistic terms) distinct complement clauses of the verb: for example, ‘how’ complements versus ‘why’ complements or noun phrase complements.¹⁸ However, so far as I can tell, there is no particular form of words in the English language that decisively marks practical understanding and theoretical understanding as such, or tracks the distinction between them. As noted at the outset, we may express the theoretical achievement of a linguist specializing in Mycenaean Greek by saying that she ‘understands how to interpret Linear B’, and the practical achievement of a

¹⁶ Campbell (2011, 179). Campbell makes clear that the user’s understanding is what underlies and explains systematic and general patterns of use, and presumably would allow his characterizations to be extended so as to apply to practical understanding that is not primarily tool-oriented.

¹⁷ Behaviors or processes (e.g., robotic movements or subpersonal routines) that do not manifest a state that satisfies the U-profile are sometimes described in the language of ‘skill’. Such uses have a sort of derivative status, being felicitous only to the extent that their designata sufficiently resemble actions that manifest genuine skill, which (I am now arguing) satisfies the U-profile.

¹⁸ See again Kvanvig (2003, 188ff.), who focuses on the complement clauses, and moreover, claims that ‘understanding how’ picks out a kind of “understanding [which] is relevant more to practical purposes than to theoretical ones.” On the other side, it is common for epistemologists and philosophers of science, in the course of discussing theoretical understanding, to focus on ‘understanding why’; e.g., Pritchard (2010, 31) writes, “I want to take the paradigm usage of ‘understands’ to be in a statement like ‘I understand why such-and-such is the case.’” Cf. Hempel (1965, 334); Moravcsik (1979, 202); Kitcher (1989, 419); Grimm (2008); de Regt (2009, 588); Khalifa (2012; 2013a, 1155); Strevens (2013); and Hills (2016).

virtuoso by saying that she ‘understands counterpoint’; similarly, we can express the practical understanding of a master carpenter by saying that she ‘understands why that tool is best’ for a given task. Notice, too, that in some cases one and the same form of words can do double duty: an accomplished performer and a scholarly expert might both be said to ‘understand ballet’ or ‘understand chord progression’. Of course, they understand it in different ways. The point is that those differences are not marked by or through the locutions alone. To catch sight of them, we must—*contra* a simple linguistic or lexicological approach—look beyond the attributions themselves.

I propose we look to our paradigms. Theoretical understanding and practical understanding are reasonably viewed as distinct (non-identical), at least insofar as they have distinct paradigmatic manifestations: scientific advance and skillful activity, respectively. This is not to suggest that their distinctness *consists* in their having different paradigmatic manifestations, but simply to register that they do, and that this provides reason to acknowledge the distinction itself.

The content of those paradigms also suggests an initial characterization of the distinction. When an individual acts skillfully, her action is guided by her grasp of the activity itself, or of steps employed or tools utilized in its undertaking. A clown’s tripping and tumbling, which are a skillful imitation of clumsiness, manifest her practical understanding, which guides how she flails her limbs and tosses her head. Her understanding—a standing state, “a factor which could not be separately recorded by a camera”¹⁹—underlies and explains the successful, intentional execution of her action. Even when the clown is resting or absorbed in other activities, the state remains, poised to guide some such performance in one or another set of circumstances. In this way, practical understanding is *action-guiding*, being centrally concerned with practical activity not merely in its topic or subject matter but in its function or character.

By contrast, theoretical understanding centers on the culmination of theory. Kant at one point suggested that part of what is distinctive of theory—whether physical, political, moral, etc.—is its invocation of claims or “principles of a fairly general nature...abstracted from numerous conditions.”²⁰ Others have emphasized the importance to theory of laws, causes, mechanisms, unification, and dependence relations. From the perspective of understanding, the interest of all of these is presumably that they shed light on, by playing roles in explanations of or related to, whatever is under investigation—in other words, they help resolve queries (raised explicitly or implicitly) regarding the why, what, or how of what was, is, will, or might be. Whereas practical understanding is action-guiding, theoretical understanding is *illuminating*.

In sum, I propose that the following conditions distinguish our two forms of understanding:

¹⁹ Ryle (1949, 33); the clown example is his.

²⁰ Kant (1793/1970, 61).

x *practically* understands ... only if for some activity φ related to ... , x is in some state satisfying the U-profile that is poised to underlie and explain the intentional execution of an intelligent action that contributes to φ -ing ('action-guiding').

x *theoretically* understands ... only if x is in some state satisfying the U-profile that is poised to resolve explanation-seeking questions of or relating to ... ('illuminating').

2. The Notion of Unity

To point to the existence of, and distinction between, theoretical understanding and practical understanding is not to suggest that the distinction is *exhaustive*. There may be outliers, that is, cases of genuine understanding that do not belong to either category: for example, a psychoanalyst's empathic understanding of a patient, or a lover's understanding of a beloved, is (perhaps) neither theoretical nor practical. Similarly, the distinction may not be *exclusive*, and it may fail to be *sharp*. Arguably, there are many mixed or borderline cases, which do not fit neatly into just one category: for example, Obama's understanding of campaign strategy, which seems to involve a mixture of theoretical and practical elements. None of this, however, bears directly on the question of the unity of understanding in the sense in which I intend it.

There are several different things one might mean by saying that understanding is 'unified', or that there is a 'unity' of theoretical and practical understanding. For example, one might mean that one form of understanding cannot be present in the absence of the other. (Compare the ancient thesis sometimes labeled the 'unity of the virtues', according to which—on a popular interpretation—possession of one virtue entails possession of all virtues.²¹) Let us call this thesis *copresence*:

COPRESENCE One theoretically understands ... if and only if one practically understands

There is some truth to this thesis, as theoretical understanding and practical understanding are often mutually reliant and cannot cleanly be disentangled. As stated, however, COPRESENCE is open to simple counterexamples. Presumably, an immobile but scholarly expert in neuroanatomy, kinesthetics, and dance history might have a theoretical understanding of ballet while lacking any practical understanding of ballet. Conversely, an accomplished but unscholarly dancer who grasps the practice might not be apprised of the theory.²² While there may be ways of tweaking or restricting COPRESENCE in order to handle such cases, I will not pursue these options. For I am not here invested in the idea that most or even all cases of understanding are entangled. COPRESENCE is not

²¹ For the interpretation, see Vlastos (1972).

²² Similarly for other activities: for instance, a scholar of the *Tour de France* versus its star cyclist. Additional examples are described in §3.

the unity thesis that I intend to pursue.

Another thing one might mean by the ‘unity’ of practical understanding and theoretical understanding is that they are equally indispensable elements of a type of understanding that is, in some intuitive sense, full, complete, or best; each enriches one’s overall understanding, which is then ‘unified’. Let us call this thesis *enrichment*:

ENRICHMENT There is a type of understanding U, such that x has U with respect to ... only if one both practically understands ... and theoretically understands ... , and U is superior, in respect of understanding, to either of these in isolation.

This thesis requires, not entanglement (as in COPRESENCE), but rather that various forms of understanding can combine and aggregate so as to contribute jointly to improving an individual’s overall understanding. To the extent that we view the player-coach or erudite artisan as possibly achieving an understanding of her craft superior to the understanding of a merely equivalently-skilled player or artisan, then we are committed to the truth of ENRICHMENT in at least some cases.

I am sympathetic to this thesis, and an important virtue of the theory of understanding I will develop below is that it both accommodates and explains it. However, ENRICHMENT is not my primary target. For this thesis does not speak to the question of what goes into, or makes up, theoretical understanding and practical understanding. Rather, it helps itself to both phenomena, leaving wholly unanswered the question of what makes each a form of understanding. So, although ENRICHMENT may in some sense locate unity in the *interaction between* theoretical and practical understanding, it does not find unity *within* them; it does not express what I mean by ‘the unity of understanding’.

As I use the term, to say that theoretical understanding and practical understanding are ‘unified’ is to say that it is one and the same thing that makes each a form of genuine understanding. This is not merely to say that they have something, even something very important, in common. Nor is the idea simply that both satisfy the U-profile, or that they are species of the same genus (or determinates of the same determinable): understanding.²³ Rather, the focus is on what *makes* both satisfy the U-profile and belong to the same genus. In short, I wish to claim that they possess one and the same *ground*:

GROUND There is a type of non-disjunctive state, σ , in virtue of which the U-profile is satisfied, such that: if x has practical understanding, then x is in σ_1 , and if x has

²³ Of course, theoretical understanding and practical understanding do not satisfy the U-profile in virtue of being species of understanding; rather, they are species of understanding in virtue of satisfying the U-profile (or their being species of understanding just is their satisfying the U-profile).

theoretical understanding, then x is in σ_2 , and σ_1 and σ_2 are both instances of σ .

This thesis asserts that instances of theoretical understanding and practical understanding qualify as instances of understanding—as objective, intelligent, robust, multiply gradable, coherent, orderly, praiseworthy goods, centering on sense-making—*because*, or *in virtue*, of one and the same thing.²⁴ In this sense, GROUND entails fundamental unity: understanding is one, not many.

Many philosophers have claimed or implied that GROUND is false, and that a disunified approach is required. I believe this is the upshot of Heidegger’s claim, quoted above, that skill possesses “*its own* kind of sight”, Lipton’s assertion that practical understanding belongs to its own genus, and Kvanvig’s dismissal of the practical realm in his treatment of understanding’s value. Consider also the following remarks by Campbell:

We can contrast a theoretical understanding of the causal properties of particular types of wood, for example, or different metals, such as iron or silver, with the understanding possessed by the carpenter or metalworker. The artisan’s grasp...is not a matter of having a detached picture... It has to do rather with the...particular way in which he deals with various types of wood or how he uses different metals. His grasp...may consist entirely in his practical ability to respond suitably to their presence. ...[It] is not an explicit, reflective grasp but consists in possession of suitable practical skills.²⁵

Insofar as the “detached picture” or “reflective grasp” at the heart of theoretical understanding is not one and the same as the “practical ability to respond” in which practical understanding is said to “consist entirely”, what follows from Campbell’s remarks is the denial of GROUND. Yet, on the face of it, Campbell’s remarks appear to be eminently plausible; they may even seem innocuous. One wonders: is the fundamental *disunity* of understanding inevitable?

I believe that despite the attraction of disunity, it is ultimately mistaken, and that there are good reasons to embrace the indicated unity thesis, GROUND. Before attempting to substantiate this thesis, however, we must address what are arguably the two most potent obstacles to unification.

3. Obstacles to Unification

As explained above, mainstream philosophical theorizing displays a strong tendency, captured in Campbell’s remarks, to treat practical understanding and theoretical understanding in a bifurcated manner. It is fair to regard this as the orthodox position. One sign that a view is orthodox

²⁴ I have chosen to employ ‘in virtue of’, ‘because’, and various other expressions associated with the metaphysics of ground, but as far as I can tell, various non-grounding ideologies (structure, essence, constitution, etc.) could be used instead, and without significant loss.

²⁵ Campbell (1994, 47-8).

is widespread endorsement, often implicit, combined with systemic absence of explicit argument on its behalf. This is what we seem to find here. This of course does not imply that opposition to GROUND has no basis or rationale. Quite plausibly, it does. Arguably, a primary basis is the thought that the distinctive features of theoretical understanding and practical understanding—illumination and action-guidingness, respectively—are to be accounted for in very different ways. Let me explain.

A popular idea is that understanding is centrally linked to *explanation*. This idea has enjoyed explicit endorsement by a variety of thinkers; here are a few examples:

Jaegwon Kim: “[U]nderstanding, as Salmon puts it, results from ‘our ability to fashion **explanations**’. That is almost tautological.”²⁶

Peter Lipton: “[W]e do not have a clear conception of understanding apart from whatever it is our **explanations** provide.”²⁷

Jonathan Kvanvig: “Understanding involves an already-possessed awareness of the **explanatory** and other connections involved in the subject matter in question...”²⁸

Michael Strevens: “Understanding a subject matter consists in grasping correct **explanations** of, using, or otherwise related to that subject matter.”²⁹

John Greco: “To have an **explanation** is to be able to cite appropriate dependence relations”, and “understanding consists in a systematic knowledge of dependence relations.”³⁰

We can formulate the proposed understanding-explanation link as follows:

EXPLANATIONISM x understands ... in virtue of bearing some cognitive relation to an explanation (or explanatorily-relevant item) of or relating to³¹

One of the attractions of EXPLANATIONISM is that, insofar as explanations contribute to the resolution of inquiry, its assertion of a tight understanding-explanation link seems to account for the illuminating character of theoretical understanding. This attraction is, however, inextricably linked to a potentially weighty implication. For it is difficult to see how many instances of *practical*

²⁶ Kim (1996, 61), quoting Salmon (1984, 259). See also Salmon’s (1998, 8-9) discussion of various forms of non-scientific understanding, all of which he links to explanation or what Lipton (2009) terms “cognitive benefits of explanation”.

²⁷ Lipton (1991/2004, 23); cf. Khalifa (2013b).

²⁸ Kvanvig (2009, 99; see also 2003, 192ff).

²⁹ Strevens (2010, 17).

³⁰ Greco (2014, 291-2).

³¹ In a moment I will discuss restricted versus unrestricted versions of this thesis. There are many further ways of elaborating EXPLANATIONISM, corresponding to the underlined expressions; for our purposes, we can bracket these details.

understanding will obtain in virtue of the explanatory condition it advances.

Take, for example, the major league pitcher Phil Niekro's understanding of the knuckleball (whose strange flutter is notorious), as displayed in and through his skillful pitching, which we may reasonably suppose was not accompanied by cognizance of the pitch's explanation.³² Switching to the other side of the plate, there is substantial empirical research showing that expert batters are ignorant of the explanation of their success, which invokes the general fact—of which they are unaware—that successful batting requires repeatedly shifting one's gaze *ahead* of the oncoming ball, anticipating (or predicting) where it will move next, as it hurtles towards one at speeds that make continuous visual tracking impracticable.³³ Likewise, many carpenters show their skill at sanding by utilizing a stroke that does not break but rather cuts the wood's fibers, although they are unaware that this is the explanation of why their stroke yields a smooth texture.³⁴ As a final example, consider a self-taught virtuoso musician, who may very well manifest impressive understanding of—a state that satisfies the U-profile with respect to—the French horn, or of operatic signing or vocal chord progression (e.g., through a complex series of intentional modulations of her voice, resulting from subtle contractions of her pharynx, nuanced movements of her tongue and lips, minutely timed breaths, controlled inflections, diaphragmatic vibrato, and more), though she is unfamiliar with music theory and relevant sciences, and is incapable of providing any explanations of, using, or otherwise bearing on her music or its performance. Practical understanding is not, or at least not usually, explanatory in the way that EXPLANATIONISM maintains.³⁵

It has seemed to many that what is paradigmatically manifested in skillful activity—the practical understanding of the doer—is centrally linked, not to explanation, but rather to practical ability, understood to include physical disposition, habit, or bodily activity. Recall Merleau-Ponty's remark about the body and Campbell's invocation of the artisan's dealings. Consider also:

Alva Noë: “**Practical abilities** amount to a type of understanding, one that we apply in our

³² A skillful knuckleballer such as Niekro may have a practical grasp—which satisfies the U-profile—of the pitch (or how to throw it), but that is not yet to say that he can *explain* the pitch, e.g., why the grip affects the flutter. For example, if the knuckleball is the only pitch he has ever known, he may not be aware that the flutter depends on the grip.

³³ See Papineau (2013, 177-8) and Brownstein and Michaelson (2016, 7-8) for summaries of relevant research.

³⁴ Thanks to Farid Masrouf for this example, and for the opportunity to peruse Aldren A. Watson's beautiful and insightful *Hand Tools: Their Ways and Workings*. The book offers a glimpse into the understanding of a master craftsman, and in so doing consistently emphasizes *method*—procedure, or guide to action—rather than *explanation*. Although the latter is also sometimes of interest, it does not guide the doing of what the doer does; it is not what is manifested in skillful activity. I return to the importance of method in §5.2.

³⁵ Cf. Khalifa (2013a, 1164n18): “there is another kind of understanding-how that is of a practical variety, e.g. Jimi understands how to play guitar. This is clearly not explanatory.” Jimi and other virtuosos may be able to describe or characterize their skills, but they need not (see, e.g., Fodor 1968, 633ff.); moreover, even when they can, their descriptions need not be accurate or effective; and, in any case, descriptions are not explanations. See also Hills (2015), who argues that although *full moral virtue* requires explanatory cognition, this is not always so for *skill* (whose link to practical understanding I defended in §1.1).

practices.”³⁶

Sean Kelly: “My **bodily activity** with respect to the object just is my way of understanding it.”³⁷

Hubert Dreyfus: “[S]kills are ‘stored,’ not as representations in the mind, but as **dispositions to respond** to the solicitations of situations in the world.”³⁸

Fred Dretske: “[I]n the case of all skilled actions, whether it be tying your shoelaces, playing a musical instrument, or dribbling a basketball—the mind goes elsewhere while the **body performs**.”³⁹

Robert Brandom: “[P]ractical *understanding* [is] a kind of adaptive attunement to the environment, the development of **habits** apt for successful coping with contingencies.”⁴⁰

These and other theorists of practical understanding can be seen as pursuing an account of its action-guiding character in terms of practical ability. In so doing, they endorse something like the following thesis:

ABILITISM x understands ... in virtue of bearing some practical ability relation to an activity (or action-relevant item) of or relating to⁴¹

Of course, many instances of *theoretical* understanding do not obtain in virtue of a thinker’s practical abilities. A physicist’s understanding of the knuckleball, for instance, need not be accompanied by any power to throw, catch, hit, or otherwise handle it. Similarly for the vision scientist’s understanding of successful batting. Theoretical understanding is not, or at least not usually, related to practical ability (disposition, habit, or bodily activity) in the way that ABILITISM maintains.

Proponents of EXPLANATIONISM and ABILITISM may of course view these theses as restricted to theoretical understanding and practical understanding, respectively. The resulting position strings together the grounds invoked by these theses into a simple disjunction: one understands, when one does, *either* in virtue of explanatory cognition *or* in virtue of practical ability. Perhaps the most pressing objection to this dualist thesis is explanatory: it fails to explain why the U-profile is satisfied when and only when one of the disjuncts is.

Above I argued that the constituent features of the U-profile are possessed by instances of

³⁶ Noë (2005, 285).

³⁷ Kelly (2002, 385).

³⁸ Dreyfus (2002, 367). Elsewhere Dreyfus makes clear that by ‘skill’ he means “the nonconceptual immediate intuitive *understanding* exhibited by experts” (2006, 43 emphasis added).

³⁹ Dretske (1998).

⁴⁰ Brandom (2013, 112-13, emphasis in original).

⁴¹ Those tempted to replace ‘...’ with ‘how to φ ’ are directed to §1.2. In a moment I will discuss restricted versus unrestricted versions of ABILITISM, whose underlined expressions can be filled out in various ways.

both theoretical understanding and practical understanding (recall §1.1). The dualist view is disbarred from answering the question of why the features in the U-profile are jointly instantiated when and only when one of the view's preferred conditions obtains. Thus the view does not merely drive an unsatisfying wedge through our conception of understanding; it also leaves the fact that the U-profile is satisfied, when and only when it is, seem both unprincipled and arbitrary. What is wanted is an explanation of the U-profile—some insight into why its features are jointly instantiated when and only when they are. Rather than facilitate insight, dualism courts mystery.

In some cases, an unexplained disjunction is not mysterious but appropriate—one example is jade. However, with jade we know that nephrite and jadeite offer distinct grounds for jade, and, furthermore, that they themselves are not grounded in one and the same thing. As a result, we possess substantial evidence that jade is not fundamentally unified. Such evidence is lacking in the present case. In this way, dualism about practical and theoretical understanding suffers from a justificatory, as well as explanatory, lacuna.⁴²

A natural response to these concerns is to choose one disjunct, and to lift its restriction so that it is taken to apply to *all* cases of genuine understanding;⁴³ those cases to which it cannot be applied are then classified as 'other'. In fact, some proponents of an understanding-explanation link have pursued this strategy, maintaining that all instances of understanding hold in virtue of a single condition, namely, explanatory cognition of the sort invoked by EXPLANATIONISM. This is the path *de facto* recommended by Linda Zagzebski when she writes:

The person who has mastered a *techné* [skill] has a kind of understanding one cannot get any other way. He is able to **explain** features of the *techné* and to answer questions related to its practice.⁴⁴

Of course, a parallel move can be made by privileging practical ability, as in an unrestricted version of ABILITISM.

This imperialistic strategy faces three serious, interrelated difficulties: first, it chauvinistically excludes a set of central cases from the ranks of understanding; second, it incurs a significant justificatory debt, which it is not in a position to repay; third, it generates an unhelpful epicycle in addressing some of the deepest questions about understanding. After all, when promoting the

⁴² The case of jade—whereof there is a disjunctive genus—should not be conflated with a case of lexical ambiguity, as with the noun 'bank'. There is no reason to posit a genus (disjunctive or otherwise) of which both river banks and financial banks are species. That practical understanding and theoretical understanding both satisfy the U-profile distinguishes the present case from mere ambiguity.

⁴³ Unrestricted versions of both theses cannot be endorsed simultaneously, as that would require equating explanatory cognition and practical abilities (which, as the examples above help to illustrate, is implausible).

⁴⁴ Zagzebski (2009, 143). See also Annas (2011b, 20): "the skilled person can 'give an account' of what he does, which involves being able to **explain** why he is doing what he is doing."

imperialist strategy, the imperialist will inevitably omit, and thus be forced to try to discredit, a range of paradigm cases involving either skillful doers without explanatory cognition (recall the knuckleballer, the batter, the sander, and the virtuoso musician) or, instead, consummate thinkers without practical ability (recall the physicist and vision scientist). (That is the chauvinism.) Further, given that the U-profile is satisfied in all of these cases, the imperialist's gambit would appear to be unjustified—or, worse, vulnerable to a host of mundane counterexamples that, again, given their satisfaction of the U-profile, cannot simply be dismissed. (That is the unpaid debt.) Finally, since scientific advance and skillful activity are both significant achievements that share a range of important features, including those in the U-profile, we will naturally be led to ask what they all have in common in virtue of which they do so. What makes it the case that the U-profile is satisfied *both* in cases of scientific advance *and* in cases of skillful activity, even when the imperialist's favored condition (explanatory cognition or, instead, practical ability) is missing? (This is the epicycle.)

It may be objected that this misconstrues the imperialist's ambition, which is to show that *all* instances of one form of understanding are really just instances of the other form of understanding in disguise. This is not indebted, epicycling chauvinism; it is *exposé*. However, this response underestimates the dichotomy implied by the imperialist's strategy, one which has already cropped up in recent work on the nature of understanding. For example, in the course of defending an (increasingly popular) neo-Aristotelian account of understanding in terms of knowledge regarding explanatory dependence-relations, Greco unwittingly faces the choice between thinkers and doers and endorses the unhappy conclusion that a skilled agent, such as a “star gymnast”, who is *ex hypothesi* unaware of an explanation of her performance of a standing backflip, thereby “does not understand”.⁴⁵ When prompted to choose, Greco privileges theoretical understanding.

But the choice is a false one. We should cast off imperialism, thereby removing any pressure to choose between thinkers and doers. By refraining from imperialistic schemes, we avoid the charge of chauvinism, the peril of unpaid debts, and the surfeit of epicycles.

I draw two lessons from the foregoing considerations. The first is that, no matter how they are elaborated or developed, EXPLANATIONISM and ABILITISM obstruct unification. Nearly all extant theories of understanding accept (some version of) at least one of these theses. But, as we have just seen, they imply either dualism, which denies the unity thesis's conciliatory assertion of a common ground, or imperialism, which denies the unity thesis's ecumenical recognition of genuine understanding—satisfaction of the U-profile—both in the realms of theory and practice. But it is important to recognize that although EXPLANATIONISM and ABILITISM (whether restricted or

⁴⁵ Greco (2014, 292); the same basic neo-Aristotelian account is also endorsed by Grimm (2006, 2011, 2014). Greco's discussion begins with the claim that a general understanding-explanation link is a pre-theoretical datum that functions as a constraint on an adequate account (Ibid., 287). What is needed, however, is a reason to believe that such a link is in fact a datum.

unrestricted) may each possess some initial appeal, neither is sacrosanct; both theses can be rejected. Further, and this is the second lesson, given the difficulties facing both dualism and imperialism, we have excellent reason to embrace this option—and, in so doing, to resist the tendency towards bifurcation.

Additional reason would be secured by GROUND. Importantly, while a proponent of this unity thesis will reject EXPLANATIONISM and ABILITISM, she need not view the tendency towards bifurcation as wholly irrational. To see this, consider the following thesis (which will play an important role below):

INCIDENTALISM There are a variety of species (forms) of understanding each of which are such that their members possess features that, while distinctive of, and perhaps essential to, the species, are incidental to the genus.

This thesis implies that in order to appreciate the full richness and variety of understanding, features characteristic of particular forms of understanding are relevant; consequently, it makes good sense to explore such features, including those invoked by EXPLANATIONISM and ABILITISM. The trouble arises when those features are treated not as candidate differentia for particular forms of understanding, but as grounds for the understanding that takes those forms. In short, while INCIDENTALISM allows that such features merit attention, it implies that they are at the end of the day irrelevant to understanding *per se*—as against bifurcation, and in tune with the unity thesis articulated in GROUND.

4. Noetic Conceptions

In order to fully establish this unity thesis, it is not enough simply to criticize ideas that obstruct unification—or even to do this in concert with a non-capitulating, rationalizing diagnosis of the tendency towards bifurcation. What is needed, in addition, is a positive account of understanding that vindicates unification. This is what I propose to do in the remainder of this paper, by sketching a defense of this thesis through an account of understanding that positively identifies the state that makes GROUND true.

The central idea of this account is that understanding, whether in the realm of theory or in the realm of practice, involves having a certain kind of *conception* of what is understood: what I call a ‘noetic’ conception. What unifies theoretical and practical understanding, on this approach, is not a self-sufficient ingredient that is present in both, but a generic shape or structure—given by the abstract notion of a noetic conception—that is realized in different ways in the two cases. I will pursue such unification in the next section. This section focuses on two preliminary questions: What

is a conception? And what is it for a conception to be noetic?

One's conception of something is how one conceives or thinks, or is somehow inclined to think, of it.⁴⁶ A conception has a tripartite basic structure, consisting of:

- a mental state or *attitude*, conceiving (or conceiving-of);
- an *object*, or what the attitude is of or about; and
- a *content*, or how the attitude characterizes its object.⁴⁷

For example, when one *conceives of the environment as something sacred*, there is the attitude of *conceiving*, the object of that attitude, *the environment*, and the content of that attitude, *as something sacred*. You have a conception of the environment that is different if and only if the attitude and object remain the same while the content differs (e.g., *as something instrumental*).

This is just one illustration; examples abound. We have conceptions of ourselves, of gravity, of climate change, and of its causes and possible remedies, of how to build a fire or tie a reef knot, of the function of government, of the good life and what it takes to achieve it, and more. These and other conceptions underwrite, by structuring, a range of cognitive dispositions (e.g., to recognize, attend, notice, associate, imagine). Beyond this, they display a variety of philosophically significant properties. Five will play particularly important roles in what follows.⁴⁸

The first two properties are *correctness* and *completeness*:

A conception ξ of φ is *correct* to the extent that the content of ξ characterizes φ as having features $F_1 \dots F_n$ only if $F_1 \dots F_n$ are features of φ .

A conception ξ of φ is *complete* to the extent that the content of ξ characterizes φ as having $F_1 \dots F_n$ if $F_1 \dots F_n$ are central features of φ .

The notion of a central feature is context-sensitive, selecting all and only what is needed to characterize what φ is in the manner that is determined by various aspects of that context. For example, what is central in a culinary context need not be identical to what is central in a botanical context; consequently, what it is for a conception of a given entity to be correct and complete in a

⁴⁶ Conceptions and their potential theoretical importance have been emphasized by a number of philosophers working in a wide range of areas; see the citations in my (2015a, 19n40).

⁴⁷ In general, I understand the content of a state σ as what specifies the conditions in which σ is true, accurate, correct, veridical, or satisfied.

⁴⁸ I will not here pursue a full theory of the attitude of conceiving or of the nature of its contents—their relations to other intensional entities, their logico-semantic properties, their psychological roles, and so forth. Yet I note that conceptions are not concepts (the semantic values of terms such as 'bachelor' or 'elm'): e.g., two individuals may possess all of the same concepts while harboring very different conceptions. Some may seek to reduce conceiving to a propositional attitude, such as belief, but in work now in progress I explain why my preferred theory is non-propositional and non-doxastic.

botanical context (e.g., a conception of cocoa beans as, say, seeds produced by a small evergreen tree in the genus *Theobroma* and family *Malvaceae* native to tropical regions of Central and South America) may diverge from what it is for a conception of that same entity to be correct and complete in a culinary context (e.g., a conception of them as required to make chocolate).

If a conception is both correct and complete, then its content identifies the full range of its object's central features and does not characterize the object as having any features it lacks. How do the features in the conception "hang together"? How does the conception itself "fit" with other relevant conceptions? These questions point to the significance of two further properties of conceptions, corresponding to two types of *coalescence*:

A conception ξ of φ is *internally coalescent* to the extent that the content of ξ identifies pertinent substantive connections, and pertinent features thereof, between φ 's central features.

A conception ξ of φ is *externally coalescent* to the extent that ξ is rationally consistent with all other relevant conceptions (e.g., conceptions of φ 's central features).⁴⁹

In the former case, the central features coalesce with one another; in the latter case, the conception coalesces with other conceptions. Pertinence and relevance, like centrality, are context-sensitive; yet, neither pertinent connections nor relevant conceptions are themselves among φ 's central features.

We can call the absence of internal coalescence *miscellany*, the paradigm of which is a conception whose content is a mere list. Take, for example, Charles Dickens' character Bitzer's conception of a horse as

Quadruped. Graminivorous. Forty teeth, namely twenty-four grinders, four eye-teeth, and twelve incisive. Sheds coat in the spring; in marshy countries, sheds hoofs, too. Hoofs hard, but requiring to be shod with iron. Age known by marks in mouth.⁵⁰

In Thomas Gradgrind's schoolroom, where facts and definitions reign supreme, this zoological conception may well qualify—let us suppose—as fully correct and complete, identifying only those features possessed by horses and all of those features of horses that are central in that context. All the same, the young Bitzer's conception is little more than a list, which says nothing about how, if at all, its elements are connected. Some such connections may not be pertinent in Gradgrind's

⁴⁹ 'Rationally' consistent because, e.g., an exception should be made for those relevant conceptions that it would be *rational* for x to revise instead of ξ were x to become aware of the inconsistency. Thus external coalescence is a normative notion. I leave open how best to analyze the relevant type of consistency.

⁵⁰ Dickens (1854, 7). I am indebted to Ford (2011, §2.2.2), who invokes this passage, albeit in a different context.

schoolroom, but others—such as connections between grammivorousness and possessing an abundance of grinders, or between marshy countries and shedding hoofs (which connections are of course not themselves among the central features of horses)—presumably are.

That example reveals the importance of internal coalescence. Now consider external coalescence, whose function is to exclude a type of cognitive mix-up that is compatible with a correct, complete, and internally coalescent conception. To see this, suppose that, while still in Gradgrind's schoolroom, Bitzer's conception of a horse was supplemented with pertinent connections among its elements, thereby precluding miscellany. Still, we can imagine that Bitzer possesses other relevant conceptions—for example, a conception of hoofs, which (we can imagine) he conceives incorrectly as being permanent—that conflict with his conception of a horse, as described above. Even if this would not affect the claim that Bitzer knows key facts about horses, it would certainly indicate that he remains somewhat mixed-up about, and so does not fully understand, them.⁵¹

A fifth property invokes conceptual *mastery* (by contrast with minimal possession):

A conception ξ is *mastered* by an individual x to the extent that x has mastery of the concepts (of the central features and pertinent connections), and their mode of combination, in the content of ξ .⁵²

This property does not entail any of the previous four. It is possible to master each of the concepts in the content of a wholly incorrect or incomplete conception (e.g., the incorrect conception of 1 as more than 2). Equally, one could master each of the concepts in a conception that fails to be internally coalescent. For example, Bitzer could master each and every concept in the content of his initial conception; yet, as we saw, that conception was little more than a list, hence not internally coalescent.⁵³

The previous four properties are also not sufficient, individually or jointly, for a conception to qualify as mastered. Returning to Bitzer, let us remove the conflict between his conception of a horse and his conception of hoofs, so that he is no longer mixed-up. Suppose, then, that his conception of a horse is correct, complete, internally coalescent, and externally coalescent.

⁵¹ The foregoing examples are not easily handled by extant theories of understanding, which tend to neglect one or both forms of coalescence (as in, e.g., theories that reduce understanding to true belief with explanatory content).

⁵² I leave the reference to mode of combination implicit hereafter.

⁵³ Likewise, it is possible to master a conception that is not externally coalescent. For example, an individual may master the concepts in the content of a simple conception (e.g., an aesthete's conception of nature as merely instrumentally valuable) that is not rationally consistent with other relevant conceptions (e.g., the aesthete's conception of beauty, which we can imagine to be one of nature's central features, as having final value).

Compatibly with this, Bitzer might fail to master the concept *quadruped*, one of the concepts in the content of his conception of a horse, remaining genuinely open-minded about whether an individual animal who is born with only three legs but belongs to a species whose members normally are four-legged qualifies as quadruped. Simply put, failure to attain mastery of relevant concepts may be directly responsible for deficiency of understanding, and it is for this reason that I include the fifth property.⁵⁴

I will call a conception possessing all five of the properties explicated above to the greatest extent—a conception that is fully correct, complete, internally and externally coalescent, and mastered—*fully noetic*. I will call a conception *adequately* noetic if it is not fully noetic, but nonetheless has each property to an adequate extent; and *minimally* noetic if it is neither fully nor adequately noetic, but has each property at least to some minimal extent. (We can assume that the thresholds for adequate and minimal noeticness are context-dependent.) These possibilities, and in particular that a noetic conception is always noetic to a greater or lesser extent, should be borne in mind in what follows.⁵⁵

5. Gaining GROUND

5.1 Noetic Conceptions and the U-Profile

The preceding section offered a general characterization of conceptions, explained their tripartite structure, and provided a definition of each of the properties required for a conception to qualify as noetic. The characterization and definitions are non-circular, informative, and (plausibly) modest, appealing to notions familiar from traditional debates (e.g., *content*, *features*, *connections*, *consistency*). This does not fit well with the hypothesis that they are covertly disjunctive, but suggests instead that a noetic conception is a type of non-disjunctive state.

Arguably, one could not be in a state of this type without possessing genuine understanding.

⁵⁴ Extant accounts of understanding do not impose any condition on conceptual mastery. As a result, they deliver the wrong verdict about an individual (such as Bitzer in the example just given) who satisfies those accounts, despite harboring conceptual deficiency, which undermines his or her understanding. See Fricker (2007, ch. 7) for fascinating examples of the role of conceptual mastery in self-understanding, and its socio-political implications. For discussion of conceptual mastery itself, see Burge's (1986) seminal discussion of grades of concept possession (e.g., partial versus full), which in turn is inspired by, *inter alia*, Frege's distinctions between levels or sorts of mastery (e.g., "foggily" versus "clearly" or "sharply" possessing the concept *number*; see the excellent overview by Burge 1990, §§IV-VI; cf. Peacocke 1992, 29ff. and Bengson and Moffett 2007, 42-3). These distinctions, and the possibilities described in the previous two paragraphs, can be explained by diverse theories; for example, on Bealer's (1998) account, levels or sorts of mastery of a concept are explained by, roughly, the quality of intuitions one would have involving that concept in suitable cognitive conditions.

⁵⁵ I have focused on five properties that constitute noeticness. These properties may be related to various others discussed in recent work on understanding. For example, each property can come to be instantiated luckily or non-luckily (in various senses of 'luck'). There is currently no consensus about the relation between understanding and various sorts of luck, and I will remain neutral on this matter here (but see the discussion of 'resilience' in Bengson 2015a).

For possession of a noetic conception appears to entail, and make it the case, that all nine of the features in the U-profile are present. A conception is a *standing psychological state*. The correctness property ensures that it is, to some extent, *objective*. The completeness property, in conjunction with the mastery property, ensures that it is, to some extent, *intelligent*. The two coalescence properties ensure that it is, to some extent, *robust, coherent, and orderly*. Each of these properties can be possessed to a greater or lesser extent, rendering the state itself *multiply gradable*: assessable (e.g., as better, greater, deeper, stronger, or richer) with respect to the extent of correctness, completeness, internal coalescence, external coalescence, and mastery. If the state combines all five of these properties, then its subject conceives of something (the target) in a way that is not merely accurate, but at the same time displays cogency and organization amidst complexity—this is the hallmark of *sense-making*, and it founds a *praiseworthy good*. It follows that if one has a noetic conception, then one (or one's state) thereby satisfies the U-profile.

I propose that a noetic conception is a plausible candidate for the state, σ , that makes GROUND true. Establishing this thesis requires showing that noetic conceptions are well-suited to ground understanding in the realms of both theory and practice.

5.2 Theoretical Understanding: Illuminating Conceptions

Earlier I proposed that understanding in the realm of theory centers on illumination. Some conceptions have contents that identify laws, causes, mechanisms, unifying principles, dependence relations, and other items that are, or could be, appropriately invoked to answer explanation-seeking questions. Such conceptions are *illuminating conceptions*, possessing the sort of information required to resolve queries regarding the why, what, or how of things. Illuminating conceptions, when noetic, underwrite theoretical understanding.

This connection between illuminating conceptions and theoretical understanding can be motivated by reflecting on, from one direction, what one has when one has a noetic conception, and, from the other direction, what it takes to achieve a state that both satisfies the U-profile and is poised to resolve inquiry. Begin with the first direction: if one has a noetic conception, then one has a mental state that contains information sufficient to fully characterize one's topic (in ways relevant in that context). Now consider the other direction, concerning what it takes to be in a state that both satisfies the U-profile and is poised to resolve relevant queries. If one lacks information sufficient to fully characterize one's topic (in ways relevant in that context), then one is not in a state that satisfies the U-profile, and one is not yet in a position to close investigation (in that context). These points suggest a convergence: one is in some state satisfying the U-profile that is poised to resolve relevant

queries just in case one has a conception that is both noetic and illuminating.⁵⁶

Bitzer provides an illustration. Recall his initial, list-like conception of discrete features of horses. At that initial stage, at which his conception is merely correct and complete, his state does not satisfy the U-profile, as it is not yet robust, intelligent, coherent, and orderly. Suppose, however, that Bitzer's conception of horses were to acquire the full range of properties constituting noeticness: consequently, it would not simply be correct and complete, but also internally coalescent, externally coalescent, and mastered. Then, and only then, would Bitzer attain a state that both satisfies the U-profile and puts him in a position to resolve explanation-seeking queries regarding horses. Theoretical understanding goes lockstep with acquisition of a conception that is both noetic and illuminating.

To see that a noetic illuminating conception is not merely sufficient but is also necessary for theoretical understanding, it may help to consider that mere knowledge-that, even when abundant, is insufficient for the task. As we saw above (in §4), Bitzer may know key facts about horses, even while remaining confused or mixed-up about them—as when his conception is a mere list that conflicts with other relevant conceptions, lacking both internal and external coalescence—and thus not genuinely understanding them. To be sure, in some cases, an individual who knows that *p* also has at least some theoretical understanding of or relating to *p*. But this connection is fairly weak, and there appear to be many exceptions, beyond the case of Bitzer. Intuitively, my highly pedestrian knowledge *that* 1 is prime does not merit classification as an instance of theoretical understanding. Nor does my knowledge *that* I am not currently experiencing severe pain, or *that* this (a flick of the wrist) is what is needed to make the ball spin. This is not, or at least not simply, because such knowledge may not qualify as theoretical, but because it may fall short of genuine understanding. Notice, after all, that a wide range of instances of knowledge-that do not satisfy the U-profile, as in cases of knowledge-that stemming from rote memorization, spectatorial perceptual demonstration, or naïve testimonial uptake.

These points can be explained in terms of noetic conceptions. Knowledge-that—even lots of knowledge-that—is compatible with an impoverished conception (or set of impoverished conceptions), which lacks many of the properties constituting noeticness. Since those properties ground satisfaction of the U-profile, it follows that in a range of cases involving knowledge-that, the U-profile may go unsatisfied, leaving the knower without theoretical understanding, even when the knowledge-that is theoretical.

⁵⁶ The connection between illuminating conceptions and theoretical understanding explains the appeal of EXPLANATIONISM, preserving the primary insight in that position while detaching it from its problematic implications (recall §3).

5.3 Practical Understanding: Guiding Conceptions

Let us now turn to practical understanding, the sort of understanding that is action-guiding. While such understanding might initially seem resistant to explanation by a view that privileges noetic conceptions, I will attempt to show that the present approach is well-suited for the task.

Earlier I noted that there is an important connection between practical understanding and know-how (recall §1.1). Elsewhere I have argued (in a series of papers co-authored with Marc Moffett) for a view of know-how that endorses the following two theses, which employ several notions—‘conception’, ‘correct’, ‘complete’, and ‘mastery’—explicated above:

- (α) To know how to φ is to master a (possibly implicit, possibly demonstrative) correct and complete conception of a method, or way, of φ -ing, where a *method* of φ -ing is constituted by a (possibly ordered, possibly singleton) set of action types, the execution of which is φ ;
- (β) A conception ξ of a method of φ -ing is correct and complete (in the relevant context) only if ξ is a *guiding conception*: the exercise of ξ could underlie and explain the successful, intentional execution of φ (viz., for one who masters it and acts on its basis).

I will not rehearse the arguments for this view here.⁵⁷ What I wish to emphasize is that this account of knowing how entails that, and indeed explains why, practical understanding is centrally concerned with activity not merely in its topic or subject matter but in its function or character. For it follows from the conjunction of (α) and (β), together with the connection between practical understanding and know-how, that an individual who has practical understanding will be in a state that is action-guiding, poised to underlie and explain the intentional execution of intelligent action.

The account of know-how in (α) invokes a conception that is correct, complete, and mastered; (β) tells us that such a conception is guiding. Although these theses uncover an intimate relation between practical understanding and guiding conceptions, they do not quite establish what is needed to secure unity, namely, a connection between practical understanding and *noetic* conceptions—which are, in addition to being correct, complete, and mastered, also internally and externally coalescent.

I propose that the latter properties enter in the transition from mere know-how to skill. We have seen that if one has a noetic conception, then one thereby has a state that has the features constituting the U-profile, including robustness, coherence, and orderliness (recall §5.1). We have also seen that in the practical realm, these three features correspond to the systematicity and generality of skill, which make skill more demanding than mere know-how (recall §1.1). If skill

⁵⁷ See Bengson and Moffett (2007, 2011a, and 2011b) for elaboration and defense of both theses. I cannot engage the (vast and growing) literature on know-how here.

requires a conception possessing internal and external coalescence, in addition to those features—correctness, completeness, and mastery—implied by the account of know-how in (α), then the systematicity and generality of skill naturally follow.

By way of illustration, consider a case in which your conception concerns the use of a tool, such as a fret-saw. Suppose that your conception is noetic: it is correct, complete, internally coalescent, externally coalescent, and mastered. Because the conception is correct, complete, and mastered, then on the assumption that (α) is correct, it will imply knowledge how to use the saw; given (β), it will qualify as a guiding conception: it will be poised to underlie and explain intentional use of the saw. Because the conception is also internally coalescent, it identifies pertinent connections—not always or primarily explanatory—among its elements, including temporal, spatial, and normative connections between the steps within a given procedure or method of use (e.g., a turn of the blade *should be followed by* several short pull strokes), as well as connections between those steps and the steps in a variety of other methods (e.g., one *is quicker than*, or *requires more dexterity than*, or *is more effective for maple than*, another). Because, further, the conception is externally coalescent, it is rationally consistent with other relevant conceptions, including conceptions of blade, frame, and more generally saw and wood. Moreover, in a given instance of fret-sawing, demonstrative conceptions of the particular blade, frame, and wood being used (and much else besides, including one's own body) will be relevant. Given all this, it should be clear that in skilled agency, one's conception of a method (or set of methods) for successfully using a fret-saw speaks not only to the specific situation in which one is utilizing that conception to work on a particular piece of wood with a particular fret-saw, but also to a wide range of other situations involving variations in the standing properties of this target and this tool, as when the moisture level increases or the blade's teeth require sharpening, as well as in endlessly many cases involving different, perhaps novel targets (e.g., other pieces of wood) and tools (e.g., other fret-saws, coping saws, etc.). The conception displays both systematicity and generality.⁵⁸

The upshot is that if it is true that skill requires possession of a noetic conception that is guiding, then it follows that skill requires not just know-how, but also systematicity and generality. And conversely, if it is true that skill requires know-how plus systematicity and generality, it follows that skill requires a guiding conception that is noetic. In this way, there is a set of conditions for skill—involving knowledge how (as construed in (α)), systematicity, and generality—that links practical understanding to noetic conceptions.

⁵⁸ As this example illustrates, such systematicity and generality does not prohibit some element of the conception from being situation-specific in some sense. As stated in (α), the relevant conceptions may also be implicit and demonstrative (e.g., a four-year old's conception of a way of wiggling her ears—viz., by doing *this*); in addition, their mastery may require a suite of abilities or kinesthetic properties. For the importance of such conceptions to knowledge how, see Bengson and Moffett (2007, esp. 51-2).

6. Understanding in General

I have argued that noetic conceptions forge unity between theoretical understanding and practical understanding. This final section discusses what a conceptions-based approach to the unity of understanding implies or suggests about understanding in general.

6.1 Intellectualism

Considered in and of themselves, noetic conceptions are neutral between theory and practice. This is not to say that they resist categorization. For example, they are psychological states. Further, they are cognitive, as opposed to affective or sensory. Even further, they are intellectual, as opposed to (say) behavioral-dispositional. Hence a conceptions-based approach to the unity of understanding merits the label ‘intellectualism’.⁵⁹

It might be objected that such intellectualism indicates that the proposed state is too close to the theoretical to serve as a neutral (non-imperialistic) common ground, and that, in particular, it fails to do justice to non-theoretical forms of understanding, especially practical understanding, which is not an intellectual affair. But, first, the inference from intellectuality to theoreticality is a non sequitur. Even if the theoretical is intellectual, the intellectual need not thereby be theoretical. Reading Shakespeare, solving a Sudoku puzzle, playing Jeopardy, counting silently to 100, and operating a sophisticated home theater are all plainly intellectual—they directly engage the intellect—but they are not, or at least need not be, theoretical. Second, as revealed by reflection on the complexity of many intelligent actions and the cognitive sophistication required for their skillful engagement, the idea that practical activities undertaken with understanding do not directly engage the intellect, in a way that implicates how doers conceive of their doings, both underappreciates and distorts their achievement.⁶⁰

6.2 Towards Enrichment

While noetic conceptions are not in and of themselves specifically concerned with theory or with practice, they become so concerned when further conditions are met, as when, for example, they are *illuminating* or, instead, *guiding*. Or *both*—as witnessed, arguably, in the player-coach or erudite artisan, who grasp both the theory and the practice.

⁵⁹ In fact, I have chosen the Greek term ‘noetic’ because it connotes the intellect (but not necessarily theory).

⁶⁰ Recall the fret-saw example from §5.3. Elsewhere I have argued that intellectual—including conceptual—failures undermine an agent’s know-how even when corresponding abilities are in place (see the Salchow cases in Bengson and Moffett (2007, 46-9; cf. 2011a), which also serve as counterexamples to ABILITISM). This provides independent motivation for an intellectualist approach and helps to defuse the charge of *over-intellectualization*. For further discussion of the charge of over-intellectualization, see Bengson and Moffett (2007, 51-5) and Bengson, Moffett, and Wright (2009).

This recalls the possibility of ENRICHMENT:

ENRICHMENT There is a type of understanding U, such that x has U with respect to ... only if one both practically understands ... and theoretically understands ... , and U is superior to either of these in isolation.

On the present approach, the relevant type of understanding, U, is achieved when one enjoys a noetic conception that is simultaneously illuminating and guiding.

Importantly, such a state is not a gerrymandered conjunction of two fundamentally disparate types of understanding (as dualism would imply), or an unholy mixture of understanding plus something possibly ‘other’ (as imperialism would imply), but an integrated whole. It is a single conception, which is correct, complete, internally and externally coalescent, and mastered, poised to resolve inquiry regarding, and at the same time to guide the intentional execution of intelligent action concerning, some topic or subject matter. Success in this undertaking is no trivial accomplishment, but a dynamic process culminating in an epistemic ideal realized just when one is truly in command of some portion of reality.

*** Thanks for reading this far. Feel free to skip the rest (§§6.3-4).***

6.3 Other Varietals

What about other forms of understanding, besides those featured in the realms of theory and practice (and, as just discussed, in their combination)? Above I alluded to the diverse understandings of diverse exemplars, for instance, the farmer, painter, designer, comedian, lover, conversationalist, businessperson, philanthropist, fitness planner, tour guide, moral exemplar, and psychoanalyst. A conceptions-based approach allows us to make sense of the differences between these understanders, while preserving the unity of their various achievements. Suitably generalized, the approach says, first, they are unified—what makes them all forms of genuine understanding is one and the same—insofar as they are all grounded in possession of a noetic conception, and, second, they are diverse insofar as each form has some distinctive feature, over and above this, which serves as a criterion of individuation (again, per the thesis of INCIDENTALISM).

There are at least two principled ways to distinguish various forms of understanding. The first privileges what is understood; hence it distinguishes forms of understanding by reference to the *object* of conception: for example, soils and seasons, forms and colors, fashions and fabrics, humor, people, norms, markets, charities, regimens and body-types, locales, ways of living, and emotions and moods. While this method of individuation may be best in some cases, in many cases it does not deliver the most perspicuous taxonomies. A carpenter’s understanding of the wood she works with (e.g., maple) and of the procedure by which it is dried have different objects (a concrete stuff versus a

process or activity), though insofar as both are action-guiding they ought to be grouped together, as belonging to one and the same practical form of understanding. A narrow focus on the objects of conception also omits important distinctions: as noted above, a dancer and scholar might both understand ballet, albeit in very different ways—the difference, of course, lies in *how*, not *what*, they understand, revealing an important limitation of an object-oriented taxonomy.

An alternative focal point is the *content* of conception, which might differ even between noetic conceptions of one and the same object. The content of a carpenter’s noetic conception of the maple she is handling may specify how to dry or cut it, whereas the content of a botanist’s conception of maple characterizes its phylogenetic properties, an artist’s highlights its aesthetic qualities, a firefighter’s indicates how it burns, a businessperson’s records its market value, and a tour guide’s focuses on its location and autumnal colors. This represents a second option for individuating forms of understanding. And it is often the one to favor: in a wide range of cases, the content is the difference that makes the difference. For example, it is the difference in the contents of the noetic conceptions of the carpenter, botanist, artist, firefighter, businessperson, and tour guide that explains why their understandings of maple are diverse: practical, theoretical, aesthetic, pyro, mercantile, and touristic, respectively.

The idea of a content-oriented taxonomy has general application. Take the case of understanding people: here we may countenance the possibility of diverse conceptions with diverse contents, concerning, *inter alia*, anatomical characteristics, cultural and historical properties, psychological qualities such as emotions and moods, or whatever makes a given individual beloved. Thus it is possible to have anatomical, cultural-historical, empathic, or loving understanding of people. Here, again, the difference resides primarily in the content of the conception sought.

That difference often implicates another. Achieving a conception with a particular content may in some cases be possible only once one has acquired a corresponding set of physical or mental characteristics. A particular guiding conception with a demonstrative content specifying a complex sequence of movements may require a certain suite of kinesthetic properties. A particular empathic conception with a content specifying the felt intensity of various emotions may require a certain suite of psychological properties (perhaps, e.g., one must have suffered emotional pain oneself in order to properly conceive of the emotional pain of others). Possession or acquisition of these properties may, in turn, implicate a certain course of experience. Here we may remember Mill’s emphasis on “experiments of living”, which he applauded for their capacity to generate “better taste and sense in human life”, including superior moral and self-understanding—through, I propose, improved conceptions of oneself, other people, and how to live.⁶¹

⁶¹ Mill (1859, ch. III).

6.4 Comprehensive Understanding

The foregoing remarks indicate how a conceptions-based approach enables an extension of GROUND, beyond the realms of theory and practice, so as to secure a general unity thesis while safeguarding—with the aid of INCIDENTALISM—the full richness and variety of understanding. The approach also allows a generalized version of ENRICHMENT, which recognizes the prospect that multiple forms of understanding (not just theoretical and practical) might combine and aggregate so as to contribute to increasingly superior forms of understanding. As more and more forms are introduced, it will of course become correspondingly more difficult to sustain a conception that is fully correct, complete, internally and externally coalescent, and mastered. Should one manage it, however, one will have arrived at a unified understanding that is not simply better, greater, deeper, stronger, and richer than what came before, but also more and more *comprehensive*, until at the limit—which is perhaps unattainable—everything is properly conceived.⁶²

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⁶² Many people to thank!

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