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Knowledge-How, Ability, and Linguistic Variance

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Abstract

In this paper, we present results of cross-linguistic studies of Japanese and English know-ing how constructions that show radical differences in knowledge-how attributions with large effect sizes. The results suggest that the relevant ability is neither necessary nor sufficient for knowledge-how captured by Japanese constructions. We shall argue that such data will open up a gap between otherwise indistinguishable two conceptions of the very topic of knowledge-how, or the debate between intellectualism and anti-intellectualism, namely a debate about the nature of knowledge-how and a debate about the state captured by "know how", which we call the knowledge-how interpretation and the state interpretation, respectively. Consequently, the results have not only various possible philosophical implications that have not been considered or discussed in the literature but also provide new topics in the theory of knowledge-how, including the question of which interpretation of the topic is correct itself.

Keywords: Knowledge-how; practical knowledge; intellectualism; ability; linguistic diversity

1. Introduction

Jason Stanley (Stanley 2011*a*, 2011*b*; Stanley and Williamson 2001) revived the old debate between intellectualism and anti-intellectualism, first launched by Gilbert Ryle (Ryle 1946, 1949), by defending a form of intellectualism, the view that knowledge-how is a species of knowledge-that. However, Stanley's main argument was based on the syntactic uniformity of constructions for knowledge-wh in English, which he argues includes one for knowledge-how (hereafter the *argument from syntactic uniformity*). This argument is therefore based on characteristics of English constructions. Thus, some theorists have naturally questioned the cross-linguistic validity of the argument.

Various languages have been explored to examine his linguistic argument. The list includes, for example, French (Rumfitt 2003; Stanley 2011*b*), German and Russian (Ditter 2016; Wiggins 2012), Turkish (Ditter 2016), Modern Greek (Douskos 2013), as well as Stanley's own discussions of Defaka, Finnish, French, German, Russian, etc. (2011*a*) and Afrikaans and Cantonese (2011*b*). However, these papers are mainly concerned with the syntactical issue. For example, Ditter (2016) analyzed German, Turkish, and Russian, and argued that two syntactically different knowing how

constructions in these languages express two metaphysically distinct states, and therefore English "know how" is ambiguous. Still, one of those two constructions is assumed to express the same knowledge or *practical knowledge*. In this sense, the relevant concept of knowledge-how is assumed to be shared by at least one of knowing how constructions in all these languages.

In this paper, we empirically examine ordinary people's knowledge-how attributions and report new empirical data of radical cross-linguistic differences in knowledge-how attributions between speakers of English and Japanese, which can question the above assumption shared by the participants of the debate, both intellectualists and anti-intellectualists.

The philosophical topic of knowledge-how was originally about the nature of *intelligence* exhibited in intelligent actions (Ryle 1946, 1949). But since intelligent actions presuppose the ability to act intelligently, it is no wonder that a close connection between knowledge-how and ability (which is typically physical, not just purely intellectual, like the ability to swim, ride a bike, skate, etc.) has been assumed. Indeed, according to Stanley and Williamson (2001), the thesis that knowledge-how is an ability has been widely shared since Ryle, as they cite as examples Hilary Putnam, David Lewis, and Michael Devitt (*ibid.*: 411). More recently, Markie (2015) defends the view that, roughly, to know how to φ is to have the ability to φ in the relevant circumstances. Glick (2012) claims that there is a kind of knowledge-how that is ability. Findlan (2012) also claims that ability is necessary for knowledge-how.[1] Everyone admits, of course, that there is a reading of "know how" that does *not* entail ability (as we discuss below).[2] But that is irrelevant to the debate between intellectualism and anti-intellectualism, since anti-intellectualists are mainly or only concerned with instances of knowledge-how that entail or are associated with relevant (mainly physical) abilities, which are often called "practical knowledge." However, even the relation between practical knowledge and ability is subtle: a pianist who has lost her arms in an accident may still know how to play the piano without being able to play the piano. But arguably such a pianist still possesses the relevant *skill* or *disposition* (with which Ryle characterized knowledge-how).[3] Thus, despite the well-known difficulty of specifying the relevant sense of ability, it has been assumed that (at least) the *relevant* instances of knowledge-how have a non-accidental connection with the relevant skills or abilities. Indeed, the question of whether knowledge-how is a species of propositional knowledge is interesting precisely because there is such a connection, and the question would be trivial (intellectualism would trivially be true) for instances of knowledge-how that do not require such abilities like knowing how to spell a word, which, as even anti-intellectualists can agree,[4] can uncontroversially be reduced to propositional knowledge (if consisting of long conjunction), though some radical anti-intellectualists may still disagree (cf. Hetherington 2011).

The question we raise here is whether this connection can be assumed to be universal, which is related to what Stephen Stich and Masaharu Mizumoto called the *Universality Thesis* (UT) in their *Manifesto* to the volume *Epistemology for the Rest of the World*. Adherents of UT hold that the properties of the English word "know" and its cognates studied by Anglophone epistemologists are shared by its counterparts

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[1]See also Setiya (2008, 2012) and Löwenstein (2017).

[2]Also, some philosophers claim that English "know how" is hybrid, having both the intellectualist and anti-intellectualist factors (e.g., Gonnerman *et al.* 2018, 2021).

[3]Cf. Glick (2012): 134. This kind of challenge is usually answered by distinguishing different senses of "ability" (e.g. Fantl 2008; Glick 2012; Noë 2005: section 4.2). See footnote 26 below.

[4]See for a relevant discussion, sec. 7.2 of Löwenstein (2017).

in most or all other languages (Stich and Mizumoto 2018: ix–x). Although Stich and Mizumoto's main concern was propositional knowledge, we can easily extend UT to knowledge-how. Most of contemporary theorists of knowledge-how are committed to, or just presuppose, UT in this sense.

If we find that the connection between knowledge-how and ability is not universal, that is, UT about knowledge-how (or "know how") is false,[5] that is a valuable contribution to the literature not limited to knowledge-how, especially given this scarcity of such demographic divergence data. For example, based on the experimental philosophy literature, Knobe (2019: 33) claims as a "surprising finding" that "demographic factors do not impact people's philosophical intuitions," while linguistic factors should be the first reason to look for when we encounter a radical demographic difference between different cultures or countries if there is at all.[6] We will report in what follows the results of empirical studies to this effect.

We shall also argue that the results will raise new questions and thereby provide new topics (including *meta-topics*) about knowledge-how that have not been discussed or considered in the literature, and we may even need to reassess the very topic of knowledge-how, or the nature of the debate between intellectualism and anti-intellectualism. In what follows, we will first review the earlier relevant studies in the next section and then present two studies in section 3, which respectively suggest that the relevant ability is neither necessary nor sufficient for knowledge-how for Japanese speakers, and then discuss the philosophical implications of such data and varieties of possible responses in section 4. Section 5 concludes the paper.

2. Earlier studies

Earlier, a group of Japanese philosophers had investigated Japanese knowing how constructions, both grammatically and empirically. According to Izumi *et al.* (2019, hereafter ITM), Japanese knowing how constructions are compatible with Stanley's linguistic uniformity claim, where, just as in English, there is syntactical uniformity about knowledge-wh, which includes knowledge-how, although they are not wh-infinitival clauses if "infinitive" is just a lack of tense inflection (*ibid*.: 12). Also, there are many different knowing how constructions in Japanese, which are equally translated into English "know-how", including near-isomorphic, embedded question constructions of the following type (which they called Type-(i). *ibid*.: 12):

Hana-wa   doo oyogu   ka sitteiru.
Hana-Top   how swim.Prs   Q know.Prs
'Hana knows how to swim.'

Here *doo* is a wh-word for "how" in Japanese, and *ka* is a morpheme that indicates a question (Q). Besides, the verb forms ending with the vowel "u", like "oyogu" (swim), are the basic dictionary forms in Japanese, to which all infinitive verbs in other

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[5]Or one may claim that any such language is philosophically uninteresting or irrelevant and still hold UT (given that it only requires that the properties of English "know how" is true of most, but not all, languages). We shall briefly discuss this kind of view in section 4, calling it *A priori Dismissal*.

[6]It seems that, in general, analytic philosophers tend to value universality far more than diversity in the context of cross-cultural or cross-linguistic investigations (cf. Knobe 2019, 2023). But see also Stich and Machery (2023).

languages are translated. This form is therefore conventionally taken and taught as the infinitive form of Japanese verbs.

Thus, this type of construction is syntactically almost perfectly isomorphic to English "knows how to φ", and sentences of this type (and other types), using a knowledge-verb (shitte-iru), attribute knowledge to the subject with embedded "how"-interrogative clauses, and therefore they are definitely knowledge-how attributions. Izumi and colleagues examined (among many others) four types (including one above) of knowing how constructions, but there is no recognizable semantic difference between them. Importantly, however, based on intuitions and grammatical considerations they conjectured that the relevant modality of Japanese knowledge-how attribution is *deontic* (or teleological), rather than ability or dispositional.[7]

For example, the following construction (which is a variant of Type-(i) construction) contains an explicit deontic expression, "beki" (ought) (ITM, 19).

Hana-wa   doo oyogu beki   ka sitteiru.
Hana-Top   how swim.Prs ought Q know.Prs
'Hana knows how she should swim.'

If they are right, therefore, given that there is no recognizable semantic difference between various knowing how constructions in Japanese, knowledge-how for Japanese is knowledge about how one ought to do something (or, if teleological, how one should do something in order to achieve a goal), with Japanese knowledge-how attributions expressing deontic (or teleological) modality.

To examine this account empirically, the same philosophers conducted cross-linguistic surveys on people's felicity judgments about various sentences with a knowing how construction (Tsugita *et al.* 2021, hereafter TIM).[8] Among different knowing how constructions in Japanese, they chose two among them: one we saw above (Type-(i), using the Japanese counterpart of "how") and one that uses "kata", the Japanese counterpart of "way", which we call here Type-(ii).[9] They, therefore, had two Japanese groups, with one group judging the felicity of sentences of Type-(i) construction, and the other group the felicity of sentences of Type-(ii) construction. Thus, in total, they had three groups: English, Japanese Type-(i), and Japanese Type-(ii).

Among the 16 sentences they used, particularly relevant were the following four sentences.

- a. Since I read a book on swimming, I know how to swim, though I can't swim.
- b. Since I heard from someone, I know how to wiggle my ears, though I still can't move them yet.[10]

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[7]As Stanley admits, English "know how" also has this reading, though (cf. Stanley 2011*a*: 114, 128).

[8]For English speakers, 75 participants were recruited via Amazon M-Turk, and for Japanese speakers, they used undergraduate students (Type-(i) group: N = 74, Type-(ii) group: N = 75). Thus, the age factor was not controlled in this study, but they report that at least logistic regression analyses on the American English group data shows that, in all the cases they used in the English survey, the age factor was not a significant predictor of the infelicity judgments.

[9]For example, the English phrase "know how to swim" can be translated into, *oyogi kata wo shitte-iru* (literally, "know the way to swim").

[10]This sentence originally used "move my ears" rather than "wiggle my ears". They however report that in their later replication study, they obtained exactly the same result for this utterance with "wiggle" replacing "move". So we present here the sentence with the more natural "wiggle".

   c. I know how to spell "silhouette," though I can't spell it correctly.

   d. Since I read the solution, I know how to solve that puzzle, though I can't solve it by myself.

The participants were asked to check all the sentences that they found *unnatural*. These four were presented to examine whether it is natural to attribute knowledge-how to an agent who lacks the relevant skill or ability.[11]

The English participants were expected more likely than not to judge (a) and (b) (the test items) as unacceptable or infelicitous, whereas the Japanese participants in both groups were predicted *not* to judge the Japanese versions of (a) and (b) to be unnatural. (c) and (d) were meant to be control items. Knowledge-how of (c) and (d) consists of knowledge about normative or conventional facts (consisting of, for example, a conjunction of facts like "Next one should do such and such"), and therefore, unlike physical abilities in (a) and (b), having such knowledge *ipso facto* amounts to an (intellectual) ability to perform the relevant activity (without requiring special physical training). For example, knowledge of which letter of a word *ought* to be written in what order should normally be sufficient for being able to spell that word correctly. Thus, the judgments of both Japanese and English speakers concerning (c) and (d) were expected to be similar.[12]

The results were largely consistent with their prediction. They found significant differences between the felicity judgments about such sentences, such that, English speakers found such sentences infelicitous without further information, whereas Japanese speakers did not find them infelicitous. For example, as for the swimming and ear-wiggling sentences, about 63% and 76% of English speakers, respectively, judged them infelicitous, while only 16% and 19% of Japanese, respectively, judged the Japanese Type-(i) versions of them infelicitous, and only 3% and 12% of them, respectively, judged the Japanese Type-(ii) versions of them infelicitous. On the other hand, as for the spelling sentence, infelicity judgment rates of all the three groups were around 80%, and as for the puzzle sentence, they were about 40%, with no significant differences between the groups. The differences in the first two sentences in infelicity judgments between English speakers and Japanese speakers were *large* in effect sizes,[13] while

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[11]Others included sentences for testing the implication of the opposite direction, whether ability implies knowledge-how, through the felicity judgments about sentences like "I can swim, though I don't know how to swim".

[12]Harmon and Horne (2016) reported their study on knowledge-how based on the method of semantic integration, which is an implicit measure of studying the activation of concepts possessed by the participants (through a sentence recognition task). They express two concerns about the standard survey measure in earlier studies (like Bengson *et al.* 2009): first, previous experimental research on knowledge-how may have failed to conceal the aims of the studies, so that the results may show demand characteristics, a form of experimenter-expectancy effect; and second, the results elicited may be mere "unthoughtful reactions" to philosophical problems. The study of TIM may be subject to their first concern. As for the second concern, however, such unthoughtful reactions are exactly what we need in this kind of study, where they asked only the felicity judgments with no vignettes. Besides, although the lack of vignettes may allow the participants to have different background assumptions, the difference of such default background assumptions (if there are any) may just reflect, rather than generate, the difference of the standard uses of the relevant expressions. See also footnote 13 below.

[13]As for the swimming case, $p < 0.0001$ for both types, $w = 0.57$ for Type-(i), $\varphi = 0.64$ for Type-(ii), as for the ear-moving case, $p < 0.0001$ for both types, $\varphi = 0.57$ for Type-(i), $\phi = 0.64$ for Type-(ii), where statistical significances were assessed using two-sided Fisher's exact tests, with effect sizes quantified by the phi (φ) coefficient, according to which an effect size is small when φ is 0.1, medium when 0.3, and large when 0.5.

there were no significant differences among the three constructions (English and two Japanese types) in felicity judgments about the latter two sentences.[14]

Such results suggest that Japanese knowledge-how attributions are by far more acceptable than their English counterparts when the subject lacks the relevant skill or ability.[15] But if so, even though the low acceptability rates of English knowledge-how attributions in the swimming and ear cases may be consistent with the results of Harmon and Horne (2016, see footnote 9 above), it would be questionable to assume that typical instances of knowledge-how require ability, because even if that is true in English, it is not necessarily the case in Japanese and other languages.[16]

The results of such a study do not establish that the difference of the connection between knowledge-how and ability in knowledge-how attributions between English speakers and Japanese speakers is a *semantic* difference yet. The difference may be just the effects of different *conversational implicatures*, as some intellectualists claim that the connection with ability in English is (Bengson *et al.* 2009: 394). Since all the sentences in that study were *utterances* (of the first-person self-attribution of knowledge-how, rather than judgments of the third-person knowledge-how attribution), it is certainly possible that some conversational implicature has played a role in the judgments of the participants (though, even if there was, that would generate just another question, about why there is such a radical difference in implicatures between English and Japanese).

Mizumoto *et al.* (2020, hereafter MTI) therefore further investigated the linguistic difference in knowledge-how attributions to re-examine such results by explicitly asking (rather than judge the felicity of utterances) whether they *attribute* knowledge-how to a third-person who lacks the relevant skill or ability, through using various vignettes. They used only Type-(i) ("how") construction but this time with two different Japanese knowledge verbs, shitte-iru and wakatte-iru.[17] In the first study, they replicated the results of the felicity judgments in TIM for both knowledge verbs (with no meaningful difference between them). In the second study, they used eight vignettes to examine the features of knowledge-how in English and Japanese and found radical and systematic differences in knowledge-how attributions between English and Japanese. Among them, particularly relevant was the Ski Case, which read as follows:[18]

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[14]$p = 0.70$, V = 0.06 for the former, $p = 0.52$, V = 0.08 for the latter, where statistical significances were assessed using two-sided Chi-square test and effect sizes were quantified by Cramer's V, according to which an effect size is small when V is 0.1, medium when 0.3, and large when 0.5. The statistical power $(1 - \beta)$ for this sample size (N = 224) and effect size (V) 0.3, was 0.99.

[15]Since all four types of Japanese knowledge-how attributions are in principle interchangeable with one another in any context, after we found no difference between Type-(i) and Type-(ii) we see no particular reason to expect the other two types of knowing how constructions to exhibit a different pattern either.

[16]Also, recall the concern of the experimenter effect that we mentioned in footnote 9. Even if there is such an effect in their study, it cannot explain why only Japanese speakers (or alternatively only English speakers) were affected by it in the way we have discussed, rather than the other way round. In any case, it is clear that such an effect alone can hardly explain the extent of the extremely *large* effect sizes of the differences between English and Japanese speakers with respect to the swimming and ear-moving cases presented above. Besides, the striking similarities with respect to the spelling and puzzle cases also speak against the effect of the demand characteristics, as well as the difference of the online/paper-and-pencil survey methods.

[17]When they express propositional knowledge, they are used in radically different ways in some philosophically important cases, if not in Gettier cases (cf. Mizumoto 2018). Though not a standard or accepted account, we may gloss "shitte-iru" as "know based on information and memory," and "wakatte-iru" as "know based on perception and understanding."

[18]In the Japanese vignette, "Tom" was replaced by Japanese name "Ichiro."

Tom, a freshman at a university, is going on a skiing vacation at a mountain with his university friends. However, he has actually never skied before, though he doesn't tell it to his friends because he doesn't want to look bad. To counter the lack of experience, before leaving for the mountain, over a few days, Tom studies a book for beginner skiers cover to cover and watches skiing videos repeatedly. He is a little anxious, but he also feels that no one will find out he's never skied before, because he's pretty athletic and generally good at sports.

Participants were then asked to choose between "knows" or "doesn't know" of "Tom knows/doesn't know how to ski." 58% of Japanese in the shitte-iru group and 57% in the wakatte-iru group answered "knows" (95% Confidence Interval: 48%–67% for "shitte-iru," 47%–67% for "wakatte-iru"), while only 18% of English speakers answered "knows" (95% CI: 11%–28%). The difference with English was relatively large both for "shitte-iru" and "wakatte-iru".[19]

Such a result is consistent with the result of TIM, both suggesting that ability is not necessary for knowledge-how in Japanese so we cannot generally assume that knowledge-how entails ability.

But also notable were the results of the two Karaoke cases, especially Karaoke 2, which read as follows:[20,21]

A middle-schooler, Ken, worries that he's bad at karaoke. He isn't aware that he sings off key himself, but people around him usually start laughing while he's singing. This has been so embarrassing for him that he almost hates music itself. Ken's father can't ignore his son's plight and hires a distinguished surgeon to have an operation that makes him a good singer while Ken is asleep. Ken isn't told that he had an operation. One day, Ken goes to a karaoke bar with his friends. He is rather reluctant to take his turn and sing a song, but he does it anyway. Much to his surprise, he can somehow sing in perfect pitch, receiving a round of applause from his friends.
Ken is satisfied with this surprising event, thinking that he became good at singing now.[22]

This case was obviously meant to test the *sufficiency* of ability for knowledge-how, as opposed to the Ski case which was to test the *necessity*. And just like the Ski case, the results suggested that the Japanese conception of knowledge-how had no strong connection with ability, where only 22% (95% CI: 15–31%) of Japanese in the shitte-iru group and only 14% (95% CI: 8.4–23%) in the wakatte-iru group attributed knowledge-

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[19]Between "shitte-iru" and "know," $p < 0.0001$, $\varphi = 0.41$, between "wakatte-iru" and "know," $p < 0.0001$, $\varphi = 0.40$).

[20]There were two versions of this vignette. In Karaoke 1, participants were asked to choose between "knew" or "didn't know" of "Just after the operation (but before he sang), Ken knew/didn't know how to sing well."

[21]In the Japanese vignette, "Ken" was replaced by Japanese name "Shirou."

[22]Obviously, in Karaoke 1, Ken is not aware of his own ability yet, while he is in Karaoke 2. This difference affected English speaking participants significantly. The knowledge-how attribution rate in Karaoke 1 was 40%, and the one in Karaoke 2 was 70%, and the difference was significant ($p < 0.01$, two-tailed Fisher's exact test).

how to Ken, while 70% of English speakers did so. The effect sizes of the difference between English and Japanese in Karaoke 2 were, again, impressive.[23]

These results seem to show that the concept of knowledge-how captured in the English knowing how construction and the one captured in Japanese constructions are very different, apparently vindicating the linguistic observations of ITM. However, there are still several worries about the results of MTI in order to take them at face value. One is that these two cases were embedded in other cases used in their study. It is then highly likely that participants' answers were affected by other vignettes they had read in such within-subjects design. As a result, the effect sizes reported in MTI may have been exaggerated (due to a contrast effect). The truer or more authentic effect sizes should best be shown in a survey of a between-subject design, with only a single vignette presented to participants. Also, there are other worries both in the Ski case and the Karaoke cases in the study of MTI, which will be discussed below.

3. New empirical studies

3.1. Study 1: the Ski case

In the Ski case of MTI, the phrase at the end of their vignette, "He is a little anxious, but he also feels that no one will find out he's never skied before, because he's pretty athletic and generally good at sports," seems unnecessary and even misleading. This could have suggested to the participants that Tom is really able to ski at that time if he is so athletic and good at sports. If this had somehow especially affected the Japanese participants, then that could explain the difference of the knowledge-how attribution rates between the Japanese speakers and the English speakers. Besides, even though there was no difference between Type-(i) and Type-(ii) in TIM, in the survey with vignettes, which does not ask participants to judge linguistic items, but only knowledge-how attribution, the difference of such knowing how constructions might have some unexpected effect.

We, therefore, planned a study that could rule out these worries.

3.1.1. Study 1

Method: We recruited 100 English speakers via Amazon M-Turk, and 100 Japanese speakers via Lancers (a Japanese online platform equivalent to M-Turk) for the Japanese survey of "shitte-iru" group.[24] We ended up with 99 participants (age M = 39.2, 44 males, 55 females) for the English survey after eliminating 1 non-native English speaker, and 108 participants (age M = 45.4, 76 males and 32 females: there were no non-native Japanese speakers, and due to contingencies in the survey system, we had more participants than planned).

In this and the next study, two independent, professional bilingual translators (recruited through *Lancers*) checked the translations of both vignettes, comparing the Japanese vignette with the English one.

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[23]The effect size (φ) of the difference between "shitte-iru" and English "know" was 0.45, and the one between "wakatte-iru" and "know" was 0.56.

[24]In this and the next study, we conducted Japanese surveys using both shitte-iru and wakatte-iru as Japanese knowledge verbs. However, since we obtained almost identical results in these two surveys, for brevity's sake we will only report the results of shitte-iru, mentioning the results of the wakatte-iru surveys in footnotes.

In the present study, the participants were presented with the following vignette, which is the same as the one used in MTI except for the last sentence, "He is a little anxious…":[25]

Tom, a freshman at a university, is going on a skiing vacation at a mountain with his university friends. However, he has actually never skied before, though he doesn't tell it [to] his friends because he doesn't want to look bad. To counter the lack of experience, before leaving for the mountain, over a few days, Tom studies a book for beginner skiers cover to cover and watches skiing videos repeatedly.

Participants were then asked, "Does Tom know how to ski?" and chose either "yes" or "no". Note that, since in MTI, Type-(i) was used for the Japanese survey, we used this time Type-(ii) constructions in the Japanese survey of this study.

If the results of TIM and MTI reflected the *semantic* difference of knowing how constructions between English and Japanese, and therefore suggested that the Japanese conception of knowledge-how does not require the relevant skill or ability, we should replicate the results of MTI here, with far more Japanese participants judging that the protagonist knows how to ski than participants of the English survey.

Results: As predicted, and consistent with the earlier results of MTI, less than 20% English participants judged that Tom knows how to ski (19%, 95% Confidence Interval: 13–28%) whereas nearly 70% of the Japanese participants judged so (68%, 95%CI: 58–76%) (Figures 1 and 2).[26]

The difference is large. The difference is of course strongly significant ($p < 0.0001$, two-sided Fisher's exact test), and the effect size is also large ($\varphi = 0.49$).

3.2. Study 2: the Karaoke case

In MTI the authors were more interested in the intra-linguistic difference between "shitte-iru" and "wakatte-iru", and since their pilot survey with Karaoke 1 using Japanese undergraduate participants showed very low attribution rates for both shitte-iru (13%) and walatte-iru (9%), they did not use Karaoke 1 for the Japanese surveys, fearing the floor effect. However, since they divided the English speakers into Karaoke 1 and Karaoke 2, whereas only Karaoke 2 was used for the Japanese surveys, the sample size was not well controlled in the Karaoke cases, where only half of the English participants answered Karaoke 2 for comparison. In this study, therefore, we conducted surveys (English and Japanese) with only the vignette of Karaoke 2.

3.2.1. Study 2

Method: As before, we recruited 100 English speakers via Amazon M-Turk, and 200 Japanese speakers via Lancers (a Japanese web service equivalent to M-Turk) for both shitte-iru and wakatte-iru. We ended up with 98 participants (age M = 34.6, 55 males, 42 females, one non-binary) for the English survey after eliminating 2 non-native English speakers, and 103 participants (age M = 44.8, 71 males and 32 females) for the "shitte-iru" survey (there were no non-native Japanese speakers).

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[25]Again, in the Japanese vignette, "Tom" was replaced by Japanese name "Ichiro."

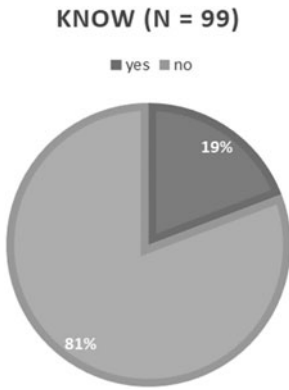[26]The rate of knowledge-how attribution in the "wakatte-iru" survey (N = 110) was 67% (95% CI: 58–75%).

KNOW (N = 99)

■ yes ■ no

Figure 1. English knowledge-how attribution rate of Study 1.
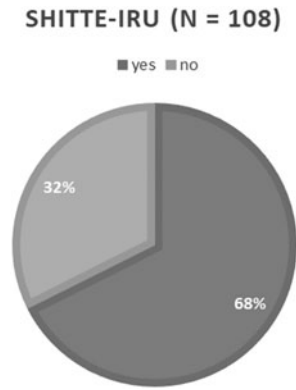
SHITTE-IRU (N = 108)

■ yes ■ no

Figure 2. Japanese knowledge-how attribution rate (shitte-iru) of Study 1.

As in the last study, here two independent, professional bilingual translators (recruited through *Lancers*) checked the translation. As a result, the vignette used in this study was slightly changed from the one in MTI. We presented the participants the following vignette and question.[27]

> Ken, a junior high school student, is troubled by his tone-deafness. When he sings, he is not aware that he is out of tune, but he is so embarrassed by the giggles of the people around him that he almost hates music. Ken's father couldn't bear the situation any longer, so he hired a brilliant doctor and had him perform a surgical operation on Ken while he was asleep in order to make him a good singer. Ken hasn't been told that he had such an operation.

One day, Ken went to karaoke with his friends. When it was his turn to sing, he reluctantly sang, and was surprised to find that he did it perfectly well and that he received a round of applause from his friends. However, he was satisfied with his performance and now considers himself to be a good singer.

Now does Ken know how to sing well?

Yes, he does.   No, he doesn't.

We used Type-(i) construction for the Japanese survey here. If the results of MTI were robust, we should obtain the same results with no smaller effect size, where most Japanese participants answered "no", while most English speakers answered "yes".

Results: As predicted, and consistent with the earlier results of Karaoke 2 in MTI, most English participants judged that Ken knows how to sing well (79%, 95% Confidence Interval: 69–86%) whereas less than 20% of the Japanese participants judged so (17%, 95%CI: 10–25%) (Figures 3 and 4).[28]

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[27]As in MTI, in the Japanese vignette, "Ken" was replaced by Japanese name "Shirou."

[28]The rate of knowledge-how attribution in the "wakatte-iru" survey (N = 105) was 16% (95% CI: 10–25%).
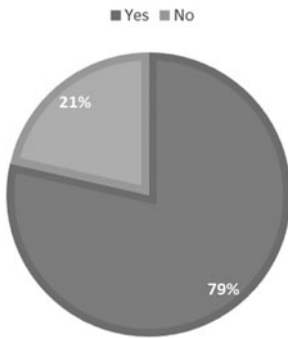
KNOW (N = 98)

■Yes ■No

21%

79%

Figure 3. English knowledge-how attribution rate of Study 2.

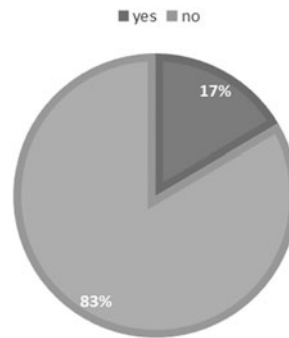SHITTE-IRU (N = 103)

■yes ■no

17%

83%

Figure 4. Japanese knowledge-how attribution rate (shitte-iru) of Study 2.

The difference is overwhelming. The difference is of course strongly significant ($p < 0.0001$, two-sided Fisher's exact test), and the effect size is *huge* ($\varphi = 0.62$).

Discussion: We had mentioned the worry that the effect sizes reported in MTI might have been exaggerated. In testing whether we can reproduce the effects of MTI, we have instead obtained even *larger* effect sizes than in MTI. Given that the present results were not affected by other vignettes (as were in MTI), we may take the current differences (in terms of effect sizes) more authentic. One lesson to be learned here is that asking many questions by presenting participants with many vignettes at the same time in a single study (with the within-subject experimental design), often found in large-scale studies, would reduce genuine effects, perhaps by weakening people's intuitions, and therefore not a very desirable experimental design.

Also, though even here the effect of conversational implicature is not completely ruled out, since we have two opposite effects, it is clear that only one such effect with one direction (whether increasing or decreasing knowledge-how attributions) is not enough to explain the data. However, requiring two distinct conversational implicatures (whether on the Japanese side or English side) looks extremely unlikely, especially when we need to explain away such large effects. Besides, if there are two such large differences here, at least one of the radical (extra-linguistic) cultural-psychological differences should be found in the literature. But so far as we know, no relevant result has been reported that predicts, for example, that the Japanese tend to think that merely reading a book about skiing or any other physical activity, is enough to acquire the skiing skill or the relevant ability.[29] Nor is there any reason to expect such radical cultural-psychological differences concerning the relationship between knowledge-how and ability. Besides, the results of TIM were about *linguistic* judgments, reporting data of judgments about linguistic items (sentences).

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[29]Even though we should not take such a possibility seriously, ability attribution in relation to knowledge-how attribution is an independent important topic we have investigated in another paper (*manuscript*), and at least we did not find any abnormal ability attribution tendency in Japanese speakers (most Japanese did not attribute the ability to such an agent).

Thus, even if cultural-psychological factors are not ruled out, the best account here is that the present large differences are mainly due to the difference in the *semantics* of the knowing how constructions between English and Japanese, or the *concepts* of knowledge-how people have which are captured by these constructions, and we should assume so unless we obtain specific data or reasons to think otherwise. At least, given the earlier linguistic observations of ITM and the linguistic judgment data of TIM, the results we reported here are strong evidence against UT about knowledge-how.

4. General discussion

What then does this radical cross-linguistic variance in knowledge-how attribution mean for the philosophical topic of knowledge-how? Note that the differences reported here are so large that they seem not a matter of degree anymore, but now can be taken as disagreements about truth values between speakers of two languages.

There seem to be many possible philosophical implications for such results. To focus on its most philosophically interesting implications, however, let us assume for the moment that the differences are due to the difference of the *concepts* of knowledge-how underlying the uses of respective knowing how constructions, that is, UT is false, which leads to *conceptual pluralism about knowledge-how* (we shall come back to the views that doubt this assumption later).

4.1. Implication 1 and the core concept of knowledge-how

In that case, first, some might take the data as evidence for intellectualism. Since, arguably, the Japanese concept of knowledge-how is easily reducible to propositional knowledge (for example, Tom's knowing how to ski is knowledge of a conjunction of instructions of how to ski),[30] the shared core of the concepts of knowledge-how, or the *core concept* of knowledge-how, shared by all the concepts of knowledge-how captured by languages in the world, is also reducible to propositional knowledge. According to this view, the remaining extra (ability-entailing) part of the English concept of knowledge-how is merely a matter of linguistic contingency since the Japanese data show that knowledge-how without any connection with the relevant skill or ability is conceptually possible.[31] Note that, even though our data is only about one language (Japanese), if there is one *actual* instance of such a language, it is enough for us to legitimately expect numerous other instances, given that there are thousands of different languages in the world.[32] Thus, the anti-intellectualist claim is plausible only in some, but not all, languages and the core concept of knowledge-how is an intellectualist one.

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[30]Note that some anti-intellectualists, such as Hetherington (2011), may claim that even the intellectual ability in, say, knowing how to spell a difficult word, where there is no difference between English and Japanese in the assumption about the relation between ability and knowledge-how (cf. MTI), cannot be reduced to propositional knowledge.

[31]For example, if all other members share features A, B, and C, but one member only has A and B, then C cannot be part of the shared core. This kind of reasoning is widely shared in philosophical discussions of the "core" in the context of potential or actual linguistic diversity. For various examples of discussions of such "cores" (such as "core truth-conditional content," "core folk epistemology", the "core human knowledge concept," etc.), see chapters in Mizumoto et al. (2018).

[32]According to Ethnologue, the most authoritative and comprehensive reference (https://www.ethnologue.com/), there are 7,168 distinct languages as of 2023.

Note that contemporary (Anglophone) intellectualists have also shared with anti-intellectualists the assumption of a strong connection between knowledge-how and ability (or ability to do something *intelligently*).[33] As already discussed in the first section, Stanley and Williamson (2001) admit "Hannah knows how she could ride a bicycle" as the "paradigmatic reading" of "Hannah knows how [PRO] to ride a bicycle", which they think is "at issue in philosophical discussions of knowledge-how" (p. 425). In his 2011a, Stanley admits that the modal force of the infinitival of "know how to φ" is a kind of dispositional or ability modal (p. 126, see also p. 137 of Glick 2012), which supports a counterfactual (if not actual) success. As Pavese (2021) describes (citing Pavese 2015 and Cath 2020), recent intellectualists "take knowledge-how to go together with abilities […] and argue that rightly construed intellectualism can vindicate this connection." Any such connection is absent in the Japanese concept of knowledge how, however; any substantial connection with the relevant skill or ability (to do something intelligently) is neither necessary (the Ski case) nor sufficient (the Karaoke case).[34] There, even "practical modes of presentation of ways" (Stanley and Williamson 2001), or "practical ways of thinking of a way to φ" (Stanley 2011*a*, 2011*b*), is neither necessary nor sufficient for knowing how to do something. The shared core of the concepts of knowledge-how (or the core concept of knowledge-how) is, therefore, all the more intellectualist.

4.2. Implication 2 and the two interpretations of knowledge-how as a philosophical topic

Alternatively, as a second possible implication, some others might take our results as evidence *against* intellectualism. According to them, the fact of linguistic diversity by itself undermines the linguistic approach of intellectualism.

The cross-linguistic data about knowledge-how have mainly been presented as evidence against the argument from syntactic uniformity, showing that constructions for knowledge-how in other languages do not involve embedded questions (e.g., Abbott 2013; Ditter 2016; Rumfitt 2003). In the case of Japanese, we have seen that although the Type-(i) construction definitely shares the syntactical form with other Japanese constructions for knowledge-wh, the results even more decisively undermine the argument from syntactic uniformity.

In general, the argument from syntactic uniformity assumes, or is possible only while we assume, that knowing how constructions in different languages express the same state (called "practical knowledge"), however different their respective *syntactical* forms are. Otherwise, advocates of such an argument must first ask, "Do the relevant knowing how constructions in other languages express the same state?" And only when they find that the answer is "Yes," they can ask in what syntactic form it is expressed in respective languages. If the answer is "No," however, language in general

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[33]As noted earlier, though the challenges to the necessity of ability for knowledge-how are often answered by distinguishing different senses of "ability", the sense of "ability" here (Tom's lack of ability to ski) is exactly the sense anti-intellectualists have in mind when they answer such challenges. For example, as Glick says, "No matter the novice's luck, there are some tricks the expert has an *ability* to perform while the novice does not. This restricted notion of 'can' or 'able' should be the one we use in the thesis that practical knowledge is ability" (Glick 2012: 129).

[34]Note that, as discussed in section 1, the fact that English "know how" has a reading that does not entail ability is not relevant here. The point here is simply that the reading available for English "know how" in such a context seems not available for the Japanese counterparts.

might be irrelevant to the debate. Here we are answering "No" to the first question, without presenting any deviant syntactic construction of knowing how, to the second question.

Indeed, the Japanese data show that what is discussed in the debate, or what is called *practical knowledge*, is a state distinct from propositional knowledge, since, unlike other languages (in particular most European languages, which have a separate construction for practical knowledge), it is not captured by *any* linguistic construction using a Japanese knowledge verb.[35] Thus, the state does not seem even *knowledge* at all, let alone propositional knowledge, for Japanese speakers. If so, it is conceptually (in the sense of the core concept) possible that what has been called practical knowledge is not knowledge or intelligence at all, which should undermine not only the argument but also the very *motivation*, for intellectualism (since intellectualists are trying to reduce such *knowledge* or *intelligence* to propositional knowledge).

The difference between these two implications (supporting intellectualism and anti-intellectualism respectively) follows from two different conceptions or interpretations of the very topic of knowledge-how. One is a topic about the nature of knowledge-how, according to which our data support intellectualism, and the other is a topic about a (type of) language-independent state captured by "know how", according to which our data count against intellectualism. Let us call the former the *knowledge-how interpretation*, and the latter the *state interpretation*. The two interpretations do not make any difference as long as we are only concerned with knowledge-how captured by English "know how". However, our results seem to open up the gap between these interpretations and now force theorists to choose one.

There is however something paradoxical about the state interpretation. For, the allegedly language-independent state was originally captured by the *English* phrase "know how" (and the meaning of the technical term "practical knowledge" is also parasitic on it), whereas the state does not seem to exist, at least as knowledge-how, for Japanese speakers.

4.3. Implication 3 and the relevance of linguistic data

Thus, a third possible implication is that knowledge-how, or practical knowledge, is, rather than a state distinct from propositional knowledge, not a real, language-independent state. Our results undermine our confidence in the reality of that state captured by English "know how", for, hypothetical monolingual Japanese scientists, knowing nothing about English and other languages, would not be able to "discover" the alleged state of knowledge-how/practical knowledge (for English speakers), being unable to see it as a state of knowledge-how at all, or not even as a state of knowledge or a *mental state* in the first place. If so, knowledge-how discussed by contemporary (mainly Anglophone) philosophers turns out to be based on an idiosyncratic feature of English (and other languages), and we can no longer naively presuppose that

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[35]Perhaps because of this, while ordinary German-English dictionaries have an entry of "know" as a sense of German word "können" (which is usually translated into English by "can" and used for constructions to express practical knowledge), in an authentic German-*Japanese* dictionary (*Akusesu Deutsch-Japanisches Wörtbuch*, Sansyusya), there is no such entry with a Japanese knowledge verb, but only entries of Japanese counterparts of "can." This is because, arguably, even if the dictionary had such an entry, there would not be a chance to use a knowledge verb in writing Japanese texts as a translation of German texts that contain "können".

it is a legitimate language-independent philosophical topic (unless as a topic of *philosophy of English*, if there is one[36]), which could undermine the very motivation for the debate.

The skeptical implication remains even if we assume the knowledge-how interpretation. For, while we may think that the English data did support anti-intellectualism,[37] the Japanese data suggested that, for Japanese speakers, knowledge-how can still be reducible to propositional knowledge, thus supporting intellectualism. If so, without further argument, the debate over knowledge-how has been a language-specific topic, where anti-intellectualism (or intellectualism) may be true in one language and false in another language, and, moreover, the topic itself may be philosophically interesting when formulated in some languages but trivial when formulated in other languages. What will follow is a kind of linguistic relativization, or *fragmentation*, of the topic into respective languages, which is a concern analogous to what Stich and Mizumoto (2018) had in mind when they discussed the possible falsity of UT in their *Manifesto*.

The situation does not improve very much even if we empirically investigate the state of knowledge-how in cognitive science. Earlier, TIM had found virtually no natural occurrence of Japanese knowing how constructions used for attributing physical ability (like "knowing how to swim" in English) on the whole Internet. Japanese speakers just use a counterpart of "can" for that purpose (unlike when they use a Japanese counterpart of "knowing how to write"). This fact suggests that they do not use knowing how constructions to express physical abilities. Thus, although the recent bottom-up approaches to knowledge-how based on cognitive science such as Fridland (2017) and Levy (2017), point out that motor control systems, motor acuity, motor representations, etc. are themselves intelligent (play a crucial role in realizing intelligence) in response to the dichotomy of intellectual (propositional) cognitive component and brute-causal motor processes assumed by Stanley and Krakauer (2013), whether they are right or not, such facts are relevant to knowledge-how only insofar as the participants of the debate start with their own researchers' metalanguage (in particular, English). Monolingual Japanese cognitive scientists would not try to investigate the motor control system in their scientific investigations into knowledge-how in the first place. It would then be difficult to justify the investigation without appealing to the use of "know how".

Here, even if we assume the state interpretation, given our present results, we may, as suggested above, plausibly think that what is called practical knowledge is, for the Japanese, not a mental state, let alone knowledge. Of course, ordinary physical abilities involve mental states or cognitive processes. However, they also essentially involve bodies and their environments. Such abilities (or skills) are properties of a *person* as a whole (embedded in certain types of environments), rather than just a part of the body or brain. But if so, there seems no particular reason to single out the mental state (as knowledge) involved in conducting a relevant action, which can radically vary depending on the degree of proficiency of the agent, as a single type of state (rather than a gerrymandered set), *apart from* the existence of the relevant linguistic constructions that express it, found

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[36]Being an ordinary language philosopher (*pace* Noë 2005), G. Ryle might have admitted that this was what he was doing.

[37]See Harmon and Horne (2016) and Mizumoto (2021) for empirical results that support, despite the data of Bengson *et al.* (2009), anti-intellectualism for English speakers. There may *also* be intellectualist intuitions for English speakers, though (cf. Adam Carter *et al.* 2019; Gonnerman *et al.* 2018, 2021).

in some, but not all, languages, such as "know how". Thus, introducing "practical knowledge" here as a *technical term* does not help much, since we cannot take what is meant by it to be a state independent of any language unless knowledge-how is.[38]

Cross-linguistic data have been reported to show how or in which linguistic form knowledge-how is expressed in respective languages, and whether its logical form is a sort of knowledge-wh (Ditter 2016; Glick 2012; Rumfitt 2003; Stanley 2011*a*, 2011*b*; Wiggins 2012). This assumes, as suggested in 4.2, the state interpretation of the topic, that there is one and the same state (whether epistemological, psychological, or physical) expressed by English "know how" and its counterparts in other languages, and *then* asks in which linguistic form it is expressed (otherwise, one should start with asking whether other languages express the *same* state by their respective knowing how constructions). However, here the very state apparently cannot be captured by any Japanese knowing how constructions, or any phrase involving a knowledge verb. Thus, according to the state interpretation, Japanese speakers would not be able to formulate the topic using knowing how constructions in their own language *unless* they create an *ad hoc* new phrase or term for translation or force what might be called *cross-linguistic deference* to the usage of English "know how" on themselves, which, by the way, have historically been the case for many terms in many non-Western languages.

Of course, the Japanese linguistic data alone cannot establish the *non-existence* of such a state. Note, however, that even the monolingual Japanese philosophers cannot presuppose that there is a language-independent state captured by Japanese knowing how constructions, for insofar as they want to discuss the truly language-independent nature of knowledge-how, they cannot be sure that their investigations, conceptual or empirical, are free from their own metalanguage *without* considering the data of other languages. If so, however, exactly the same should be said for the assumption of Anglophone philosophers. They should also doubt their assumption of the language-independent state in their investigations of the nature of knowledge-how.

What is now being challenged is therefore whether the topic can be investigated independently of the researchers' metalanguage. Consequently, the assumption of the existence of this state cannot be taken for granted either, as some empirically minded theorists seem to admit (e.g., Noë 2005. Cf. Stanley 2011*a*: 146).

One might naturally object here that mere linguistic data cannot have such a metaphysical implication, and there are indeed philosophers who think that such data have no import for the debate about the nature of knowledge-how.[39] Although it is not our task or aim here to establish the metaphysical relevance of language (if possible at all),[40] note, first, that as we shall see below, Stanley took this kind of challenge seriously and gave his own responses. More generally, many languages have been studied for cross-linguistic comparison of knowing how constructions, as already mentioned in the first section. Naturally, those who reported and discussed such linguistic data have

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[38]Note that the intended sense of "practical knowledge" is a stipulation based on "know how" and in this respect arbitrary (think of the Aristotelian notion of *phronesis*, Anscombe's sense of practical knowledge, etc., and Japanese philosophers could also have defined a very different notion of "practical knowledge" based on their own conception of knowledge-how).

[39]For example, see Noë 2005, 2011, Devitt 2011, Brown 2013. But see Glick (2011: section 3) and see also below.

[40]Strangely, some commentators on this paper have insisted to establish such a metaphysical implication despite our explicit elaboration of the aim of this paper (as we do below). Such philosophers are presupposing one particular view of their own, such as Factual Dismissal and Language Independence (see below), which itself requires justification. We shall come back to this point soon.

assumed that such data have significant implications (positive or negative) for the debate over the nature of knowledge-how.

Rather, the state interpretation, typically held by those who dismiss linguistic data, itself presupposes a particular view about the relationship between language and reality, which also requires substantial justification. For example, some anti-intellectualists might implicitly assume that knowledge-how is a distinct natural kind and argue that whatever language one speaks, the referent of the counterpart of "know how" in that language is also this natural kind. This response not only begs the question against intellectualism (especially if that natural kind is assumed to be independent of propositional knowledge) but is also committed to a massive error theory about the use of Japanese knowing how constructions (to which we shall come back later), thereby normatively forcing cross-linguistic deference on Japanese speakers.

Alternatively, one might argue that when Ryle introduced and discussed knowledge-how as a philosophical topic, the referent of "know how" in philosophy was *philosophically* fixed, so that all subsequent philosophers, *whatever language they speak*, they are referring to the state captured by English "know how" (whether it is a natural kind or not) when they discuss knowledge-how at least as a *philosophical topic*. This novel theory of philosophy-specific reference has not been explicitly defended but seems implicitly assumed when philosophers try to ignore or downplay the present kind of data. However, this too should not be taken for granted without argument.[41]

Or, one may even claim that *English "know how" is irrelevant* to the debate between intellectualism and anti-intellectualism.[42] The real topic for Ryle was (as suggested earlier) intelligence exhibited in intelligent actions, and "know how" just happened to be the best phrase (among various other cognates) to capture it in English. However, even anti-intellectualists have assumed the state in question to be a state of *knowledge*. For, presupposing otherwise would beg the question against intellectualism, even though it is certainly consistent with the anti-intellectualist view. Note that, for those who do not think that the state is knowledge at all, the question of whether it is *propositional* knowledge or not would not make sense, or at least sound extremely odd. However, if we are right, the state interpretation puts Japanese speakers in exactly such a situation.

4.4. Implication 4 and the metaphysical pluralism about knowledge-how

There is however a *fourth* possible implication, which, while assuming the knowledge-how interpretation, takes the metaphysical implications of *both* English and Japanese (and other languages) rather literally. This will lead to *metaphysical pluralism* about knowledge-how as a state in the world. For example, if Anglophone philosophers can discuss and empirically investigate the language-independent nature of knowledge-how, surely Japanese philosophers can do the same. However, hypothetical Japanese

[41]For example, the same argument applies to "know" for propositional knowledge, but are we really justified in ignoring all the linguistic data in epistemology? This was a question raised by Stich and Mizumoto (2018).

[42]For example, Glick points out, "[…] references to know-how are not singled out as especially significant from the large array of other action-related terms that Ryle uses to characterize his position and to accompany the notion of intelligent behavior […]. 'Knowledge-how' is just one convenient label out of many that Ryle took to point in the same general direction. It seems that he saw in nature a certain distinctive sort of mental prowess, and he took the various words he selected to be good ways of identifying that for his readers. He was not particularly invested in whether any particular locution, e.g. 'know-how', did the job perfectly" (Glick 2011: 428–29).

philosophers who know nothing about English would have views on (or construct *theories* of) knowledge-how (as a language-independent state) very different from those of Anglophone philosophers. Still, such Japanese philosophers should not be just linguistically deluded. For, the very philosophical question is formulated in philosophers' metalanguage, and that affects and constrains their own, even *empirical*, investigations.

The question here is to what extent the researcher's metalanguage constrains the empirical investigation of knowledge-how. Stanley (2011*a*), in effect, acknowledges the constraint by saying that "it could *hardly be* that science could discover that knowing how to swim was a distinct state than is expressed by 'knowing how to swim'" (*ibid*.: 144). This is because, while he is also open to the possibility that science uncovers the nature of knowledge-how that falsifies his intellectualist view (cf. Stanley 2011*a*: 37, 148), the researchers' metalanguage affects and constrains their empirical inquiries. As Stanley claims,

> Cognitive scientists are unprepared simply to jettison the folk notions of knowing how and knowing that. In fact, they seem to take the ordinary notions as guiding their inquiry. (*ibid*.: 148)

If so, however, it could also "hardly be" that the (hypothetical) monolingual Japanese cognitive scientists could discover that knowing how to swim was a distinct state than is expressed by the Japanese translation of "knowing how to swim" either. They would then obtain empirical results about knowledge-how very different from that of Anglophone scientists. This is especially clear when Stanley appeals to the following T-sentence, which he deems "widely considered to be an a priori truth" (*ibid*.: 144).

"Ana knows how to swim" is true if and only if Ana knows how to swim.

But if this is an instance of *a priori* truth, a Japanese translation of this bi-conditional should also be true a priori, yet the right-hand side of it would express a very different truth condition, leading to very different empirical results.

An implicit assumption behind the skeptical implication of linguistic fragmentation was that the Japanese concept of knowledge-how is not philosophically interesting, and therefore, presumably, does not deserve serious investigations. However, that is a conclusion only when one can legitimately draw after one knows sufficiently well about the concept. In this sense, that is also an *empirical* claim. Besides, unlike mere linguistic fragmentation, this view does not necessarily abandon the question of what (language-independent) knowledge-how is. Indeed, the data of other languages are important for this view precisely because it is interested in the language-independent state, or state*s*, of knowledge-how.

We have seen four implications of our results so far. Note, however, that any of these implications should not be taken as the authors' own view. We are only highlighting the *need* of responses to the results by illustrating their apparent implications. One possible response to our data, which rejects all the implications above, is to simply dismiss the data by saying "There should be something wrong with the translations." However, here we are concerned with the possible different concepts of knowledge-how. There, as long as the Japanese knowing how constructions capture *a* concept of knowledge-how, "correct translation" will not be an issue in the first place, though the present translations of sentences with a knowing how construction are both natural (and conventional) and literal (compositionally faithful, or syntactically near-isomorphic in the case of

Type-(i)).[43] Though there may still be room for further discussion on this issue, the burden of proof is clearly on the shoulder of those who quarrel with the translation (see also Factual Dismissal below).

Though there may be still other implications and interpretations of our results, we should leave open the question of which is the best or most plausible one, not only because we do not have enough space (the thorough discussion of our own view on the results should be left for another occasion) but also because we think that our task here is to *set a stage for new debates over knowledge-how in the future* by reporting the present data, thereby initiating due philosophical debates over this (alleged) radical linguistic variance of knowledge-how, regardless of our own position. One of such debates should be no doubt about whether the knowledge-how interpretation or the state interpretation is correct, or both are legitimate philosophical topics, on which various implications of, and responses to, our data depend.

4.5. Possible responses

For the rest of this section, therefore, we instead only list some prominent positions (among many) as possible responses to the data that can be expected, including some of what we have already discussed. The first three hold onto UT about knowledge-how, with the first two assuming the state interpretation:

> **Chauvinistic Monism:** Claim that what is captured by Japanese knowing how constructions is not really knowledge-how (presumably *because* it is different from the English counterpart, which allegedly captures *the* notion of knowledge-how).
> **Error Theory Monism:** Admit that Japanese knowing how constructions do express knowledge-how, but claim that the Japanese speakers are somehow massively mistaken about knowledge-how attribution in the relevant cases.
> **Factual Dismissal:** Deny the alleged cross-linguistic variance by questioning the details of the experimental design (including translation) or taking the results as showing radical cultural-psychological differences rather than linguistic variance.

The next three admit the falsity of UT about (the folk concept of) knowledge-how, but the first two nevertheless hold monism by assuming the state interpretation:[44]

> **A priori Dismissal:** Admit that the Japanese knowledge-how (knowledge-how for the Japanese speakers) is a kind of knowledge-how and Japanese speakers are not mistaken about knowledge-how attribution but claim that that is not a philosophically interesting kind of knowledge-how. Only philosophically interesting knowledge-how is knowledge-how captured by English or other languages (or "practical knowledge").
> **Language Independence:** Claim that linguistic data are not relevant at all. Knowledge-how is a topic completely independent of any language, let alone

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[43]To repeat, two independent, professional, bilingual translators checked the translations, and ITM had given detailed linguistic considerations of knowing how constructions in Japanese. Moreover, neural machine translation engines such as DeepL Translator (https://www.deepl.com/translator), which are based on big data of parallel corpora, also translate the Japanese constructions used here into "knows how".

[44]Note that, given that UT says only that the properties of English 'know how' is true of *most* languages, not all, one can take A priori Dismissal to be a view that still maintains UT.

English, and perhaps take our results as demonstrating the limitations of the linguistic approach of Stanley and others.

Metaphysical Pluralism: Admit the existence of multiple concepts or natures of knowledge-how, each of which is no less a philosophically respectable kind of knowledge-how. All (or as many as possible) of them therefore should also be taken into account in philosophical discussions of knowledge-how.

These options are by no means exhaustive. However, again, whatever one's response may be, it will require a substantial justification that should be convincing even for non-Anglophone philosophers, and we should also expect substantial disagreement *among Anglophone philosophers*, intellectualists or anti-intellectualists, over how best to respond. We, therefore, leave open the question of which response is correct (or most plausible) for future debates, to be discussed by both intellectualists and anti-intellectualists, and importantly, by both Anglophone *and non-Anglophone* philosophers.[45]

5. Concluding remarks

Preceding studies on knowing how constructions in Japanese had (1) claimed that Japanese knowledge-how attributions express deontic or teleological modality (ITM), (2) reported data of felicity judgments by ordinary people about sentences with knowing how constructions, which was compatible with that claim (TIM), and (3) also reported data of systematic difference of Japanese knowledge-how attributions and English attributions, which also seem to show the semantic difference of knowing how constructions between Japanese and English, suggesting, in particular, the apparent lack of connection (essential or contingent) with relevant skills or abilities in the Japanese constructions (MTI). In this paper we have further examined the semantic difference of knowing how constructions between English and Japanese with revised vignettes and more rigorous and better-controlled experimental designs, and found radical linguistic differences in knowledge-how attributions with even larger effect sizes than those in MTI, which strongly support the linguistic variance of the concept of knowledge-how.

This kind of clear and radical demographic difference has not been reported even outside of the literature on knowledge-how (cf. Knobe 2019 and the discussion in the first section), and therefore the present results are valuable even independently of the discussions over knowledge-how (we shall come back to this point below).

Possible implications discussed in the last section have not been considered in the literature simply because such data, and the consequent gap between the knowledge-how interpretation and the state interpretation, have not been anticipated (let alone reported) before. But if so, the data should already be valuable for providing the opportunity to consider such a conceptual possibility and its possible implications, which must be worthwhile even for advocates of Error Theory Monism and Factual Dismissal.

Note, however, that our main purpose in reporting the present results was *not* to establish Metaphysical Pluralism about knowledge-how, or even the falsity of the universality thesis (UT) about it, but to set the stage for the future debate over the (empirical or conceptual) possibility of such pluralism and its philosophical implications, which can encourage re-assessment of the very nature of the debate over intellectualism

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[45]Or at least, any intellectually honest theorist of knowledge-how should first accept the facts reported here and then consider the implications of such facts seriously, and even if one finds little significance there (namely, A priori Dismissal), *that view* (and *why* one thinks so) should be given a substantial justification.

vs. anti-intellectualism, or knowledge-how as a philosophical topic. For this purpose, therefore, we do not necessarily need to presuppose the knowledge-how interpretation of the topic. Rather, it is precisely because of our data that the two interpretations emerged and diverged, from which various new discussions should follow.

Still, if the linguistic variance of the concept of knowledge-how was acknowledged, one might also legitimately doubt that a lot more than mere presence or absence of ability are involved in our vignettes and the concepts underlying the responses of speakers of both languages.[46] In this connection, the view we called A priori Dismissal held that the Japanese concept of knowledge-how is not philosophically interesting, and deserves no serious investigation. However, as already pointed out there, that is also an empirical thesis, and we need thorough systematic investigations to draw any such conclusion. Thus, advocates of Metaphysical Pluralism would claim that the empirical studies of *exactly how* and *in what respects* the English conception of knowledge-how (captured by "know how") is different from various counterparts in other languages should be a fertile next research program worth pursuing *systematically*.[47] In particular, such investigations allow us to empirically explore the conceptual possibility of knowledge-how, which can raise new philosophically interesting questions *other than* those arising from the intellectualism/anti-intellectualism debate. If so, that would indirectly justify the knowledge-how interpretation. In any case, the question of which interpretation of the topic is (or both are) correct itself is a new (meta-)topic in the theory of knowledge-how.

Finally, let us point out that the differences found here were so large that they do not seem a matter of degree anymore, but could be taken as disagreements about truth values between two linguistic communities. If so, this raises not only new questions about knowledge-how but various, more general, questions such as a question about the nature of *proposition* (whether propositions inherently have truth values, whether propositions are made of lexical concepts, whether the same proposition can have different truth values, etc.), *disagreement* (whether disagreement is necessarily disagreement over a proposition, whether disagreement is possible between two parties with different lexical concepts, etc.), *translation* (whether the terms associated with different concepts or theories can be translated each other, whether truth conditions must be the primary criterion of correct translation, etc.), and even *truth* (whether propositions are primary truth-bearers, the truth value of philosophical claims can be independent of the truth value of the corresponding lexical content of the claim, etc.). These will in turn raise questions about the nature of philosophy itself (e.g., whether, or to what extent, philosophical propositions and investigations are independent of language).

In this sense, even independently of the scarcity of data on the demographic divergence of intuitions, our findings are valuable in raising (with specific *actual* data) these new issues far beyond the topic of knowledge-how, which will also be discussed and investigated in our future research.[48]

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[46]As mentioned in section 2, MTI identified the agent's belief about one's own ability (which allows the agent to confidently perform the relevant action), and the correct (subjective) description (available to the agent) about how to perform the relevant action, etc. as relevant factors that characterize the respective conceptions of knowledge-how. They suggested that the former is necessary for the English conception of knowledge-how, while the latter is necessary for the Japanese conception of it.

[47]Such as the one MTI had attempted. See the previous footnote.

[48]The author would like to thank Yu Izumi, Shun Tsugita, Dan Zeman, and Joe Ulatowski for their helpful discussions and comments. This work was supported by JSPS KAKENHI Grant Number JP22H00600.

References

Abbott B. (2013). 'Linguistic Solutions to Philosophical Problems: The Case of Knowing How.' *Philosophical Perspectives* **27**, 1–21.

Bengson J., Moffett M.A. and Wright J.C. (2009). 'The Folk on Knowing How.' *Philosophical Studies* **142** (3), 387–401.

Brown J.A. (2013). 'Knowing-How: Linguistics and Cognitive Science.' *Analysis* **73**(2), 220–27.

Carter J. A., Pritchard D. and Shepherd J. (2019). 'Knowledge-How, Understanding-Why and Epistemic Luck: An Experimental Study.' *Review of Philosophy and Psychology* **10**, 701–34.

Cath Y. (2020). 'Know How and Skill: The Puzzles of Priority and Equivalence.' In E. Fridland and C. Pavese (eds), *The Routledge Handbook of Philosophy of Skill And Expertise*, pp. 157–167. New York: Routledge. doi:10.4324/9781315180809

Devitt M. (2011). 'Methodology and the Nature of Knowing How.' *Journal of Philosophy* **108**(4), 205–18.

Ditter A. (2016). 'Why Intellectualism Still Fails.' *The Philosophical Quarterly* **66**(264), 500–15.

Douskos C. (2013). 'The Linguistic Argument for Intellectualism.' *Synthese* **190**, 2325–40.

Fantl J. (2008). 'Knowing-How and Knowing-That.' *Philosophy Compass* **3**, 451–70.

Findlan E. (2012). 'Knowing-How: Problems and Considerations.' *European Journal of Philosophy* **23**(3), 703–27.

Fridland E. (2017). 'Skill and Motor Control: Intelligence All the Way Down.' *Philosophical Studies* **174**(6), 1539–60.

Glick E. (2011). 'Two Methodologies for Evaluating Intellectualism.' *Philosophy and Phenomenological Research* **83**(2), 398–434.

Glick E. (2012). 'Abilities and Know-How Attributions.' In J. Brown and M. Gerken (eds), *Knowledge Ascriptions*, pp. 120–39. Oxford: Oxford University Press.

Gonnerman C., Mortensen K. and Robbins J. (2018). 'The Ordinary Concept of Knowledge How.' *Oxford Studies in Experimental Philosophy* **2**, 104–15.

Gonnerman C., Mortensen K. and Robbins J. (2021). 'KNOWING HOW as a Philosophical Hybrid.' *Synthese* **199**, 11323–54.

Harmon I. and Horne Z. (2016). 'Evidence for Anti-Intellectualism about Know-How from a Sentence Recognition Task.' *Synthese* **193**, 2929–47.

Hetherington S. (2011). *How to Know: A Practicalist Conception of Knowledge*. West Sussex: John Wiley & Sons.

Izumi Y., Tsugita S. and Mizumoto M. [ITM] (2019). 'Knowing How in Japanese.' *Nanzan Linguistics* **14**, 9–24.

Knobe J. (2019). 'Philosophical Intuitions are Surprisingly Robust across Demographic Differences.' *Epistemology & Philosophy of Science* **56**(2), 29–36.

Knobe J. (2023). 'Difference and Robustness in the Patterns of Philosophical Intuition across Demographic Groups.' *Review of Philosophy and Psychology* **14**, 435–55.

Levy N. (2017). 'Embodied Savoir-Faire: Knowledge-How Requires Motor Representations.' *Synthese* **194** (2), 511–30.

Löwenstein D. (2017). *Know-How as Competence: A Rylean Responsibilist Account*. Frankfurt am Main: Vittorio Klostermann.

Markie P.J. (2015). 'The Special Ability View of Knowledge-How.' *Philosophical Studies* **172**(12), 3191–209.

Mizumoto M. (2018). '"Know" and Japanese Counterparts: "Shitte-iru" and "Wakatte-iru".' In M. Mizumoto, E. McCready and S. Stich (eds), *Epistemology for the Rest of the World*, pp. 77–122. Oxford: OUP.

Mizumoto M. (2021). 'One More Twist ∼ Knowledge How and Ability.' *Episteme* **18**(4), 514–22.

Mizumoto M., McCready E. and Stich S. (eds.) (2018). *Epistemology for the Rest of the World*. Oxford: OUP.

Mizumoto M., Tsugita S. and Izumi Y. [MTI] (2020). 'Knowing How and Two Knowledge Verbs in Japanese'. In M. Mizumoto and J. Ganeri (eds), *Ethno-Epistemology – New Directions for Global Epistemology*, pp. 43–76. NY: Routledge.

Noë A. (2005). 'Against Intellectualism.' *Analysis* **65**, 278–90.

Noë A. (2011). 'Ideology and the Third Realm (Or, a Short Essay on Knowing How to Philosophize).' In J. Bengson and M. A. Moffet (eds), *Knowing How: Essays on Knowledge, Mind, and Action*, pp. 196–211. Oxford: OUP.

Pavese C. (2015). 'Practical Senses.' *Philosophers' Imprint* **15**, art. 29.

Pavese C. (2021). 'Knowledge How.' *Stanford Encyclopedia of Philosophy* (Spring 2021 Edition), Edward N. Zalta (ed.). https://plato.stanford.edu/entries/knowledge-how/.

Rumfitt I. (2003). 'Savoir Faire.' *Journal of Philosophy* **99**, 158–66.

Ryle G. (1946). 'Knowing How and Knowing That.' *Proceedings of the Aristotelian Society* **46**, 1–16.

Ryle G. (1949). *The Concept of Mind*. London: Hutchinson & Co.

Setiya K. (2008). 'Practical Knowledge.' *Ethics* **118**(3), 388–409.

Setiya K. (2012). 'Knowing How.' *Proceedings of the Aristotelian Society* **112**(3), 285–307.

Stanley J. (2011*a*). *Know How*. Oxford: Oxford University Press.

Stanley J. (2011*b*). 'Knowing (How).' *Noûs* **45**, 207–38.

Stanley J. and Krakauer J. W. (2013). 'Motor skill depends on knowledge of facts.' *Frontiers of Human Neuroscience* **7**(503), 1–11.

Stanley J. and Williamson T. (2001). 'Knowing How.' *Journal of Philosophy* **98**(5), 411–44.

Stich S.P. and Machery E. (2023). 'Demographic Differences in Philosophical Intuition: A Reply to Joshua Knobe.' *Review of Philosophy and Psychology* **14**(2), 401–34.

Stich S. and Mizumoto M. (2018). 'Manifesto.' In M. Mizumoto, E. McCready and S. Stich (eds), *Epistemology for the Rest of the World*, pp. vii–xvi. Oxford: OUP.

Tsugita S., Izumi Y. and Mizumoto M. [TIM] (2021). 'Knowledge-How Attribution in English and Japanese'. In K. L. Lai (ed), *Knowers and Knowledge in East-West Philosophy: Epistemology Extended*, pp. 63–90. Cham: Palgrave Macmillan.

Wiggins D. (2012). 'Practical Knowledge: Knowing How to and Knowing That.' *Mind* **121**(481), 97–130.

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