Setting the standard in the acquisition of Japanese and English comparatives

Setting the Standard in the Acquisition of Japanese and English Comparatives

Tomoe Arii[a], Kristen Syrett[b] and Takuya Goro[c]
[a]University of Tokyo/JSPS, [b]Rutgers, The State University of New Jersey-New Brunswick, [c]Tsuda College

1 Introduction

While the ability to express comparisons seems to be a universal aspect of language, the form of the comparative construction varies cross-linguistically. For example, while some languages possess overt comparative morphology, others do not.[1] An example of this contrast is found in English versus Japanese, as illustrated in (1) and (2). While English possesses the bound comparative morpheme *-er*, as seen in (1), and the periphrastic *more* (e.g., *more artistic*), Japanese lacks such comparative morphology.

(1) This building is **taller** than that building.
(2) Kono biru-wa ano biru-yori **takai**.
this building-TOP that building-than tall
'This building is taller than that building.'

What's more, even a comparative construction that appears similar on the surface in two different languages can differ in its interpretation. We begin with the English sentences in (3). The (3a) sentence includes a relative gradable adjective (GA) in the positive form (*tall*), and asserts that the building is tall relative to some contextually-set standard of comparison. The (3b) sentence, which includes the Measure Phrase (MP) (*20 meters*), expresses an *absolute* measurement of the building's height. The (3c) sentence, which includes both the MP and the bound comparative *-er* morpheme, indicates that the height of the building exceeds some standard (perhaps another building or the height the building was before) by 20 meters. Following von Stechow (1984), we will refer to this comparative phenomenon as *differential* measurement.

(3) a. This building is **tall**.
b. This building is 20 meters **tall**. absolute
c. This building is 20 meters **taller**. differential

It is possible to form sentences in Japanese that (on the surface) are similar to the (3a) and (3b) sentences above, as in (4). (The (3c) sentence is not possible,

[1] According to Stassen (1985), languages that have overt comparative morphology are not as common as those that lack it. In Japanese, the standard marker *yori* 'than' also corresponds to the English *from*.

given the lack of comparative morphology in Japanese.) However, the absolute interpretation is not available for (4b) below (Kikuchi 2002; Kubota 2011; Nakanishi 2004; Snyder, Wexler, & Das 1995). Only the differential interpretation is available. (Here, '#' is taken to mean that the meaning cannot be generated from the string, while the string itself is grammatical under another interpretation.)

(4) a. Kono biru-wa **takai**.
this building-TOP tall
'This building is tall.'

b. Kono biru-wa 20-meetoru **takai**.
this building-TOP 20-meter tall
#'This building is 20 meters tall.' #absolute
'This building is 20 meters taller.' differential

The cross-linguistic contrast poses a challenge for children acquiring language. They need to figure out how the language they are acquiring encodes comparatives, and determine the range of interpretations licensed in each comparative construction.

In this paper, we focus on the contrast between the absolute and differential interpretations of English and Japanese constructions such as those above in order to highlight a common approach to the interpretation of comparatives shared by children acquiring these two languages. Through a series of experimental studies, we found that children in both languages proceed through a similar non-adult-like stage of interpretation, interpreting the differential in (3c) and (4b) as absolute, even though this interpretation is not available in either language. Furthermore, we also found that the presence of comparative morphology in English does not facilitate the correct interpretation of English differential comparatives among preschoolers, nor does the presence of an overt standard override children's tendency to set the standard to zero by default in either language. Given the results, we explain this unexpected pattern of results by appealing to the selectional restrictions the *Meas* Degree head has for the scale structure of the GA with which it composes, requiring a minimal element (Sawada & Grano 2011; Svenonius & Kennedy 2006). Thus, we entertain the possibility that it is precisely *because* children have an adult-like syntax-semantics structure for Degree Phrases that they arrive at these non-adult-like interpretations.

2 Experiments

2.1 Participants

Experiment 1: 16 children acquiring Japanese (4;2-6;2; Mean: 5;3) and 16 Japanese adults participated. 3 additional children were excluded due to a response bias. 16 children acquiring American English (4;1-5;4, Mean: 4;9) and 27 American English-speaking adults participated. 4 additional adults and one

child were excluded due to non-native speaker status. Experiment 2: 16 Japanese-speaking children (4;4-6;3, M: 5;4) and 18 English-speaking children (3;9-6;3, M: 4;8) participated. 10 additional Japanese children and six additional English children were excluded due to a response bias.

2.2 Design

We conducted two complementary experiments in English and in Japanese. Both experiments made use of the same experimental methodology and stimuli, with one minor difference in the linguistic stimuli. In Experiment 1, there was no overt standard of comparison, while in Experiment 2, there was an overt standard (signaled by a *than* phrase in English and a *yori* phrase in Japanese). Each experiment had the same structure.

Stimuli were presented via a series of PowerPoint slides, with child-friendly images. Participants were first trained to measure objects (e.g., plants, animals), using a novel unit of measurement. This unit was portrayed with yellow stars aligned vertically on a tree, and was referred to as *kirari* in Japanese and *chipanis* in English. This novel unit was employed, because it was easily imageable, and it did not require children to rely on their prior lexical knowledge of units of measurement (e.g., meters, feet, etc.). The objects were placed next to the tree, and the experimenter asked the participants to measure the height of the objects, and determine which were taller/shorter/the tallest, based on their heights. Children breezed through this training.

After this brief training session, participants proceeded to the test session, which was composed of two separate sessions, presented in counterbalanced order. One was designed to elicit judgments of *taller/longer* with continuous dimensions of height and length, while the other was designed to elicit judgments of *more* with discrete quantities and sets with exact cardinality. Each test session had between 9 and 13 trials.

Each trial had the same structure, as shown in Figure 1. Participants interacted with a puppet in a version of the Truth-Value Judgment Task that used a prediction mode (Chierchia *et al*., 1998). The participant and puppet were first shown an animal against the tree of *kirari/chipanis*. They were then shown a second slide with a second animal, and the puppet made a prediction about the difference in height/length/quantity. Representative linguistic stimuli are provided for English in (5) and Japanese in (6). Next, the experimenter said, "Let's place the lion against the tree and the tiger to see if you're right!" The second character was then placed on the other side of the tree, and the puppet then reminded the child of his prediction, and asked the child if he was right or wrong. The child provided a 'yes'/'no' answer, often offering a justification. In this example, the puppet's prediction was accurate under the adult differential interpretation.

(5) a. X is two chipanis taller (than Y).
    b. X has two more Ns (than Y).

(6) a. X-wa (Y-yori) 2-kirari takai/nagai.
X-TOP Y-than 2-kirari tall/long
'X is 2 kiraris taller/longer (than Y).'
b. X-no N-wa (Y-no-yori) 2-ko ooi.
X-GEN N-TOP Y-GEN-than 2-CL many
'X has 2 more Ns (than Y).'

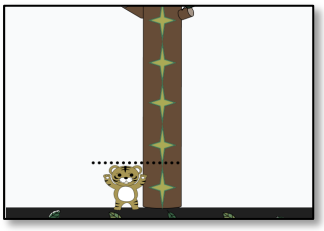
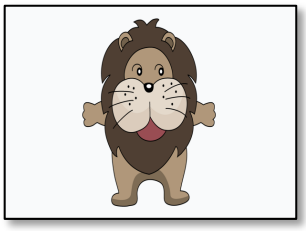
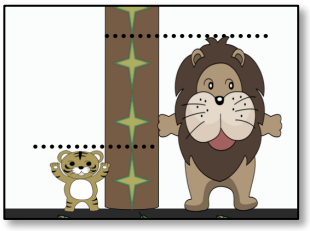
Scene 1	Scene 2	Scene 3
		
E: *Look, this tiger is 1 chipani tall!*	E: *Puppet, what do you think about this lion?*	P: *Remember, I said I think the lion is 2 chipanis taller (than the tiger). Am I right?*
	P: *I think the lion is 2 chipanis taller (than the tiger).*	

Figure 1: Sequence of stimuli for one test trial (Experiment 2 addition in parentheses)

In addition to the 'Differential' condition illustrated in Figure 1. we included two other types of test trials in the experiment. The 'Absolute' condition makes the test sentence true if and only if it is interpreted as expressing the absolute measurement of the height of the character in subject position. The interpretation, however, is not possible in adult English or Japanese, as we have seen in the previous section. The 'Neutral' condition is used to determine whether or not the child has a particular response bias (e.g., answering 'yes' in all the trials).

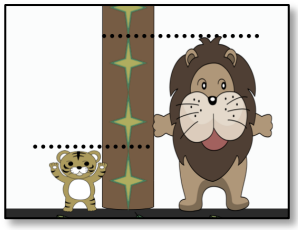
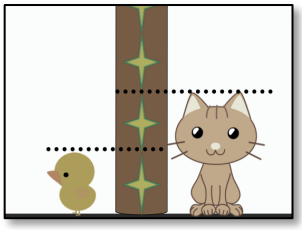
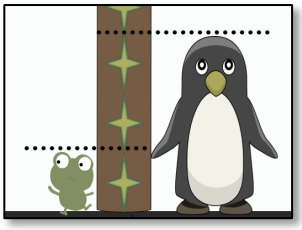
Differential	Absolute	Neutral (control)
		
The lion is 2 chipanis taller.	*The cat is 2 chipanis taller.*	*The penguin is 1 chipani taller.*
Diff. True, Abs. False	Diff. False, Abs. True	Diff. False, Abs. False

Figure 2: Three types of test trials, based on interpretation supported in context

The trials in the test session with discrete quantities had a similar structure. The first quantity was shown, the puppet made a prediction about a second quantity, and the two quantities to be compared were shown side by side, so that the child could determine the accuracy of the puppet's prediction. Assertions about *one* or *two more Ns* were either true or false under a differential or absolute interpretation.

2.3 Results

We present the results of each experiment in turn. For each, we first present the data from the Japanese participants, then the data from the English participants.

2.3.1 Experiment 1 (no overt standard of comparison)

Results for the Japanese-speaking participants are presented in Figure 3, and results for the English-speaking participants are in Figure 4. Whereas adults demonstrated near-ceiling performance, children performed at a significantly lower rate. The difference between the adults and children was significant for both languages (Japanese: $t(62)=8.14$, $p<.0001$; English: $t(83)=14.72$, $p<.0001$).

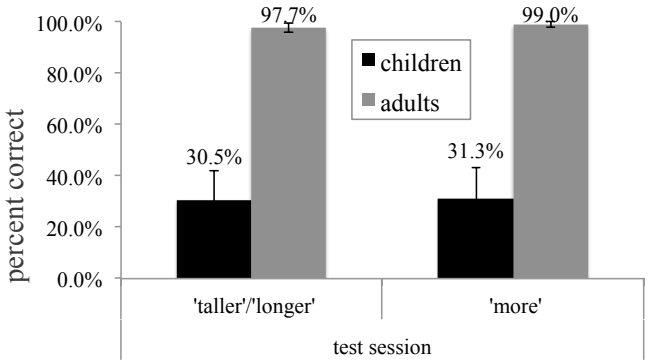


Figure 3: Results from Japanese adult and child participants in Experiment 1

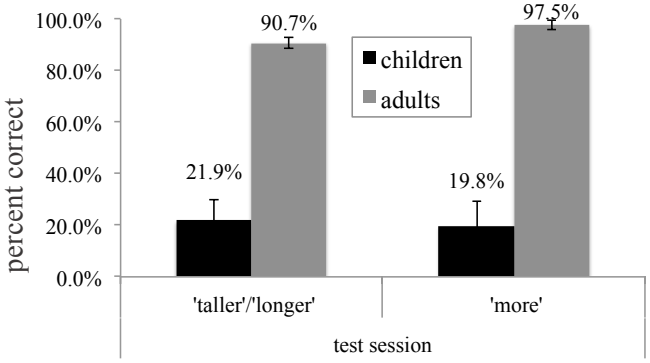


Figure 4: Results from American English adult and child participants in Experiment 1

Within each language, there was no difference between the *taller/longer* and *more* test sessions for either the adults or the children (Japanese: adults t(30)=.65, *p*=.52, children t(30)=.05, *p*=.96; English: adults t(51)=1.16, *p*=.25, children t(30)=.17, *p*=.87). There was also no difference between the age groups across languages (adults: t(62)=.98, *p*=.33; children: t(83)=1.20, *p*=.24).

Children demonstrated perfect or near-perfect performance with the neutral control items (Japanese children: 100% correct; English children: 90% average correct). This indicates that they had no difficulty with the task itself, and were not providing the same affirmative response across the board. They rejected the puppet's statement with the Neutral items, accepted it with the Absolute items, and rejected it with the Differential items. This pattern of responses appears to indicate that children from both languages were consistently interpreting the comparative absolutely (e.g., 'The lion is 2 chipanis/kiraris tall'), regardless of whether the adjective did (English) or did not (Japanese) have a comparative morpheme. Given these responses, we wondered if the children were not given enough of a surface cue to the comparative interpretation of the puppet's utterances, and therefore introduced an overt standard of comparison in the puppet's statements in Experiment 2.[2]

2.3.2 Experiment 2 (overt standard of comparison)

Recall that the difference between Experiments 1 and 2 was that in the latter, the test sentences provided an overt standard of comparison in the form of a *than* or *yori* phrase, thereby marking deviation from a salient standard and unambiguously indicating that the construction should be interpreted comparatively. This comparative standard is thus clearly indicated, regardless of whether or not the language marks comparative adjectives with a morpheme.

The results of Experiment 2 are presented on the following page, paired with those from Experiment 1 for comparison. The results from the Japanese children are presented in Figure 5, and the results from the English children are presented in Figure 6. In fact, this manipulation accomplished little to no change in either group. For the Japanese participants, there was no difference in the children's performance between Experiments 1 and 2 (t(62)=.50, *p*=.62). However, for the English children, this difference was marginally significant (t(66)=1.96, *p*=.05). In particular, for the Absolute items that tested *taller/longer*, children were slightly more successful when they were provided with a standard phrase, although their performance was still not anywhere near that of the adults. Overall, there was no difference between the *taller/longer* items or the *more* items for either group (Japanese: *taller/longer* t(30)=.50, *p*=.62, *more* t(30)=.20, *p*=.85; English: *taller/longer* t(32)=1.53, *p*=.13, *more* t(32)=1.20, *p*=.24).

In Experiment 2, as in Experiment 1, children accurately rejected the Neutral

---

[2] This manipulation also allowed us to test a hypothesis stemming from independent claims by Moore (1999) and Alrenga, Kennedy, & Merchant (2012) that the comparative interpretation might arise from the standard phrase rather than (or in addition to) the comparative morpheme.

items (Japanese: 90%; English: average 79% correct). However, the combined results from Experiments 1 and 2 call into question whether or not the children did so for the right reasons. Recall that the Neutral control items were False under both a differential and an absolute interpretation. Across both experiments, children from both languages consistently rejected statements that were False under an absolute interpretation (the Differential trials and the Neutral trials), and accepted those that were True under an absolute interpretation. Thus, the commonality between both groups of child participants is that they seem locked into an 'absolute' interpretation of the differential comparative construction – regardless of the absence or presence of a comparative morpheme, or the absence or presence of an overt standard of comparison.

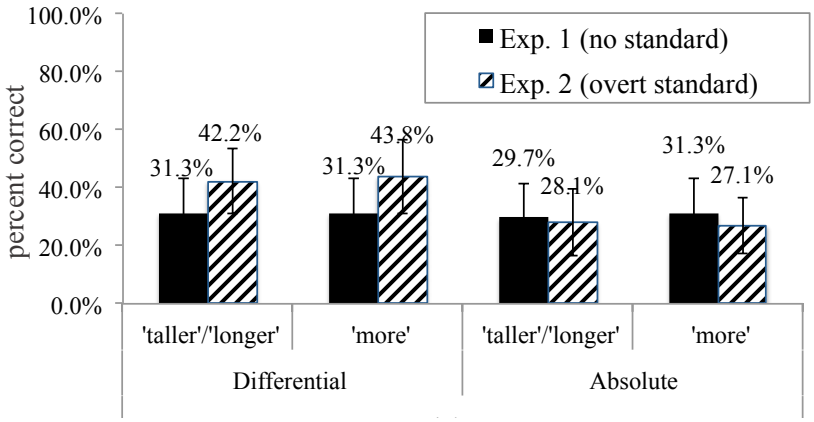


Figure 5: Results from Japanese children in Experiments 1 and 2

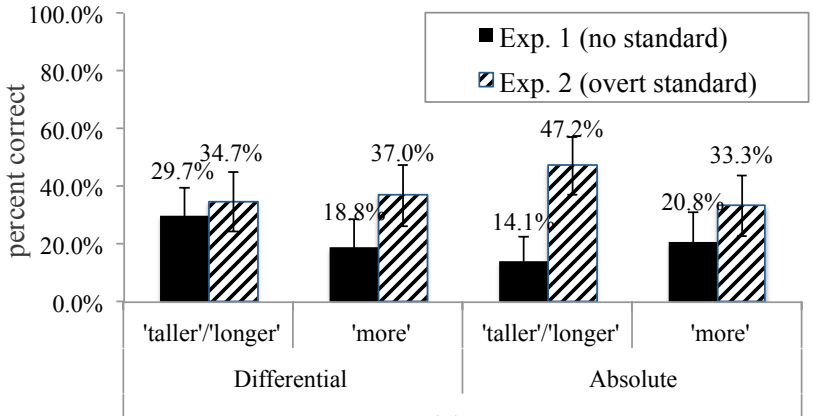


Figure 6: Results from American English children in Experiments 1 and 2

2.4 Discussion

Experiment 2 shed light on the overall pattern of results from the Japanese and American English child participants by revealing that the presence of an overtly provided standard of comparison did little to improve children's performance. We had thought that giving them this clear indicator should lead them to perform a comparison between the second and the first character, and therefore that they would then exhibit a response pattern similar to that of the adults. The children, however, either ignored this linguistic information, or incorporated it into a representation that resulted in a non-adult-like interpretation. In the following section, we outline a proposal for how to account for children's performance with differential comparatives that appeals to the semantics of measure phrases.

3. General discussion

Across language groups, we found that children consistently interpreted the target differential comparative sentences (repeated here as (7)-(8)) as expressing an absolute measurement of the character in subject position (i.e., 'X is two chipanis/kiraris tall' or 'X has two Ns'), rather than as expressing an extent to which the first character deviated from a contextually-relevant standard embodied by a second character. They did so despite comparative morphology on the English adjective, despite the fact that this second character was mentioned explicitly as a standard in Experiment 2, and despite the fact that in Japanese, the combination of a measure phrase and an adjective does not license an absolute interpretation and forces a differential comparative interpretation.

(7) a. X is two chipanis taller (than Y).
    b. X has two more Ns (than Y).

(8) a. X-wa (Y-yori) 2-kirari takai/nagai.
       X-TOP Y-than 2-kirari tall/long
       'X is 2 kiraris taller/longer (than Y).'
    b. X-no N-wa (Y-no-yori) 2-ko ooi.
       X-GEN N-TOP Y-GEN-than 2-CL many
       'X has 2 more Ns (than Y).'

This response pattern seems particularly surprising, given independent evidence from other research demonstrating that children possess certain linguistic knowledge that they would presumably bring to bear on this task. First, even younger children recognize that relative GAs such as *big* and *tall* diverge from absolute GAs such as *full* and *spotted* (Kennedy & McNally 2005) in that they rely on a contextually-set standard of comparison in the positive form (i.e., without any comparative morphology) (Syrett *et al*. 2006; Syrett, Kennedy, & Lidz 2010). Second, children experience no difficulty acting out or interpreting non-differential comparative constructions such as those in (9) (Gor & Syrett 2014; Syrett *submitted*; Syrett & Lidz 2011).

(9) a. Sheriff Woody fed **more** bear cubs than Jessie.
b. The monkey pushed the rock **further than** the elephant did.

Third, English-acquiring children not only produce phrasal and clausal comparative constructions with *than* standard phrases by three to four years of age (Hohaus, Tiemann, & Beck 2014), but they are also used to hearing comparative adjectives without them. Indeed, a corpus search of child-directed speech from six major corpora in the CHILDES database (MacWhinney 2000), including Adam, Naomi, Nina, Peter, Sarah, and Shem, targeting frequent GAs[3] yielded 499 occurrences. Of these, 45.5% featured the comparative adjective utterance-finally, and 22.0% included an overt *than* standard. Thus, children are encountering evidence for the comparative interpretation of similar utterances quite often. We should note that we are not the first to uncover an 'absolute' interpretive strategy in children. In fact, Donaldson (1963) (and Duthie in his appendix to this book, discussed by H. Clark years later) made a related observation that children often interpreted sentences such as (10) as expressing that Tom is four years old.

(10) Tom is four years younger than Dick.

One might be tempted to argue that the incremental processing of these comparative constructions is to blame. That is, when children first encounter the numeral in the differential measure phrase a few hundred milliseconds before they encounter the comparative suffix on the adjective, they take it as an indicator of an exact measurement rather than a difference, and posit a syntactic and semantic representation in which the MP expresses an absolute amount (e.g., of height, length, or cardinality). It is easy to see how this strategy could be applied to (10) above. This strategy does not seem unreasonable in light of children's reliance on exact cardinality of sets in their interpretation of MPs in other experimental tasks (Syrett 2013). However, this explanation falls short for three reasons.

First, while participants could locate the exact cardinality of a set in the *more* test session, there is no 'exact' cardinality of a continuous dimension such as height or length. Thus, children would have to locate a point from which the '# kirari/chipanis' amount should be measured, in which case the choice between the maximum amount of the first character mentioned and ground zero seems arbitrary. To choose the latter, participants would still have to be ignoring the comparative morpheme in English and the standard phrase. Second, in the *more* session, children would have to reconcile this interpretation of the MP with the interpretation of *more* – a word that is in their lexicon well before the age range tested in these experiments. Finally, while there may be a way to explain away these features of the English comparative, it is clear that the incremental

[3] These adjectives included *big, close, early, easy, fast, happy, high, nice, old, tall,* and *wide.*

processing strategy cannot serve as an explanation for the Japanese children. Notice in (8) that the standard phrase appears *before* the MP, not after it. Children acquiring English or Japanese assign the same 'absolute' interpretation to differential comparatives, regardless of any difference in word order, and therefore appear to be driven by a common interpretive source. Let us, then, look more closely at the semantics of the differential comparative.

4. Proposal

We begin by outlining two main assumptions. First, we assume, following Kennedy (2007) and Sawada & Grano (2011) (henceforth S&G) that bare, positive form GAs such as *big* and *tall* compose with the *pos* morpheme, whose function is to relate the adjective to a standard of comparison. Thus, in the case of these adjectives in particular, a statement such as the one in (11a) below is taken to mean that John is tall relative to some contextually relevant standard. Second, we also assume that in examples such as the one in (11b) below the adjective *instead* composes with an MP. Thus, the two instances have different truth conditions.

(11) a. John is tall.
b. John is 6 feet tall.

In English, not every GA licenses a numeral MP in the bare, positive form of the adjective. While the (a) example in (12) is fine in both versions, the (b) and (c) examples are only permissible in the first, comparative form. There seem, then, to be lexical idiosyncrasies among the adjectives appearing with MPs, as noted by Schwarzschild (2005).

(12) a. 2 feet tall / 2 feet taller
b. 2 dollars more expensive / #2 dollars expensive
c. 2 pounds heavier / #2 pounds heavy

Across languages, there are also those that permit absolute interpretations of constructions in which a numeral MP combines with a positive form adjective (as in the English *tall* version of (a) above), and those that require a differential interpretation of such expressions. We have already seen the latter with Japanese. Spanish is similar to Japanese (although see discussion in Eguren & Pastor (2014)). For example, the adjective in (13) cannot appear in its bare positive form with the numeral MP. However, Spanish *does* allow absolute interpretations of some positive form adjectives, as shown in (14) (S&G, 2011).

(13) 2 metros *(más) alto
2-meter *(more) tall
'2 meters taller'

(14) doblada 20 grados
bent 20 degrees
'20 degrees bent'

In fact, S&G demonstrate that Japanese also allows an absolute interpretation of certain predicates[4] accompanied by a numeral MP, as shown in (15) and (16) (their (7b) and (43b)).[5]

(15) 20-do magatteiru
20-degree bent-TEIRU
'20 degrees bent' *NOT*: 'This rod is 20 degrees more bent'.

(16) Kono fusuma-wa 3-senti ai-teiru
this sliding door-TOP 3-centimeter open-TEIRU
'This door is 3 centimeters open.' *NOT*: '…more open.'

What do all of these adjectives have in common that licenses an expression of absolute measurement when they compose with an MP? S&G appeal to Kennedy & McNally (2005)'s taxonomy of GAs, to argue that in languages such as Spanish and Japanese, an absolute interpretation is licensed *only* with GAs that have a certain scalar structure. While relative GAs appeal to a contextually-set standard of comparison, absolute GAs appeal to standards at either the minimal or maximal endpoint of a scale. In Japanese, it is only minimum standard absolute GAs (or 'lower closed scale adjectives') that allow for absolute measurement.

This constraint is compatible with a proposal by Svenonius & Kennedy (2006) (S&K) that the head of the Measure Phrase (*Meas*) has a selectional restriction such that it can only compose with GAs that denote functions that map their arguments onto measureable degrees – and further that they map their arguments onto bounded, measurable, positive degrees. S&G insert an additional stipulation (at least for Japanese) that the GA must have a minimal element. This restriction is stated in (17).[6]

---

[4] S&G provide evidence in support of how predicates such as *open* and *bent* in Japanese, which are forms derived from verbs, pattern like gradable adjectives.

[5] Watanabe (2013) shows that it is possible to derive an absolute interpretation with relative gradable adjectives in Japanese in some contexts, as in the copular construction in (i) below. While *takasa* appears to be a nominal form, Watanabe argues that since it is grammatical without a case marker, it should be treated as an adjective.

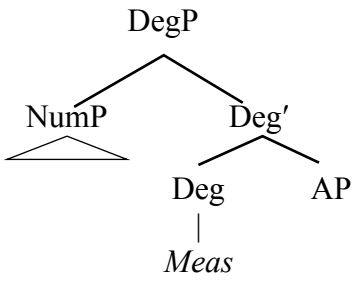
(i) Kono biru-wa taka-sa 20-meetoru-da.
this building-TOP height 20-meter-COP
'This building is 20 meters tall'.

[6] Here, gradable adjectives are assumed to be of type <e, d>. Another possibility is that they are instead of type <d, <e, t>>. The type proposed for the GA, of course, has implications for the type proposed for *pos* and MP. We follow the treatment of gradable adjective presented in S&G and S&K for expository purposes, without any theoretical commitment one way or the other here.

(17) [[*Meas*]] = $\lambda g_{<e,d>}$: g is a function from objects to measurable degrees and g has a minimum element $\lambda d \lambda x.g(x) \geq d$.

The structure assumed for Degree Phrases and MPs, based on S&K, is presented in (18). Compositionally, this structure yields a property of an individual (e.g., *six feet tall*) of type <e, t>.

(18)



S&G argue (following Kennedy & Levin (2008)) that composition between *Meas* and a comparative adjective is always licensed, regardless of the scalar structure of the adjective, because the comparative morphology turns the basic measure function into a *difference* function. The scale, then, has a 'derived zero', which is the comparative standard (signaled by the *than/yori* phrase) that serves as the minimal element. Thus, relative GAs and minimal standard GAs are both licensed in the comparative form, because they can have a derived minimal element, and the relevant semantic differences of the root GAs are neutralized in the comparative form. What, then, accounts for the absolute interpretation of minimum standard GAs with an MP and a differential comparative interpretation of relative GAs with an MP in Japanese?

S&G argue that the GA must have a minimal element in order to be combined with *Meas*. This minimal element comes along for free with minimum standard absolute GAs. When the adjective relies upon a contextual standard, however, S&G propose that the scale associated with the adjective is forced to take on a contextually-recoverable minimal element in a process that they term 'scale shift'. They propose that a covert coercion operator C intervenes to prevent the clash between *Meas*'s requirement of a minimal element of measurement and the open scale associated with the relative GA. This coercion is captured in (19), adapted from their (71).

(19) *takai*$_1$ 'tall' coercion to *takai*$_2$ 'taller'

Without an MP, a bare relative GA in Japanese (as in *Kono tana-wa takai* 'This shelf is tall') *cannot* be interpreted as being assessed relative to a discourse-

salient standard of comparison (although a contextual standard or comparision is, of course, required in order to assess the truth value of the proposition). However, *with* an MP, the same relative GA in Japanese *must* be interpreted comparatively (i.e., *2-meetoru takai* must mean '2 meters taller'), and a minimum standard GA cannot be (i.e., *5-do magatteiru* means '5 degrees bent', not 'more bent'). Children acquiring Japanese and English appear not to know that expressions such as *2 meters taller* and *2-meetoru takai* should be comparative. Instead, they consistently assign an absolute interpretation.

We would like to entertain the possibility that what guides children from both age groups towards this common interpretation is precisely the selectional restrictions of *Meas*. Specifically, *Meas* (and consequently DegP) in both languages signals the presence of a minimal scalar element. Rather than look to the context to set the standard, children default to the most conspicuous and accessible minimal element possible: absolute zero. Thus, regardless of the type of GA, the presence of comparative morphology, or an overt standard indicated by a *than*/*yori* phrase, children are led by *Meas* to look for a minimal value of bounded, measurable, positive degrees: zero. This state of affairs may explain why children of this same age can often accurately interpret adjectival and *more* comparatives without MPs – because in these cases, there is no push to look for a minimum, and the context can provide the standard. When an MP is present, it may be costly to look to the context to override the minimal standard (consistent with Kennedy (2007)'s interpretive economy principle).

Before closing, however, we note that there is another strategy children representing both languages could be employing – namely, to *misinterpret* the comparative construction as conjunction (either of two propositions or two properties), as illustrated in (20). This interpretive strategy has been proposed independently, for example, in children's interpretation of sentences with relative clauses for which the felicity conditions have not been met (Tavakolian 1981).

(20) a. X is 2 chipanis taller than Y. / X-wa Y-yori 2-kirari takai/nagai.
b. X is [2 chipanis] AND [taller than Y].

While we recognize this possibility, our attempts to pin down this strategy in subsequent pilot experiments with children from both languages have yielded ambiguous results, in part, because with the conjunction proposed in (b) above, the same truth conditions apply as in the current experiments: the target sentences are still true for the Absolute trials, false for the Differential trials, and false for the Neutral trials. Our ongoing research on this phenomenon thus involves falsifying the second conjunct, along with other manipulations. For now, we consider the first possibility we outline – that the semantics of the Measure Phrase could be implicated – a very intriguing one that deserves attention in its own right.

5. Conclusion

In two sets of experiments, we have shown that children acquiring Japanese and children acquiring English diverge from adult native speakers in both languages by assigning differential comparatives an absolute interpretation. Based on these results, we proposed the underlying source of this pattern is the same for both language groups. Specifically, children share with adults the same semantic structure of Degree Phrases, which includes *Meas* in the Degree head that selects for adjectives that have a minimal scalar element. Where children diverge from adults is in setting this minimal value to absolute zero by default, ignoring any linguistic or contextual standard that would override this. The path to arriving at the adult interpretation would require children to become more sensitive to such contextual information and the role of the standard phrase, and allow the standard to be set to a derived zero, as it is in comparatives without MPs.

References

Alrenga, P., Kennedy, C., & Merchant, J. 2012. A new standard of comparison. In *The Proceedings of the 30th WCCFL*, ed. by N. Arnett and R. Bennett. 32–42. Somerville, MA: Cascadilla Proceedings Project.

Chierchia, G., Crain, S., Guasti, M. T., & Thornton, R. 1998. 'Some' and 'or': A study on the emergence of logical form. In *The Proceedings of the 22nd BUCLD*, ed. by A. Greenhill, M. Hughes, H. Littlefield, and H. Walsh. 97–108. Somerville. MA: Cascadilla Press.

Donaldson, 1963. *A study of children's thinking*. London: Tavistock.

Eguren, L., & Pastor, A. 2014. Measure phrases with bare adjectives in Spanish. *Natural Language and Linguistic Theory* 32. 459–497.

Gor, V., & Syrett, K. 2014. Picking up after sloppy children: What pronouns reveal about children's analysis of English comparative constructions. Paper to be presented at the 39th annual Boston University Conference on Language Development.

Hohaus, V., Tiemann, S., & Beck, S. 2014. Acquisition of comparison constructions. *Language Acquisition* 21. 215–249.

Kennedy, C. 2007. Vagueness and grammar: The semantics of relative and absolute gradable adjectives. *Linguistics and Philosophy* 30. 1–45.

Kennedy, C. & McNally, L. 2005. Scale structure and the semantics typology of gradable predicates. *Language* 81. 345–381.

Kennedy, C. & Levin, B. 2008. Measure of change: The adjectival core of degree achievements. *Adjectives and adverbs: Syntax, semantics and discourse*, ed. by L. McNally & C. Kennedy. 156–183. Oxford: Oxford University Press.

Kikuchi, A. 2002. On the interpretation of measure phrases in English and Japanese. In *The Proceedings of Linguistics and Phonetics*, ed. by S. Haraguchi, O. Fujimura, and B. Palek. 971–980. Charles University in Prague: The Karilinum Press.

Kubota, Y. 2011. Phrasal comparatives in Japanese: A measure function-based analysis. In *Empirical Issues in Syntax and Semantics 8*, ed. by O. Bonami & P. C. Hofherr. 267–286. http://www.cssp.cnrs.fr/eiss8/index_en.html

MacWhinney, B. 2000. The CHILDES project: Tools for analyzing talk. Third edition. Mahwah, NJ: Lawrence Erlbaum.

Moore, D. 1999. Comparatives and superlatives: Lexical before functional. In *The Proceedings of the 23rd BUCLD*, ed. by A. Greenhill, H. Littlefield, and C. Tano. 474–481. Somerville.

MA: Cascadilla Press.
Nakanishi, K. 2004. On comparative quantification in the verbal domain. In *The Proceedings of SALT 14*, ed. by R. B. Young. 179–196. Ithaca: CLC Publications. elanguage.net/journals/salt/issue/view/284
Sawada, O. & Grano, T. 2011. Scale structure, coercion, and the interpretation of measure phrases in Japanese. *Natural Language Semantics* 19. 191–226.
Schwarzschild, R. 2005. Measure Phrases as modifiers of adjectives. *Recherches Linguistiques de Vincennes* 34. 207–228.
Snyder, W., Wexler, K. & Das, D. (1995) The syntactic representation of degree and quantity: Perspectives from Japanese and child English. In *The Proceedings of the 13th WCCFL*, ed. by R. Aranovich, W. Byrne, S. Preuss, and M. Senturia. 581–596. Stanford. CA: CSLI.
Stassen, L. 1985. *Comparison and Universal Grammar*. Malden: Blackwell.
Syrett, K. *submitted*. QR out of a tensed clause: Evidence from Antecedent-Contained Deletion.
Syrett, K. 2013. The role of cardinality in the interpretation of measurement expressions. *Language Acquisition* 20. 228–240.
Syrett, K., Bradley, E., Kennedy, C., & Lidz, J. 2006. Shifting standards: Children's understanding of gradable adjectives. In *The Proceedings of the Inaugural GALANA*, ed. by K. Ud Deen, J. Nomura, B. Schulz, & B. D. Schwartz. 353–364. Cambridge, Mass: UConn Occasional Papers in Linguistics 4.
Syrett, K., Kennedy, C., & Lidz, J. 2010. Meaning and context in children's understanding of gradable adjectives. *Journal of Semantics* 27. 1–35.
Syrett, K., & Lidz, J. 2011. Competence, performance and the locality of Quantifier Raising: Evidence from 4-year-old children. *Linguistic Inquiry* 42. 305–337.
von Stechow, A. 1984. My reaction to Cresswell's, Hellan's, Hoeksema's and Seuren's Comments. *Journal of Semantics* 3, 183–199.
Svenonius, P. & Kennedy, C. 2006. Northern Norwegian degree questions and the syntax of measurement. *Phrase of Interpretation, Volume 91 of Studies in Generative Grammar*. ed. By M. Frascarelli. 131–161. Berlin: Mouton de Gruyter.
Tavakolian, S. 1981. The conjoined-clause analysis of relative clauses. In *Language acquisition and linguistic theory*, ed. by S. Tavakolian. 167–187. Cambridge, MA: MIT Press.
Watanabe, A. 2013. Non-neutral interpretation of adjectives under Measure Phrase modification. *Journal of East Asian Linguistics* 22, 261–301.

Tomoe Arii
University of Tokyo, Department of English Language and Literature/
Japan Society for the Promotion of Science
allie522@gmail.com

Kristen Syrett
Rutgers, The State University of New Jersey – New Brunswick
Department of Linguistics and Center for Cognitive Science
kristen.syrett@rutgers.edu

Takuya Goro
Tsuda College
Department of English
takuya.goro@gmail.com