

ARTICLE

# One More Twist ~ Knowledge How and Ability

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## Abstract

According to Bengson *et al.*'s (2009) Salchow case, Irina is a novice skater who (1) has a mistaken belief about what amounts to a Salchow, but also (2) has a neurological abnormality which, unknowingly to her, affects both her movement and her sense of it. As a result of this twist, she (3) always ends up succeeding in jumping the Salchow whenever she tries. This story was presented as a counterexample to a variant of anti-intellectualism, and as Bengson and colleagues expected, the vast majority of participants in their survey judged both that Irina is able to do the Salchow and that she does not know how to do it. But the three conditions above leave some ambiguity about the story. That is whether Irina is aware of her own ability, or whether she is aware of what she is doing when she performs it, and therefore the fact that she can reliably perform the Salchow. However, as we report here, disambiguating this point will radically change the responses of people, which rather poses a serious challenge to intellectualism.

**Keywords:** knowledge how; ability; anti-intellectualism; intelligent action; Bengson; experimental philosophy

## 1. Introduction

The Salchow case and the empirical data of the survey based on it in Bengson *et al.* (2009), are supposed to provide evidence against a certain sort of anti-intellectualism, and are in fact often cited and discussed as such (e.g. Stanley 2011a, 2011b; Carter and Pritchard 2015; Markie 2015; Brownstein and Michaelson 2016), whether those who cite it agree or disagree with its implication. In this short paper, we report empirical results of a pair of surveys based on the Salchow case, which we shall argue together count rather against *intellectualism*.

In the next section, we shall provide a background to the Salchow case, where we point out an ambiguity in the scenario, in particular whether protagonist Irina was *aware of her own ability* to jump a Salchow, which seems necessary for her Salchow to be an intelligent action. In section 3 we present the results of our own surveys, the first as a replication of the result of the survey by Bengson and his colleagues (hereafter BMW) in their (2009), and the second with a certain additional twist at the end of the scenario, which reversed the responses of participants. In section 4 we shall argue that the results together not only reveal participants' interpretations of the original Salchow case, but also pose a serious challenge to intellectualism. Section 5 will conclude the paper.

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## 2. Disambiguating the Salchow case

According to Bengson *et al.*'s (2009) Salchow case (originally from Bengson and Moffett 2007), Irina is a novice skater who (1) has a mistaken belief about what amounts to a Salchow, but also (2) has a neurological abnormality which, unknowingly to her, affects both her movement and her sense of it. As a result of this twist, she (3) always ends up succeeding in jumping the Salchow whenever she tries. This story was presented as a counterexample to the thesis that, if  $x$  is reliably able to  $\varphi$ , then  $x$  knows how to  $\varphi$  (Bengson *et al.* 2009: 396), which they call *praxism* (and they call its bi-conditional version *Neo-Ryleanism*). As BMW expected, the vast majority of participants (86%) in their survey judged both that Irina is able to do the Salchow and that she does *not* know how to do it.

But the above three conditions leave some ambiguity about the story. In particular, it is not clear whether Irina is aware that she is performing a Salchow (and therefore aware of her own ability to perform a Salchow). This point is important because it matters to whether Irina's Salchow is done *intelligently* or not. The latter issue is crucial here, for, from the beginning of the debate over knowledge-how, the topic has been the intelligence exhibited in an *intelligent action* (Ryle 1946, 1949),<sup>1</sup> where the question was whether *that* intelligence, equated with knowledge-how, can be reduced to propositional knowledge (or, whether the intelligent action is guided by propositional knowledge). We shall call anti-intellectualism that answers "No" to this question *Standard Ryleanism*, or simply, *Ryleanism*. Thus, we rather need to consider whether the result of BMW undermined Standard Ryleanism (rather than Neo-Ryleanism).<sup>2</sup> Since the topic of traditional anti-intellectualism, or Standard Ryleanism, has been intelligence, not ability, if Irina's Salchow is not an intelligent action, the result of BMW (the low rate of the knowledge-how attribution) is not relevant to it.

Indeed, we should rather think that, the low knowledge-how attribution rate is *ipso facto* the evidence that the action is *not intelligent* in the relevant sense for the participants. This is because, the anti-intellectualist claim has been that there *is* some sort of intelligence that cannot be reduced to propositional knowledge, and that intelligence is simply equated with knowledge-how. (On the other hand, even if there is intelligence that can be equated with neither knowledge-how nor knowledge-that, that is an utterly new topic.)

Thus, although Bengson and Moffett (2011a) attribute anti-intellectualism the analysis of intelligence in terms of (a certain type of) ability (see [AI<sub>MIND</sub>] and [AI<sub>ACTION</sub>] in sec. 1.3 there), there is no obvious reason to think that Ryle or other anti-intellectualists should be committed to such a thesis.<sup>3</sup> Instead, the relevant thesis here should be: to know how to  $\varphi$  is to possess the reliable ability to  $\varphi$  *intelligently* (cf. Poston 2009: 744).<sup>4</sup> But since the very topic is the intelligence of intelligent action,

<sup>1</sup>For example, Ryle opens his (1946) by "In this paper, I try to exhibit part of the logical behavior of the several concepts of intelligence [...]", and "knowing how" does not even appear until page 4.

<sup>2</sup>Bengson *et al.* (2009) mention (at footnote 24, p. 396) various authors who they think equate knowledge-how with a reliable ability. Glick (2012) and Markie (2015) might also be seen as more recent advocates of this view, though Markie's position can be compatible with intellectualism depending on the interpretation of intellectualism (p. 3912, n. 3). It is however still questionable that they really advocate Neo-Ryleanism (rather than Standard Ryleanism). It rather seems best to interpret their notion of "ability" as already presupposing intelligence, so that it is the ability to perform the relevant action intelligently. See below.

<sup>3</sup>Jason Stanley also accepted the result of Bengson *et al.* (2009) as evidence against anti-intellectualism (Stanley 2011a: 218, 2011b: 178), taking Irina's performance to be intelligent in the sense that it is the "result of a conscious decision" (2011b: 178), thereby begging the question.

<sup>4</sup>Note that, this is still a thesis, rather than a stipulation, since knowledge-how might be possible even without any reliable ability.

there can be no counterexample to Standard Ryleanism in the style of BMW (in terms of an ability without knowledge-how).<sup>5</sup> For, insofar as Irina is judged *not* to know how to perform a Salchow, even if there is any intelligence there, that is not the relevant sort of intelligence for traditional anti-intellectualism (Ryleanism), or if BMW assume their own notion of intelligence, they are begging the question against anti-intellectualism, or simply, misunderstanding the topic.<sup>6</sup>

This does not mean, however, that the result of Bengson *et al.* (2009) is useless, let alone meaningless. Indeed, it provides good information about the sort of intelligence ordinary people have in mind (if negatively), through the data about when they do *not* attribute knowledge-how to an agent. There, from the details of the vignette of BMW we may derive a necessary condition for the intelligence in question, which will in turn allow anti-intellectualists to provide a (non-question-begging) *reason* why Irina's performance is not intelligent, that is, reason independent of knowledge-how. The data of BMW are, of course, far from sufficient, which is, as we already suggested, due to the ambiguity in their vignette concerning whether Irina is aware of her own ability.

In general, awareness of one's own ability requires awareness of what one is doing when one does it, but the latter awareness seems necessary for any intelligent action. Thus, according to Ryle's conception of intelligence expressed "in the vernacular",

[A]n action exhibits intelligence, if, and only if, the agent is thinking what he is doing while he is doing it, and thinking what he is doing in such a manner that he would not do the action so well if he were not thinking what he is doing. (Ryle 1949: 29)

Whether this analysis (presented as a characterization in favor of intellectualism) is correct or not, for our present purpose we only need a *necessary* condition, and the agent's awareness of the action does seem necessary for an intelligent action here too, for we can say that, to think what one is doing when she does it intelligently, the agent must be aware of what she is doing (and we assume here, as we believe Ryle does, that in "thinking what he is doing", the agent is doing what he at least *intends* to do).

So, is Irina aware of what she is doing, when she performs the Salchow? If we closely look at the vignette of BMW, it will turn out that the answer is indecisive. In general, whether someone is aware of what she herself is doing at least depends (assuming the factivity of awareness) on whether the following three factors agree or coincide with each other sufficiently often, or in Irina's case, always (thus manifesting the ability), when she tries to do what she intends to do:

- (i) what one intends to do,
- (ii) what one thinks one is actually doing, and
- (iii) what one is actually doing.

The relations between them are however not completely specified in the vignette of Bengson *et al.* (2009). They stipulate that,

<sup>5</sup>Carter and Pritchard (2015) responded to the Salchow case by claiming that it is not obvious that Irina is performing the Salchow intelligently (p. 195, n. 26), thereby doubting the relevance of the result. For a similar reservation, see for example n.15 of Cath (2011). Neither of them, however, seem to take BMW to be begging the question.

<sup>6</sup>For this reason, we may take the debate between intellectualism vs. anti-intellectualism as (as an anonymous reviewer of this journal suggested) a debate over the nature of intelligence in the sense of Standard Ryleanism, but not over what counts as an intelligent action conceived independently of knowledge-how (otherwise, intellectualists would inevitably beg the question).

despite the fact that she is seriously mistaken about how to perform a Salchow, whenever she actually attempts to do a Salchow (in accordance with her misconceptions), the abnormality causes Irina to unknowingly perform the correct sequence of moves, and so she ends up successfully performing a Salchow. Although what she is doing and what she thinks she is doing come apart, she fails to notice the mismatch. (Bengson *et al.* 2009: 397)

The “mismatch” they mention here is the gap (due to neurological abnormality) between (ii) and (iii), of which Irina is not aware. Whether (i) and (iii) agree with each other depends on the level of descriptions with which “what”s in these clauses are cashed out. They of course disagree if they are given thick descriptions specifying each step of Salchow, whereas if they are thinly described just as “Salchow”, then they do match each other. But this is beside the point.<sup>7</sup> The question is whether (i) and (ii) agree with each other. The original vignette by BMW says nothing about this explicitly and therefore is open to the following two interpretations, depending on whether there is a gap between them.

- A. Irina thinks that she always succeeds in performing the Salchow.
- B. Irina thinks that she always fails to perform the Salchow.

If there is no gap between (i) and (ii), A should be the case since Irina is not aware that her jump is not quite what she intends (that is, not, for her, a Salchow), and she mistakenly believes that she is doing exactly what she intends. So given that Irina in fact has the reliable ability to jump a Salchow, she is aware of it there, thinking that she is doing what she intends (which is to jump a Salchow), even though (ii), the content of her belief (or her description of what she is doing), together with (i), the content of her intention (or her description of how to do a Salchow), are both mistaken (at the relevant level of description). On the other hand, if there is a gap between them, B should be the case since there Irina is aware that her jump is not quite what she intends and therefore she cannot think she succeeds in doing a Salchow. There, what she thinks she is doing is, for her, still less than a Salchow,<sup>8</sup> even though what she is actually doing is, objectively speaking, indeed a Salchow.<sup>9</sup> Thus even if Irina is in fact reliably able to jump a Salchow, she cannot be aware of it there. But if Irina is not aware of her ability, and therefore does not believe that she can perform the Salchow, then she is not aware of what she is doing (namely, performing a Salchow) when she does the Salchow just like a dancer who unwittingly presents Gray’s *Elegy* by semaphore (Carr 1979), and therefore she does not know how to perform a Salchow (her Salchow is not an intelligent action), predicting the result of Bengson *et al.* (2009).

Interpretation B may be a bit complicated.<sup>10</sup> But so is the original vignette of Irina by BMW. It is a bit long, and since only the “mismatch” between (ii) and (iii) is explicitly mentioned, the reader must infer whether there is also a mismatch between (i) and (ii), which is at least not clear immediately, and if we are right, indecisive. Thus, the

<sup>7</sup>Note however that, if Irina is aware of her own ability to do the Salchow, her belief about it is true only at the level of this thin description, which will be relevant later in section 4.

<sup>8</sup>BMW present the case as if there is only one alternative to failing to jump a Salchow, but of course there are numerous ways of failing to do it, which are not ruled out by their vignette.

<sup>9</sup>In saying so, we do not simply presuppose that Irina is able to jump a Salchow, or what she does is a Salchow in a legitimate sense. This is based on the judgment of the vast majority of participants of the survey of BMW (and ours, see below).

<sup>10</sup>In particular, for B to be the case, there should be two failures of controlling one’s own body, the one due to neurological facts which Irina is not aware and the normal one that she *is* aware.

cognitive load of the reader cannot be ignored. Nevertheless, our hypothesis is that, given the result, most participants in the survey of Bengson *et al.* (2009) read their vignette with interpretation B, since it is easy to explain why Irina cannot be performing a Salchow intelligently with that interpretation: Irina was not aware of her own ability to do a Salchow. In that case, the mismatch between (i) and (ii) is the crucial factor for the relevant intelligence, rather than the one between (ii) and (iii). If, on the other hand, A was the interpretation of most participants, awareness was not a crucial factor after all, and BMW were right in that the mismatch between (ii) and (iii) alone can explain the result.

In this connection, Stanley (2011a) thought that BMW in their (2009) meant Irina to be *intentionally* performing the Salchow when she does it.<sup>11</sup> Bengson and Moffett (2011b: n. 27) say that that is “mistaken”. This suggests that interpretation B may be closer to the intended reading there, given the plausible principle like: One is aware of one’s own ability to  $\varphi$  if and only if one is able to  $\varphi$  intentionally.<sup>12</sup> At least, it is highly plausible to think that if one is aware of one’s own (reliable) ability to  $\varphi$ , then one can intentionally  $\varphi$ . And if so, it is likely that BMW took Irina to be unaware of her success in performing the Salchow. But that is of course independent of which interpretation *participants* of their survey had in mind. Since the original Irina case of BMW does not clearly specify Irina’s mental state when she jumps a Salchow, it is important to disambiguate this point and test whether that affects people’s judgments, which will thereby contribute to our understanding of exactly what intelligence is at issue in the debate over knowledge-how.<sup>13</sup>

### 3. New surveys and results

Thus, to examine this, we first tried to replicate BMW’s result with a much more simplified version of the Irina case (to avoid unnecessary cognitive load of participants). We recruited 100 participants via Amazon Turk, who were presented the following vignette.

Susan is an amateur figure skater practicing a jump called the Salchow. She is, however, seriously mistaken about how to perform a Salchow, and incorrectly believes that performing a Salchow requires rotating and landing on the ice in a particular direction, which is in fact the exact opposite of what one needs to do to jump a Salchow.

However, Susan has a severe neurological abnormality that makes her jump in ways that are the opposite of how she actually thinks she is jumping. As a result,

<sup>11</sup>There Stanley holds that Irina intelligently and successfully performs the Salchow, and moreover that she intends to perform the Salchow, but says that she does not *intentionally* do the Salchow (Stanley 2011a: 218). In his (2011b), however, Stanley claims the opposite: Irina intentionally performs the Salchow, but does not intend to perform the Salchow (p. 178, fn. 3), following the distinction of Harman’s sniper case (1976: 433). But this gets our intuitions wrong. Harman’s point in his sniper case was that “there is something wrong with killing” (1976: 434), the precursor of the discussion of the moral asymmetry of intention (or mental states in general) attribution (Knobe 2003), while there is nothing morally wrong with jumping a Salchow. Whichever Stanley’s ultimate view is, however, our point here is that, even experts do not have clear intuitions about intentionality and therefore it is not suitable for using it in the analysis of the notion of knowledge-how.

<sup>12</sup>If one is aware of one’s own reliable ability to  $\varphi$ , one can execute the ability under one’s control, so that one can perform the action *intentionally* (cf. Cath 2015: 5). If one is not aware, one does not know when one is doing what one can do, where the action is far from being done intelligently, let alone intentionally.

<sup>13</sup>Perhaps BMW were silent about this because they were only interested in Neo-Ryleanism, or whether bare (reliable) ability amounts to knowledge-how, but, as we pointed out, that is not relevant to the traditional anti-intellectualism, or Standard Ryleanism.

whenever she actually attempts to do a Salchow, Susan always ends up successfully performing it even though she is moving in ways that are opposite to her intention.

We then asked whether Susan knows/doesn't know how to jump a Salchow. But before asking Susan's knowledge-how, we first asked participants whether they think Susan has the ability to jump the Salchow, as BMW did. For this purpose we divided participants into two groups (50 each), and asked one group whether Susan can/cannot jump a Salchow, and another group whether Susan is able/unable to jump a Salchow.<sup>14</sup>

After eliminating 15 non-native English speakers, we analyzed the data of the remaining 85 participants (49% female, age  $M = 34.2$ ).<sup>15</sup> Participants were totally insensitive to the difference between "can" and "is able", and as expected, the vast majority, exactly 81% of each group, of participants answered that Susan can or is able to jump a Salchow in the first question. Among those who answered "can" or "is able" ( $N = 68$ ), only 29% of participants attributed knowledge-how to Susan (95% confidence interval is 20–41%). Thus, this roughly replicated the result of BMW.

Then we conducted another survey to see whether the disambiguation between A and B above affects the answers of participants. For this purpose we tried to elicit interpretation A by giving the story (the same vignette as in the first survey) one more twist, adding at the end of it the following passage.

One day, a novice skater came to Susan and asked her to demonstrate how to jump a Salchow. "Salchow is a jump like this", says Susan, and jumped a perfect Salchow.

This makes it clear that Susan is aware of her own (reliable) ability to jump a Salchow.

Again, we recruited 100 participants via Amazon Turk, and we eliminated 8 non-native English speakers, analyzing answers of the remaining 92 participants (34% female, age  $M = 33.2$ ). As before, most participants (87% for both "can"- group and "is able"-group) answered that she can jump a Salchow. However, this time, participants' response was dramatically reversed. Among those who answered either "can" or "is able" ( $N = 80$ ), 71% of participants attributed knowledge-how to Susan (95% CI: 60–80%). In particular, if we compare the results of these two surveys, knowledge attribution rate of the second vignette was significantly higher than that of the first vignette with a relatively large effect size ( $p < 0.0001$ , two-tailed Fisher's exact test,  $\varphi = 0.42$ ).<sup>16</sup>

#### 4. Discussion

These results suggest that most participants in the Irina case (and the first Susan case) read the vignette with interpretation B, that is, they did not take the protagonist to be aware of her own ability. Thus, awareness of one's own ability is a necessary condition for the intelligence exhibited in an intelligent action, and the mismatch between (ii) or (iii), or the gap between what one thinks one is actually doing and what one is actually doing, does not matter to the intelligence in question so much.

Such data not only advance our understanding of relevant intelligence, but also, indeed, pose a serious threat to intellectualism. If intellectualism is true, we should

<sup>14</sup>We used these two ways of asking the ability of Susan because, as suggested by E. Glick (2012: sec. 6.4.2), people may have (if subconscious) distinction between them.

<sup>15</sup>For this and the next study, elimination of the non-native English speakers did not significantly affect the result.

<sup>16</sup>The effect size here is Cohen's  $\varphi$ , where effect size is small when  $\varphi = 0.1$ , medium when 0.3, and large when 0.5.

expect, for any instance of knowledge-how, a corresponding true belief, since it is generally accepted that propositional knowledge entails true belief (we shall come back to this assumption later). But it is often argued that this poses a problem to intellectualism since there are apparent cases of knowledge-how without any corresponding true belief (e.g. Wallis 2008; Cath 2011; Brownstein and Michaelson 2016). The result of the second Susan case poses exactly this problem. There, even though people think that Susan knows how to jump a Salchow, her corresponding belief about some way  $w$ , that  $w$  is a way to jump a Salchow, is seriously mistaken.

One immediate response from intellectualists may be that the relevant belief is only implicit. In particular, for Stanley and Williamson (2001), the way must be thought under a “practical mode of presentation”.<sup>17</sup> As we shall show, however, whether we take the alleged true belief entailed by knowledge-how in the second Susan case to be explicit (false) or implicit (true), intellectualism fails.

First of all, it is not clear whether this strategy is available in this particular case, since there seems no way  $w$  such that Susan *truly* believes that  $w$  is a way to jump a Salchow there. The intellectualist might object that it just *logically* follows that there is *some* such (implicit and true) belief in Susan: After all, she can in fact jump the Salchow, and therefore in doing so, there should be some way  $w$  that she truly believes that it is a way for her to jump a Salchow.<sup>18</sup> However, even if there is such a belief, its truth is due to her neurological abnormality, without which  $w$  would not have been the way for her to jump a Salchow, and hence the belief would not have been true. The truth of her belief is therefore merely *accidental* (despite the fact that her Salchow is *reliably* done).

Thus intellectualists, but not anti-intellectualists, should predict that Susan actually does not know how to jump a Salchow, contrary to what most people think.<sup>19</sup> On the other hand, to hold that accidental truth does not matter in the case of knowledge-how (there being no Gettier case for knowledge-how) seems too *ad hoc*, especially for intellectualists who claim that knowledge-how can be reduced to knowledge that.<sup>20</sup>

At this point intellectualists might bite the bullet and claim that Susan in fact does not know how to jump a Salchow even in the second Susan case. Intellectualists are now committed to an error theory, and owe us an explanation why in this case most people mistakenly believe that Susan knows how to jump a Salchow. If, in particular, intellectualists explain Susan’s lack of knowledge-how there in terms of the accidentality of the truth of her belief, they owe us an explanation why people lack the Gettier intuition in this particular case. The most natural explanation for it is that this case is not actually a Gettier case, whose most natural explanation is, in turn, that knowledge-how is not actually a species of knowledge that. Thus in any case intellectualism faces a problem. If, on the other hand, intellectualists manage to give a good explanation for this asymmetry of intuitions that is consistent with intellectualism, that should rather be used for explaining why there Susan *knows* how to jump a

<sup>17</sup>See Glick (2015) for a critical examination of this notion.

<sup>18</sup>This however commits intellectualists to a highly *revisionary* view about belief. See again sec. 5.2 of Brownstein and Michaelson (2016).

<sup>19</sup>For this kind of challenge to intellectualism, see e.g. Poston (2009) and Cath (2011, 2015). See Ch. 8 of Stanley (2011*b*) as a response from intellectualism.

<sup>20</sup>For more on the difficulties of this implicit belief response, see sec. 5.2 of Brownstein and Michaelson (2016). Note that, Brownstein and Michaelson also mention BMW’s Salchow case, but simply dismiss it as “bizarre”. For us, their argument against intellectualism mainly focuses on one side of its difficulties, and we add here the other side, which is crucial for our present argument. See below.



Salchow,<sup>21</sup> and avoid appealing to an error theory, just as BMW themselves relied on folk judgments.

Maybe there is some non-*ad hoc* version of revisionary intellectualism that holds that knowledge-how is compatible with Gettier-style luck (Cath 2015), or even that knowledge-how does not require the corresponding belief (Brogaard 2011: sec. 5). However, the moment they manage to provide such a theory and explain why Susan knows how to jump a Salchow in the second Susan case, the fatal blow comes from the other side, the result of the first Susan case. Once we have granted in the second Susan case that Susan has an implicit *true* belief about some *w* such that *w* is a way to jump a Salchow, or that Susan knows how to jump a Salchow without any such belief, exactly the same should be said to the first Susan case too. (Note that, unlike familiar contrastive pairs of cases like the Bank cases of contextualism, the difference between the two Susan cases is just a matter of disambiguation, changing neither Susan's ability nor other external conditions.)<sup>22</sup> But if so, since intellectualists now cannot claim that it is a Gettier case, they cannot deny Susan's knowledge-how there anymore, contrary to what most ordinary people think (so that they should thereby be committed to an error theory again), or contrary to what BMW themselves claimed about Irina in their original Salchow case.<sup>23</sup> In that case, however, even if intellectualists could provide a new error theory there, any view that attributes knowledge-how to Susan of the first Susan case and Irina of the original Salchow case, who can only do such an *unintelligent* action (even for anti-intellectualists), would be hard to call *intellectualism* anymore.

## 5. Concluding remarks

This short paper was not meant to *refute* intellectualism conclusively. As is always the case in philosophy, it is certainly possible to appeal to an error theory or provide some revisionary view to accommodate the data, though such a move must be at least neither *ad hoc* nor too revisionary to be a defense of intellectualism. But even so, since intellectualists must give *some* response anyway and it is very likely to diverge, *which response* is the correct or at least the most plausible intellectualist response is also a matter of dispute *among intellectualists*.<sup>24</sup> If so, that alone should already contribute to the intellectualism vs. anti-intellectualism debate, or debates surrounding knowledge-how

<sup>21</sup>As Stanley (2011b) points out, knowledge-wh is in general insensitive to Gettier intuitions. But if so, intellectualists should simply acknowledge the relevant knowledge of the agent in each Gettierized knowledge-wh case, as Cath (2015) recommends.

<sup>22</sup>Still, one might think that participants took the second Susan to have some additional (true) belief (used in her reasoning), which made the second Susan, but not the first Susan, know how to jump a Salchow. This would however commit intellectualists to an *internalist* theory of knowledge, which is unfortunate for intellectualists, since, as Stanley discussed (2011b: 166–7), intellectualism is vulnerable to the challenges from neuroscience raised by Charles Wallis (2008) unless they are externalists about knowledge at the same time.

<sup>23</sup>Thus, compare this criticism with the challenge of Glick (2015) in terms of “sufficiency problem”, according to which the propositional knowledge of Stanley and Williamson (2001) is not sufficient for the relevant ability. Our criticism here is much more direct in the sense that we showed it to be not sufficient for knowledge-how.

<sup>24</sup>For example, one commentator on this paper suggested that intellectualists can claim in response that Irina (or Susan) can have two relevant beliefs, one true demonstrative belief, and another false non-demonstrative belief at the same time. But this still commits intellectualists to an error theory to accommodate our data anyway, and it is by no means clear that other intellectualists accept this as *the* correct (or the most plausible) response.



in general, and therefore, at least, it should remain true that our results deserve considerations and discussions, as well as stimulate further empirical investigations.<sup>25,26</sup>

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<sup>25</sup>Though the results here seem to support anti-intellectualism, that does not necessarily reflect the author's own position. For example, the surveys with other languages may show quite different patterns of knowledge-how attribution, which may undermine the very assumptions of the intellectualism vs. anti-intellectualism debate. See Mizumoto *et al.* (Forthcoming).

<sup>26</sup>This paper is an extended study and discussions that derived from one of the studies in Mizumoto *et al.* (Forthcoming). It was presented at Soochow International Workshop on "Knowledge and Action", in November 2016, Taipei. I would like to thank all the participants there for helpful comments.