# KNOWING HOW IN JAPANESE[*]

Yu Izumi, Shun Tsugita, and Masaharu Mizumoto
Nanzan University, JSPS/Nagoya University and JAIST

## 1. Introduction

Epistemology or theory of knowledge occupies a special place in the traditions of philosophy, and not surprisingly, our talk of knowledge has been a recurring theme in epistemology over many centuries. One contemporary instantiation of the theme is the topic of ascribing knowledge-how.[1] Roughly put, there are two competing views of the nature of knowledge-how. On the one hand, according to 'intellectualism' about knowledge-how, knowledge-how is a species of knowledge-that, and possessing knowledge-how (such as knowing how to swim) amounts to standing in a certain relation to some proposition (Stanley and Williamson 2001, Stanley 2011a, Pavese 2015, among others). On the other hand, 'anti-intellectualism' denies that knowledge-how is a species of knowledge-that, claiming that there is some element in knowledge-how—which is characterized in various ways using notions related to 'capacity' and 'ability'—that is irreducible to the possession of propositional knowledge (Ryle 1946, 1949; Markie 2015; Habgoot-Coote, 2018 among others). What is interesting about the philosophical debate on the nature of knowledge from a linguistic perspective is that a major argument for intellectualism is based on the semantic considerations of the structure *know how to V*, a control construction.

The gist of the linguistic argument for intellectualism, most notably put forward by philosopher Jason Stanley (Stanley and Williamson 2001, Stanley 2011a,b), can be summarized as follows. Ascriptions of knowledge-how, such as (1a), make use of *wh*-infinitival clauses as the complement of the verb *know*; standard syntactic and semantic theories analyze *wh*-infinitival clauses in general along the lines of (1b)–(1c) and (2b)–(2c).

(1) a.   Hana knows how to swim.
    b.   Hana knows [how PRO to swim]
    c.   For some way w, Hana knows that she can swim in way w.

[1]   For example, see the articles collected in (Bengson and Moffett 2012).

(2) a.   Hana knows where to buy an Italian newspaper.
   b.   Hana knows [where PRO to buy an Italian newspaper]
   c.   For some place p, Hana knows that she can buy an Italian newspaper at place p.

(Stanley 2011b, p.209)

As the paraphrase (2c) clearly indicates, to know where to buy an Italian newspaper is to know a certain proposition expressed by the *that*-clause. Likewise, since (1b) and (2b) represent perfectly analogous syntactic structures, to know how to swim is also to know a certain proposition, as illustrated by (1c). Assuming that *ascriptions* of knowledge-how provide useful guidance regarding the metaphysical or conceptual facts about knowledge, Stanley concludes that knowledge-how is a species of propositional knowledge.

Several objections have been leveled against the linguistic argument for intellectualism.[2] For example, there is a methodological concern about the use of linguistic considerations as a guide to metaphysical and epistemological theorizing.[3] The focus of the current paper, however, is on the linguistic side of the argument. Some theorists have questioned the crosslinguistic generality of the argument, which depends on the characteristics of *know how to V*. If the argument depends on some idiosyncratic features of the English language, then it might fail to provide sufficient grounds for intellectualism construed as a thesis about knowledge and the human mind, not as a thesis about a particular natural language.

Being fully aware of this concern, Stanley (2011a, chapter 6; 2011b) surveys the patterns of knowledge-how ascriptions across the world's languages—discussing seven different languages to cover five patterns of knowledge-how ascriptions—and argues that the observed structural variation does not amount to a semantic difference. Stanley concludes that his intellectualist analysis of English *know how* applies to different languages with minor modifications. Besides Stanley's own discussion of Afrikaans, Cantonese, Defaka, Finnish, French, German, and Russian, philosophers arguing for or against intellectualism have also examined various languages including French (Rumfitt 2003), German and Russian (Wiggins 2012, Ditter 2016), Turkish (Ditter 2016), and Modern Greek (Douskos 2013).

The purpose of this paper is to add yet another language, Japanese, to the list of languages that can be considered in evaluating the linguistic argument for intellectualism. Our goal is to answer the following questions: 'Which construction in Japanese is comparable to *know how to V* in English?' and 'What are the differences between the *know how to V* construction and its counterparts in Japanese?' Below, for the first question, we will identify four different types of knowledge ascriptions in Japanese: three of them embed *wh*-'how'-clauses, and the fourth involves reference to 'ways' of performing actions. To address the second question, we will claim that the knowledge-how ascriptions in Japanese are substantially different from *know how to V*. An important finding to be reported here is that Stanley's intellectualist analysis of

---

2   See (Pavese 2017) for an overview.

3   See (Noë 2005) and (Devitt 2011) for methodological objections and (Brown 2012) for a rejoinder.

*know how* extends to Japanese knowledge-how ascriptions, but it does so in an unexpected way: Japanese knowing how constructions express a different type of modality than their English counterparts, and the ascriptions of knowledge-how in Japanese are not directly related to ability or skill possessed by an agent.

Focusing on linguistic issues in the current paper, we will not draw any implications of philosophical significance. However, theoretical and experimental investigations of the Japanese language can make a significant contribution to the debate over intellectualism and anti-intellectualism. Furthermore, the discussion here may pave the way toward serious cross-linguistic theorizing in epistemology (Mizumoto et al. 2018).

The rest of this paper is organized as follows. In section 2, we will introduce four different types of constructions in Japanese that may be construed as similar to *know how* in English, while pointing out some apparent difficulties in seeking *wh*-infinitival clauses in a language like Japanese, the verbal system of which may not have the infinitival form. In section 3, we will examine the candidates for 'knowing how' in Japanese introduced in section 2, showing that none of them are obligatory control constructions. If it is legitimate to assume that English interrogative infinitives form an obligatory control construction, then the syntactic observation here establishes a major difference between English and Japanese knowledge-how ascriptions. In section 4, we will argue that there is also a semantic difference between Japanese knowledge-how ascriptions and the English counterparts. Knowing-how constructions of these two languages express different types of modality: an occurrence of Japanese knowledge-how ascription expresses deontic (or teleological) modality, not ability or disposition modality unlike English. Section 5 provides further evidence for the difference by expanding the discussion to embedded interrogatives in general.

## 2. Four Candidates for 'Know How' in Japanese

The four types of Japanese sentences to be discussed below are 'similar' to English *know how to V* only in an inexact sense. No well-defined notions of equivalency would help in comparing the two natural languages. For example, truth-conditional equivalency would be useless as a criterion for the counterparthood of two distinct expressions because, if used, any two truth-conditionally equivalent expressions would be a counterpart of each other, regardless of their lengths and grammatical structures. We also cannot expect a one-to-one correspondence between the constituents of comparable sentences from two languages. The sentences below are what competent Japanese speakers might use in the place of *know how to V* according to the judgments of the authors.

(i) First, Japanese has sentences that are structurally very similar to *know how to V*. Compare (3a) and (3b) below:

(3) a.  Hana knows how to swim.

    b.  Hana-wa doo oyogu      ka sitteiru.
         Hana-Top how swim.Prs   Q  know.Prs

       'Hana knows how to swim.'

As in (3b), knowledge-how can be ascribed in Japanese by means of the knowledge verb *sitteiru* followed by the 'wh'-word *doo* and the embedded verb for the activity in question.[4] *ka* is a morpheme—call it 'Q'—that obligatorily appears with a 'wh'-word in embedded interrogatives and optionally in nonembedded interrogatives. An important difference here is that the embedded verb in (3b) is inflected for tense. If 'infinitives' are merely defined in terms of the lack of tense inflection, (3b) does not embed a 'wh'-*infinitival* clause. This by no means implies that (3b) is not a counterpart of (3a). First, as noted above, we cannot simply expect there to be a word-by-word correspondence between analogous sentences of two different languages. Perhaps knowledge-how ascriptions are finite constructions in some languages and non-finite in others. Second, it is not obvious whether we must adopt such a definition for infinitives (Wurmbrand 2001, pp.85–91). The embedded 'wh'-clause in (3b) may be as much infinitival as *how to swim* in (3a) in some definition.[5] At any rate, (3b) is structurally most analogous to (3a), and so it is justifiable to consider it to represent a Japanese counterpart of *know how to V*, even if the rest of the sentence types below are set aside as irrelevant constructions.

    (ii) The second type of Japanese sentences that may be used in the place of *know how to V* involves a morpheme that forms a conditional sentence, *ba* or *ra*.

(4)  Hana-wa doo sure-ba/sita-ra oyog-eru      ka sitteiru.
    Hana-Top how do-if/did-if       swim-can.Prs Q know.Prs

    Roughly: 'Hana knows what to do in order to swim.'
    Respecting the logical structure: 'Hana knows a way x such that if she swims in way x,
                           she can swim.'

    The expressions *ba* and *ra* are combined with a verb to form the antecedent of a conditional sentence, and they often appear with a sentence-initial adverb that indicates the existence of some supposition, such as *mosi* and *mangaichi* (Masuoka and Takubo 1992), as shown by example (5) below.

---

[4]  The presence of the two aspect morphemes *-te-* and *-i-* is also a distinctive characteristic of the Japanese knowledge verbs in comparison with *know* (Izumi 2013). Since the roles of these expressions are not important for present purposes, we represent *sitteiru* as a single word.

[5]  It is worth noting that Japanese may lack the verbal category of 'infinitive' altogether unlike languages such as English and French, as suggested by the fact that the present (or non-past) tense marker *-ru* is always attached to the dictionary form of a verb (Fujii 2012, p.6).

(5)  (Mosi)           ame-ga      hure-ba/hutta-ra, ie-ni      kaeroo.
     (hypothetically) rain-Nom  fall-if/fell-if,      home-to return.let's.

     'Let's go home if it rains.'

(4) differs from (3b), a simpler 'know how' sentence, in that the former contains an explicit
ability modal expression –*eru* (or *dekiru*), which is analogous to *can* or *be able* in English.

    (iii) The third way of ascribing knowledge-how in Japanese differs from (ii) only in that it
includes an evaluative term instead of an ability modal.

(6)  Hana-wa  doo  oyoge-ba/oyoida-ra  ii      ka sitteiru.
     Hana-Top how  swim-if/swam-if      good Q  know.Prs

     Roughly: 'Hana knows what she's supposed to do when swimming.'
     Respecting the logical structure: 'Hana knows a way x such that if she swims in way x,
                                        it would be good (for achieving some implicit goal).'

Sentences of Type-(ii) and Type-(iii) are similar to *know how to V* to the extent that they
attribute knowledge to the subject with embedded 'how'-interrogative clauses, and therefore,
they are definitely 'know how' ascriptions. As the conditional structures of the sentences
suggest, however, it is not obvious whether they are counterparts of *know how to V*. In the next
section, we will discuss examples suggesting that they are not obligatory control constructions
unlike *know how to V*.

    (iv) In the fourth type of Japanese knowledge-how ascriptions, the complements are nouns
roughly corresponding to *way* or *method* in English with which the embedded verbs are
conjoined.

(7)  Hana-wa  oyogi-kata-o     sitteiru.
     Hana-Top swim-way-Acc  know.Prs

     Literally: 'Hana knows swim-way.' ('Hana knows a way to swim.')

In (7), the matrix verb *sitteiru* ('know') takes as its direct object a nominalized variant of the
action verb *oyogu* ('swim'), and so it includes no 'wh'-question word. As such, (7) is a
knowledge ascription but not a knowledge-*how* ascription. Nevertheless, there are two reasons
for at least considering whether the sentences of the form of (7) are counterparts of *know how
to V*. First, the *V-kata* ('way to V') construction is sometimes used in translating an occurrence
of *know how to V*. Second, more importantly, this pattern may be shared with the Niger-Congo
language Defaka, which is discussed in Stanley's survey of the world's languages. In Stanley's
analysis, English *know how to V* introduces quantification over 'ways' of doing something.
Thus, Stanley would find the explicit use of 'way' in (7) amenable to his own analysis. Stanley
states, "languages such as Defaka also provide good evidence for this analysis [which involves
quantification over ways], since they bear this analysis on their sleeves" (Stanley 2011a, p.137).

In what follows, we will examine the four types of knowledge ascriptions introduced here. First, in section 3, we will determine whether they are obligatory control constructions. It turns out that none of them behaves analogously with *know how to V* with respect to obligatory control. Second, in section 4, we will turn to the modal profiles of the ascriptions and argue that they are not merely structurally different from *know how to V*, but they express substantially different semantic contents. The four types do not attribute to the subject an ability to perform the action in question. Even though Type-(ii) explicitly contains an ability modal expression, none of Types-(i-iv) is analogous to the infinitival *know how to V* construction in English, which is typically concerned with the subject's capacity to do the described action. Regardless of the presence of an ability modal expression, Japanese knowledge-how attributions are understood as expressing deontic (or teleological) modality.

## 3. 'Know How' and Control

In this section, we will apply two of the familiar diagnostic tests for obligatory control (Landau 2010, 2013) to the four types of Japanese knowledge ascriptions introduced in the previous section.

First, 'long-distance' control—where the argument co-referring with PRO is not in the clause that immediately contains an infinitive—is impossible in an obligatory control construction, as suggested by (8).

(8)　*Mary$_i$ knew that John dared [PRO$_i$ to perjure herself]. (Landau 2000, p.34)

Fujii (2006, 2012) establishes that Japanese *koto*-complements of some verbs also disallow long-distance control. For example, *kangaeru* ('think') allows a long-distance antecedent, whereas *tikau* ('swear') does not.

(9) a.　Mary-no　titioya-wa [ø sono byooin-de syussansu-ru koto]-o **kangaeta**.
　　　Mary-Gen father-Top [ø that　hospital-at give.birth-Prs C]-Acc thought

　　　'Mary's father thought about her giving birth in that hospital.'

　　b. # Mary-no　titioya-wa　[ø sono byooin-de syussansu-ru koto]-o **tikatta**.

　　　'Mary's father swore to give birth in that hospital.' (Fujii 2012, p.6)

Just as the translation suggests, (9b) only permits the odd reading that Mary's father swore about himself giving birth to a child. The silent element in (9b), whatever it turns out to be, cannot take *Mary* to be its antecedent, unlike the silent element in (9a). Likewise, Takita (2012) observes that 'wh'-complements can exhibit the same pattern with verbs such as *mayotteiru* ('hesitate'), where the embedded verbs are inflected with *yoo*, a morpheme signifying the will of the subject. Takita's observation can be extended to 'wh'-complements that contain simple, present-tensed verbs.

(10) a.  Hana-no  titioya-wa [dokode ø syussansu-ru  ka] **kangaeta**.
Hana-gen father-Top [where   ø give.birth-Prs Q]  thought

'Hana's father wonders where she should give birth.'

b.  #Hana-no  titioya-wa  [dokode ø syussansu-ru  ka] **mayotteiru**.

'Hana's father cannot decide where to give birth.'

Again, (10b) is compatible only with the reading that the father worries about his own labor. The pattern remains the same with a *doo* ('how') interrogative complement. Suppose that there are multiple childbirth options available to Hana (such as a scheduled C-section or a home birth). The available interpretation of (11b) is that the father is undecided about the method of his own labor, not of Hana's. These considerations show that interrogative complements occurring in Japanese knowledge ascriptions—those embedding present-tensed verbs— sometimes exclude long-distance control.

(11) a.  Hana-no   titioya-wa [doo ø syussansu-ru  ka] **kangaeta**.
Hana-Gen father-Top [how ø give.birth-Prs Q]  thought

'Hana's father wonders how she should give birth.'

b.  #Hana-no  titioya-wa  [doo ø syussansu-ru  ka] **mayotteiru**.

'Hana's father cannot decide how to give birth.'

Now, let us consider the knowledge verb *sitteiru*, which turns out to be more analogous to *kangaeru* ('think') than to *mayotteiru* ('hesitate'). Type-(i) example (12a) and a 'where'- interrogative complement in (12b) clearly permit long-distance antecedents.

(12) a.  Hana-no   titioya-wa [doo ø syussansu-ru  ka] sitteiru.
Hana-Gen father-Top [how ø give.birth-Prs Q]  know.Prs

'Hana's father knows how she will give birth.'

b.  Hana-no  titioya-wa  [dokode ø syussansu-ru ka] sitteiru.

'Hana's father knows where she will give birth.'

The rest of Japanese knowledge-how ascriptions, Types (ii)–(iv)—represented by (13a)–(13c) respectively, are also compatible with the interpretations that the subject matter of the father's knowledge is Hana's childbirth, not his own.

(13) a.  Hana-no   titioya-wa [doo sure-ba ø syussan-dekiru    ka] sitteiru.
Hana-Gen father-Top [how do-if    ø give.birth-can.Prs Q]  know.Prs

'Hana's father knows how she can give birth.'

b.   Hana-no   titioya-wa [doo ø syussansure-ba ii     ka] sitteiru.
     Hana-Gen father-Top [how ø give.birth-if    good Q] know.Prs

     'Hana's father knows how she should give birth.'

c.   Hana-no   titioya-wa [syussan-no-si-kata/syussansuru-hoho]-o        sitteiru.[6]
     Hana-Gen father-Top [childbirth-Gen-do-way/give.birth-method]-Acc know.Prs

     'Hana's father knows a way to give birth.'

We do not scrutinize English data in the current paper, but as (14) illustrates, there is good evidence that long-distance control is generally impossible in interrogative infinitival complements in English (Landau 2000, pp.39–42).

(14)   *Mary$_i$ knew that it wasn't clear to John [how PRO$_i$ to perjure herself].

(Landau 2000, p.42)

The observed contrast here points to a difference between Japanese and English knowledge-how ascriptions.

The second diagnostic test for obligatory control is based on ellipsis. The (a) examples below only permit 'sloppy' readings, in which the referents of the pronominal elements are distinct, whereas the (b) examples permit both sloppy and 'strict' readings—the pronominal elements in the second conjuncts co-refer with the antecedents in the first conjuncts.

(15)  a.   Mary$_i$ expected [PRO$_i$ to attend the ceremony], and Sue$_j$ did too ~~expect [PRO$_{j/*i}$ to attend the ceremony]~~  (Landau 2013, p.30)

      b.   Mary smiled at her child, and Sue did too.

(16)   Mary-wa  [ø sigoto-o   tuzuke-ru    koto]-o {a. tikatta, b. kangaeta}.
       Mary-Top [ø work-Acc continue-Prs C]-Acc {a. swore, b. thought}

       Butyoo-mo    da.
       manager-also Cop.Prs

       'Mary {a. swore to continue her work, b. thought about continuing her work}. And the manager, too.' (adapted from Fujii 2012, p.7)

(17)   Hana-wa  [doo/dokode ø syussansu-ru  ka] {a. mayotteiru, b. kangaeteiru}.
       Hana-Top [how/where  ø give.birth-Prs Q]  {a. hesitating,  b. thinking}.

---

[6]   The verb *syussansuru* ('give birth') is a compound of the noun *syussan* ('childbirth') and the light verb *suru*, and it cannot be conjoined directly with *kata* ('way'); that is why the *no* morpheme is inserted between 'childbirth' and 'do'. The verb, however, can be directly conjoined with *hoho* ('method') in the present tense form.

Mari-mo  da.
Mari-also Cop.Prs

'Hana is {a. wondering how/where to give birth, b. thinking about how/where she should give birth}. And Mari, too.'

The knowledge verb again behaves analogously to *kangaeru* ('think') allowing strict readings. For example, (18a) can mean that Mari, the subject of the second sentence, knows in what way *Hana* should give birth to Hana's child. The same observation holds with respect to Types (ii)-(iv) knowledge-how attributions, as in (18b)–(18d).

(18) a.   Hana-wa  [doo ø syussansu-ru ka] sitteiru.    Mari-mo da. (Type-i)
           Hana-Top [how ø give.birth-Prs Q]  know.Prs  Mari-also Cop.Prs

           'Hana knows how she should give birth. And Mari, too.'

      b.   Hana-wa  [doo-sure-ba ø syussan-dekiru    ka] sitteiru.    Mari-mo da. (Type-ii)
           Hana-Top [how do-if    ø give.birth-can.Prs Q]  know.Prs  Mari-also Cop.Prs

           'Hana knows how she can give birth. And Mari, too.'

      c.   Hana-wa  [doo ø syussansure-ba ii ka] sitteiru.    Mari-mo da. (Type-iii)
           Hana-Top [how ø give.birth-if good Q]  know.Prs  Mari-also Cop.Prs

           'Hana knows how she should give birth. And Mari, too.'

      d.   Hana-wa  [syussan-no-si-kata/syussansuru-hoho]-o         sitteiru.
           Hana-Top [childbirth-Gen-do-way/give.birth-method-Acc  know.Prs

           Mari-mo  da. (Type-iv)
           Mari-also Cop.Prs

           'Hana knows a way to give birth. And Mari, too.'

Again, if Landau is correct in that sentences such as (19) do not allow strict readings,

(19)   John remembered when [PRO to leave], and Bill did too.  (Landau 2000, p.42)

then (18) shows a clear contrast between English and Japanese knowledge-how attributions. The examples in this section strongly suggest that Japanese knowledge-how attributions in general, despite their structural variation, do not constitute an obligatory control construction. If English knowledge-how attributions are obligatory control constructions (as assumed by Stanley 2011a), we have identified a substantial difference between the knowledge-how attributions in the two different languages.

**4. Detaching Ability Implications**

A typical English *know how* sentence such as (20) implies that the subject has a physical ability to perform the described action. For example, it is often difficult to attribute knowledge-how to an agent when the knowledge in question derives solely from book learning, as in (21).

(20)     Hana knows how to ski.

(21)     [Context: Hana carefully studied three skiing 101 books for her first skiing vacation in her entire life.]
          # Hana knows how to ski, but she is unable to do so.[7]

Given the difficulty of removing an implication that the agent has the relevant physical ability, it may be reasonable to assume an ability implication to be a part of the semantic content expressed by the use of *know how to V*. Stanley associates *know how to V* with the "ability or dispositional" modal force (Stanley 2011a, p.114). According to Stanley, if Hana knows how to ski, then she knows that she can ski in a certain way. To be more precise, Hana knows how to ski just in case she knows that she would succeed in skiing by the way she is familiar with in some contextually relevant range of circumstances that allow her to ski (Stanley 2011a, chapter 5).

As emphasized by Stanley (2011a, pp.126–129), the kind of modality associated with *know how to V* is not exactly the same as the kind of modality expressed by *could* or *be able*: *know how to V* sometimes allows one to detach an implication that an agent can perform the described action. That is, knowing how to do something does not necessarily require being (physically) able to do so (Stanley and Williamson 2001, Snowdon 2003, among others). One example Stanley discusses is the following:

(22)     [Context: Carl can lift 200 lbs off the floor. When he trains, his 8-year old son always watches him do so.]
          Carl's son knows how to lift 200 lbs off the floor, but he is unable to do so.
          (Stanley 2011a, p.127, originally in Ginet 1975, p.8)

There is a sense in which Carl's son knows how to lift 200 lbs off the floor, although he has no ability to do so. Stanley accounts for this detachability of the ability implication by introducing a structural ambiguity between PRO and $PRO_{arb}$ into *know how to V*, where the latter purports to capture the knowledge-how reading that does not imply ability.[8] According to anti-intellectualists, the non-ability or non-disposition sense of English *know how* needs to be put aside, because it is not the kind of phenomenon with which anti-intellectualists (and therefore

---

[7]   Glick (2012, pp.130–1) makes the same observation in an analogous case.

[8]   According to Landau (2000, 2013), it is wrong to assume English interrogative infinitives to be non-obligatory control constructions, which would allow genuine occurrences of arbitrary PRO. We will not debate the correctness of Stanley's intellectualist analysis of *know how to V*—we do not have to do so, given the goal of the current paper.

intellectualists too) should be concerned (Glick 2012). At any rate, what remains puzzling is that the ambiguity is available only to a limited range of circumstances, as shown by the contrast between (21) and (22). Whether we can remove an ability implication seems dependent on the choice of the embedded verb and the context of use.

By contrast, an ability implication seems almost always detachable in Japanese knowledge-how ascriptions. For example, at least for the authors, the following would not sound unnatural at all *even in the context where the ascription is given on the basis of the subject's book learning*:

(23)　Kaaru-wa doo  100 kilo-o　　motiageru/oyogu ka sitteiru　　kedo
　　　　Carl-Top  how 100 kilo-Acc lift.Prs/swim.Prs  Q  know.Prs but

　　　　zissai-ni-wa　　　　dekinai.
　　　　Actually-Contrast cannot

　　　　'Carl knows how to lift 100 kilos/swim, but he cannot actually do so.'

In contrast to (21), there is no oddity or surprising connotation in (23), regardless of the choice of the embedded predicate. In Japanese a much wider range of verbs and contexts seem to permit the denial of an ability implication. Even when it is justifiable to attribute knowledge-how to an individual, the individual may or may not be able to perform the physical activity in question (e.g., swimming, skiing, riding a bicycle).

The example (23) above is an instance of Type-(i) Japanese knowledge-how ascriptions, but the same can be said for the other types as well. It is also worth pointing out that the presence of the evaluative expression *ii* ('good') in Type-(iii) knowledge-how ascriptions can be accounted for by assuming that they do not express ability or disposition modality. The Type-(iii) example (6) above has the following logical form: 'Hana knows a way x such that if she swims in way x, it would be good.' (6) roughly says that the agent, Hana, knows a required way of swimming that is necessary to fulfill a contextually salient goal ('It would be good if Hana swims in that way'). In other words, (6) attributes to the subject knowledge of how she *ought to* swim, not the ability or disposition for swimming. These considerations suggest that Japanese knowledge-how attributions in general express the deontic (or teleological—what one should do to achieve a certain goal) modal force rather than the ability or disposition modal force, perhaps similarly to the English *know to V* construction (Glick 2012, p.125).

In fact, there is a variant of Type-(i) construction that contains the explicit deontic expression *beki* ('ought') as follows:

(24)　Hana-wa  doo oyogu　　beki  ka sitteiru.
　　　　Hana-Top how swim.Prs ought Q  know.Prs

　　　　'Hana knows how she should swim.'

(24) is exactly the same as (2a), a Type-(i) sentence, except that the former contains the deontic modal *beki*. (24) seems to clarify the content of (2a) by articulating its modality. Crucially, adding an explicit ability modal to (2a) would create an unacceptable sentence:

(25) */??Hana-wa  doo oyog-eru      ka sitteiru.
     Hana-Top how swim-can.Prs Q  know.Prs

This contrast between (24) and (25) strongly suggests that the underlying modality in (2a) is deontic, rather than ability or disposition.

   Now, returning to the detachability of an ability implication, let us consider Type-(ii) and Type-(iv) examples. Because all four types of Japanese knowledge-how ascriptions are approximately equivalent to one another, we predict that these sentences do not need to have an implication that the subject has an ability to perform the activity in question. The following in fact do not sound infelicitous or unnatural (at least for the authors).

(26)    Kaaru-wa doo  sure-ba/sita-ra 100 kilo-o   motiagerar-eru/oyog-eru  ka sitteiru
        Carl-Top  how do-if/did-if      100 kil-Acc lift-can.Prs/swim-can.Prs Q  know.Prs

        kedo, zissai-wa          dekinai.
        but    actually-Contrast cannot

        'Carl knows what to do in order to lift 100 kilos/swim, but he's in fact unable to do so.'

(27)    Kaaru-wa 100 kilo-no   motiage-/oyogi-kata-o sitteiru     kedo,
        Carl-Top  100 kilo-Gen lift-/swim-way-Acc      know.Prs but,

        zissai-wa          dekinai.
        actually-Contrast cannot

        Literally: 'Carl knows lift-100-kg-way/swim-way, but he's in fact unable to do so.'

It may be surprising that even the Type-(ii) example (26), which has the explicit ability modal expression *-eru*, fails to imply ability, but this is because the ability here is merely *conditional*, and has no implication about the actual ability of the agent.

   To summarize, we have good reason to think that Japanese knowledge-how constructions are not merely structurally but also semantically different from their English counterparts with respect to ability implications. The examples discussed thus far suggest that Japanese knowledge-how constructions are associated only with deontic (or teleological) modality.


## 5.  Other 'Wh'-Phrases

   The main claim put forward in the previous section is that Japanese knowledge-how ascriptions do not semantically express the ability modality, unlike their English counterparts. If there truly is such a semantic difference in modality between English and Japanese 'know

how', then we must be able to find analogous differences between English and Japanese embedded interrogative infinitives in general.

Bhatt (2006) discusses a number of infinitival *wh*-phrases that can be paraphrased using modal words such as *can* and *should*; as indicated by the examples (28a)–(28b), what particular flavor of modality is associated with a *wh*-phrase is partly determined by the choice of the matrix verb.

(28) a.   Asta knows/discovered/figured out where to get gas.
         ≈ Asta knows/discovered/figured out where she can/could get gas.
     b.   Asta decided/agreed where to get gas.
         ≈ Asta decided/agreed where she should get gas.  (Bhatt 2006, pp.123–4)

(28a) is judged true as long as there is at least one location known to the subject where she can get gasoline, whereas the truth of (28b) requires there to be a particular place, among the possible locations where the subject could get gas, that is considered the most suited for a salient goal. Details aside, English infinitival *wh*-phrases are associated with both ability (or disposition) and deontic (or teleological) modalities.

By contrast, embedded 'wh'-questions in Japanese do not allow an ability interpretation unless there is an explicit ability modal expression such as -*eru*.

(29) a.   Taro-wa  dokode gasorin-o     kau      ka sitteiru.
         Taro-Top where   gasoline-Acc buy.Prs Q  know.Prs.

         'Taro knows where he should buy gasoline.'; 'Taro knows a wise way to get gasoline.'
         (Impossible reading: 'Taro knows at least one place where he could buy gasoline.')

     b.   Taro-wa  dokode gasorin-o     ka-eru       ka sitteiru.
         Taro-Top where   gasoline-Acc buy-can.Prs Q  know.Prs

         'Taro knows where he can buy gasoline.'; 'Taro knows where to get gasoline.'

(29a) most naturally gives rise to the interpretation that the subject knows where he should get gasoline for some salient purpose (e.g., for the sake of saving money). (29b), which contains an explicit ability modal, is an appropriate translation of (28), and it cannot mean the same thing as (29a). Ability paraphrases are not available to simple embedded 'when'- and 'where'-phrases such as (29a), even when their English counterparts induce such paraphrases.

The contrast between (30) and (31) below makes the same point.

(30)    Gilbert knows where/when to buy an Italian newspaper.
         ≈ For some place p/time t Gilbert knows that he can/should buy an INP at p/t

(31)   Girubaato-wa dokode/itsu Itaria-no  sinbun-o         kau     ka sitteiru.
       Gilbert-Top   where/when Italia-Gen newspaper-Acc buy.Prs Q  know.Prs

       ≈ For some p/t Gilbert knows that he should buy an INP at p/t

(30) has an interpretation that the subject knows the place in which he is able to buy an Italian newspaper; a paraphrase that uses a *can*/*could*/*be able* modal is available to (30). On the other hand, (31) has no such interpretation—an ability modal expression *-eru* must be added for such an interpretation as in (32a) below—and the meaning of (31) is most naturally described using *should* or *ought to*.

It is also worth noting that the Japanese counterpart of *how* (*doo*) sometimes *excludes* an occurrence of an ability modal. If we replace *dokode* ('where') in (32a) with *doo*, we end up with an ungrammatical or unacceptable sentence (32b).

(32) a.   Girubaato-wa dokode Itaria-no  sinbun-o  ka-eru        ka sitteiru.
          Gilbert-Top   where  Italia-Gen paper-Acc buy-can.Prs Q  know.Prs

          'Gilbert knows where to buy an Italian newspaper.'

     b.  *Girubaato-wa doo Itaria-no sinbun-o ka-eru ka sitteiru.

It is the not the case that the 'wh'-word *doo* is always incompatible with an ability modal, as we have observed in Type-(ii) 'know how' sentences containing an explicit ability modal, as illustrated by (33).

(33)   Girubaato-wa doo sure-ba/sita-ra Itaria-no  sinbun-o  ka-eru        ka sitteiru.
       Gilbert-Top   how do-if/did-if     Italia-Gen paper-Acc buy-can.Prs Q  know.Prs

       'Gilbert knows what to do in order to buy an Italian newspaper.'

In the current paper, we do not offer any systematic account of the distributional patterns of Japanese 'wh'-phrases and modal constituents. Overall, however, the examples presented here support the claim that Japanese knowledge-how ascriptions do not express ability (or disposition) modality unlike their English counterparts. Rather they describe knowledge concerning deontic (or teleological) modality—knowledge of how one ought to behave (given some goal).

## 6. Concluding Remarks

In this paper, first, we identified four related but different types of knowledge-how ascriptions in Japanese, stating their structural similarities to and differences from *know how to V*. Second, we examined the four types of knowledge-how ascriptions in terms of obligatory control; the data strongly suggest that knowledge-how ascriptions do not constitute obligatory control. Third, we argued that Japanese knowledge-how ascriptions express only deontic (or teleological) modality as opposed to *know how to V*, which is also associated with ability (or

disposition) modality; this finding was also confirmed by the other forms of interrogative knowledge ascriptions.

Stanley's analysis of *know how to V* applies to Japanese knowledge-how ascriptions, because it encompasses both deontic/teleological and ability/disposition modalities. That is, Japanese knowledge-how ascriptions describe propositional knowledge, and 'intellectualism' in some weak sense is vindicated.[9] The outcome, however, may not be welcomed by those engaging in the intellectualist and anti-intellectualist debate. The considerations in the paper imply that Japanese knowledge-how ascriptions are not well suited to describing the key examples in the epistemological debate (e.g., knowledge of how to swim, how to ride a bicycle). If Hana knows how to swim (in the sense that is interesting to the whole debate), then the correct way to express it in Japanese is probably the following:

(34)    Hana-wa   (umaku) oyog-eru.
        Hana-Top (well)     swim-can.Prs.

        'Hana can swim well.'; 'She's a good swimmer.'

That is, in Japanese, knowledge locutions may have to be avoided in describing the subject matter of the debate—often referred to as 'practical knowledge'. If ascriptions of knowledge-how may be merely contingently associated with the subject matter, then, what is the point of scrutinizing our talk of knowledge so meticulously? More serious discussion of philosophical implications goes beyond the scope of the current linguistic paper. The observations here, however, encourage reconsideration of the nature of the intellectualist and anti-intellectualist debate.

## References

Bengson, J. and M. A. Moffett eds., (2012) *Knowing How*, Oxford University Press, Oxford.

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

Bhatt, R. (2006) *Covert Modality in Non-finite Contexts*, Mouton de Gruyter, Berlin.

Brown, J. (2012) "Words, Concepts and Epistemology." In J. Brown and M. Gerken eds., *Knowledge Ascriptions*, Oxford University Press, Oxford, 31–54.

Ditter, A. (2016) "Why Intellectualism Still Fails," *The Philosophical Quarterly*, 66(264), 500–515.

Douskos, C. (2013) "The Linguistic Argument for Intellectualism," *Synthese*, 190, 2325–2340.

Fujii, T. (2006) *Some Theoretical Issues in Japanese Control*, PhD dissertation, University of Maryland.

Fujii, T. (2012) "On the Calculus of Control and Lack of Overt Agreement Morphology," *Nanzan Linguistics*, 8:1–16.

Ginet, C. (1975) *Knowledge, Perception, and Memory*, D. Reidel Publishing Company, Dordrecht.

---

[9]  See (Glick 2011) for several different senses of intellectualism.

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*, Oxford University Press, Oxford, 120–139.

Habgood-Coote, J. (2018) "Knowledge-How, Abilities, and Questions," *Australasian Journal of Philosophy*, Published Online First, https://doi.org/10.1080/00048402.2018.1434550.

Izumi, Y. (2013) "Contextualism and Japanese Knowledge Attributions," *Metaphysica: The Journal of Philosophy and Ethics*, 44, 99–111.

Landau, I. (2000) *Elements of Control: Structure and Meaning in Infinitive Constructions*, Kluwer, Dordrecht.

Landau, I. (2013) *Control in Generative Grammar: A Research Companion*. Cambridge University Press, Cambridge, UK.

Markie, P. J. (2015) "The Special Ability View of Knowledge-how," *Philosophical Studies*, 172(12), 3191–3209.

Masuoka, T., and Y. Takubo (1992) *Kiso Nihongo Bunpou* ("Basic Japanese Grammar"), Kurosio Publishing Company, Tokyo.

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

Noë, A. (2005) "Against Intellectualism," *Analysis*, 65(288), 278–290.

Pavese, C. (2015) "Practical Senses," *Philosophers' Imprint* 15(29): 1–25.

Pavese, C. (2016) "Skill in Epistemology II: Skill and Know How," *Philosophy Compass* 11(11): 650–60.

Rumfitt, I. (2003) "Savoir Faire," *Journal of Philosophy*, 99, 158–166.

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

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

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

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

Stanley, J. and T. Williamson (2001) "Knowing How," *Journal of Philosophy* 98(5), 411–444.

Takita, K. (2012) "'Genuine' Sluicing in Japanese," *Proceedings of the 45th Annual Meeting of the Chicago Linguistic Society*, Chicago Linguistic Society, 577–592.

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