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True is more than false: Hiaki *chea*¹

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Abstract. In this paper we consider the adverb *chea* in Hiaki, a Uto-Aztecan language spoken in southern Arizona and northern Mexico. *Chea* has a comparative/superlative meaning ‘more/most’, but it also has other uses we propose to identify as ‘actually’, ‘even’, and ‘really’. We argue here that the latter three uses are built off the comparative meaning, relying on an analogy between degrees and truth values.

1 Introduction

The adverbial *chea* in Hiaki (aka Yaqui, Jiaki, Yoeme; ISO yaq)² has several readings or uses that appear to be different. The most salient translation is ‘more/most’ as in (1a,b,c); however, it also gets translated as ‘actually’ (2), ‘even’ (3), and ‘really’ (4):

- (1) a. *Senu pusimpo puhteko chea tuisi vitne.*
 Senu pusi-m-po puhte-ko CHEA tui-si vit-ne
 one eye-PL-at put-when **more** good-ADV see-IRR
 ‘When one puts glasses on, one sees **better**.’ Constructed example
- b. *Uu paros wakas chea kia tavu wakasta vepa.*
 U paros wakas CHEA kia tavu wakas-ta vepa
 the jackrabbit meat **more** delicious cottontail meat-ACC above
 ‘The meat of the jackrabbit is **tastier** than that of the cottontail rabbit.’ Constructed example
- c. *Hunu’u chea teve kari si’ime Tuksonpo.*
 Hunu’u CHEA teve kari si’ime Tukson-po
 that.one **most** tall house all Tucson-in
 ‘That’s the **tallest** building in Tucson.’ Constructed example

¹We would like to thank the audiences at Triple A 11 and WAIL 26.

²Hiaki is an agglutinating, SOV, Uto-Aztecan language spoken in Sonora, MX and the southwestern US, mostly in southern Arizona. In this paper, examples taken from Leyva (2025) are annotated as AtW (short for *Au te Waate*, ‘We Remember It’), followed by the chapter and section number and the initials of the speaker. Examples taken from the Molina et al. (1999) dictionary are annotated as MSV, followed by the headword entry and the sense number.

(2) a. *Isaloo su?*

Isaloo su?

Isaloo EMPH

‘Where is Isaloo?’ *lit.*: ‘As for Isaloo?’

b. *Nu chea haktá'apo muksuk.*

Nu CHEA haktá'a-po muk-su-k.

that.one **actually** days-in lost.to.death-COMPL-PFV

‘**Actually**, she has been dead for days.’

Constructed example

(3) *Intok huname itom wawaimtakasu vat katne o chea itom yoemiamtakasu*

Intok huname itom wawaimtaka=su vat kat-ne o CHEA itom yoemia-m-ta-ka=su

And those our relatives=EMPH first go-IRR or **even** our children-PL-be-PPL=EMPH

vat katne.

vat kat=ne.

first go-IRR

‘And those who were our relatives, they were the ones in front, or **even** our children, they would be in front.’

AtW 0.8 JMC

(4) *Te chea hi'ibwa.*

Te CHEA hi'ibwa.

1PL **really** eat.INTR

‘We are **really** eating!’ (said at a big meal)

Constructed example

We will argue that *chea* always compares two values. In its ‘more/most’ use, *chea* behaves in a familiar way: it compares a degree on an adjectival scale with another degree. This degree is either contextually given for an understood entity (or entities, in the case of ‘most’), or it is the degree projected by a DP explicitly given in the sentence.

Where *chea* composes with propositions in the ‘actually’, ‘even’, and ‘really’ uses, we make two claims: First, that the representation of truth values can be understood as a scale with 1 (= true) a greater value than 0 (= false). Second, that when *chea* is used with propositions, the sentence says that the actual state of affairs is “greater” (= “truer”) than what would have been expected. That is, the speaker conveys that someone—probably the addressee; for shorthand we will just say that it’s the addressee—expects the truth value of the proposition to be less than 1, *i.e.*, 0, false, when in fact, it is not, *i.e.*, its truth value is 1, true. In other words, these *chea* sentences convey roughly “You don’t expect this to be true, but it is!”.³

³Such a family of uses is surely cross-linguistically common. Even in English, there is or has been cross-talk between comparative (‘more’) meanings and intensification (‘really’) meanings, for example in *rather* (which started out as ‘more so than not’) and *more and more*. Likewise with intensification (‘really’) and verum focus (‘actually’); aside from the ‘actually’ reading of *really*, we also see both those uses for, *e.g.*, *literally* and *ver(il)y*.

1.1 Importance for fluency

Chea often occurs in discourse with the non-comparative/superlative uses. In a Hiaki corpus of approximately 30,000 words (Leyva, 2025), there are 108 occurrences of *chea*, of which only 47 are clearly comparative or superlative. From the perspective of language learners who want to attain full fluency in Hiaki, accurate mastery of these other uses of *chea* is highly important, but not always easy, since *chea* is currently so poorly understood. Our documentation and explication of *chea* in this paper grows out of the second author's sense that a greater understanding of the usage of *chea* will be essential to building adequate language pedagogy for Hiaki learners.

Here are a couple of examples of *chea* in particular everyday contexts, where it is not yet clear why *chea* is used. For one example, *chea* can be used in certain teasing contexts, as in (5):

- (5) *Havesa chea Mariata naat yehvaene.*
 havesa chea Maria-ta naat yeh-vae-ne
 who CHEA Maria-acc next.to sit-want-IRR

'Who would want to sit next to Maria?'

Constructed example

As another example, *chea* can also be used in utterances that remind the addressee that they were going to do something. Compare, for instance, (6a), which includes *chea*, to (6b), which does not:

- (6) a. *Heidi, empo chea woimpo imin noitivaen.*
 Heidi, empo chea woim-po imin noiti-vae-n
 Heidi, 2SG CHEA two-at there visit-going.to-IMPF.PST

'Heidi, (remember), you were going over there at 2 o'clock.' or 'Heidi, (remember), you wanted/intended to go over there at 2 o'clock.'

Constructed example

- b. *Heidi, empo imin noitivaen woimpo.*
 Heidi, empo imin noiti-vae-n woim-po
 Heidi, you there visit-going.to-IMPF.PST 2-at

'Heidi, you were going over there at 2 o'clock.'

The difference between (6a) and (6b) is that (6a) is a kind of prodding remark—Heidi was going to go take care of something, and the speaker wants to let her know that she should get going—while in (6b), the speaker is just making an observation, and doesn't necessarily care about whether Heidi goes or not.

In this paper we will be able to analyze (6) as what we are calling the 'actually' category, but we will not attempt to explain (5).

1.2 Methodological strategy

Chea in its non-comparative/superlative uses seems to be a discourse particle. With discourse particles, it can be difficult to come to definitive conclusions about their meaning solely using either an intuition-based or a corpus-based methodology. The precise expressive contribution of

chea may not be obvious ‘from the inside’, *i.e.*, from the point of view of a fluent speaker. This makes it impossible to come up with a comprehensive range of illustrative examples out of the blue. Rather, we need to see *chea* embedded in discourse.

Preliminary discussions revealed a clear connection both with the ‘more/most’ use and the ‘actually’ use, but to achieve a more complete picture, we needed to expand our sources of examples. Our strategy for getting a bigger range of data was to mine a corpus of naturally-occurring conversational examples (Leyva, 2025), which we are fortunate to have, as most endangered languages do not have such a resource available for researchers. Because of this blend of data sources, our examples are both constructed and extracted from transcripts of Hiaki conversations and narratives.

Based on these data, we were able to come up with a set of candidate glosses for possibly distinct uses and proposed denotations. We then returned to the corpus to see how few glosses could cover the data, and identified exceptions. Based on our findings, we were then able to categorize four uses of *chea*.

2 Documenting four uses of *chea*

In this section we illustrate the results of this process. The *chea* sentences are generally classifiable into the four main uses of *chea* given above in (1), (2), (3), and (4), in the order in which they emerged from our process: ‘more/most’, ‘actually’, ‘even’, and ‘really’.

2.1 ‘More/most’ use

Chea is the way to say ‘more/most’ in Hiaki; there is no other way to say it. Typical examples are provided in examples (7) through (11):

- (7) *Inepo hunuka hamutta tatahkae’um chea kiale.*
 Inepo hunu-ka hamut-ta ta-tahkae-‘u-m chea kiale
 1SG Det-ACC woman-ACC RED-make.tortilla-OBJ.REL-PL CHEA like/prefer

‘I like that woman’s tortillas better.’

Constructed example

- (8) *Uu tori umi ili tori aso’alam kaa ute’akame kokotuak bweituk*
 Uu tori u-me ili tori aso’al-am kaa ute’a-ka-me koko-tua-k bweituk
 D rat D-PL little rat baby-PL not strong-PPL-S.REL die.PL-CAUS-PFV because
ume chea utte’akame hiapsituavaekai.
 ume chea utte’a-ka-me hiapsi-tua-vae-kai
 the CHEA strong-PFV-S.REL heart-CAUS-want-PPL

‘Mother rat caused the rats who were not strong to die because she wanted the more strong ones to live.’

Constructed example

- (9) *Vempo si bweére o'owimtukan ta ian intok chea wawákila.*
 Vempo si bweére o'owim-tu-kan ta ian (=intok) chea wa-wá'akila.
 they very big.PL men-be-PAST.PRF but now (=and) CHEA RED-skinny

'They used to be very large men, but now are skinnier.' Constructed example

- (10) *Hita bwa'amta empo chea kiale?*
 Hita bwa'am-ta empo chea kia-le
 what food-ACC you.NOM CHEA delicious-think

'What is your favorite food?' lit: What food do you find most delicious? MSV: *chea* 3

- (11) *Hunama Lencho tea uu chea ili yo'owe.*
 hunama Lencho tea uu chea ili yo'owe
 that.there Lencho called D CHEA little old

'The oldest was known as Lencho.' *Lit.*, 'Over there (he) was called Lencho, the more little old one.' AtW 8.8 MH

There is also an example of *chea* in a frequent formulaic expression, similar in use to *Once upon a time* in many English folktales, that we think belongs in the 'more/most' category. In (12), we see an incorporated temporal adverbial *vat-*, used to describe anything in an initial position in a sequence, co-occurring with *chea*, which we think here conveys 'most initial', 'very first':

- (12) *Chea vatnaatakai...*
 Chea vat-naata-kai
 CHEA first-begin-PPL

Lit.: '*chea* first beginnings'

It is worth noting that Hiaki lacks ordinal numbers entirely, so although *vat-* is roughly equivalent to English *first*, there is no equivalent to *second*, *third*, etc.; 'initial(ly)' might be a better approximation.

2.2 'Actually' use

The English translation 'actually' occurs in many *chea* sentences where no comparative/superlative reading is intended. For instance, the example in (13) would be used in a discourse context where a friend has reached into your shelf and taken out a cup to use for tea, but unbeknownst to the friend, you only keep that cup for decorative and sentimental reasons, because it has a crack and leaks.

- (13) *Hunuu vaaso chea hihikia!*
 Hunuu vaaso chea hi-hikia!
 that cup CHEA HAB-leak

‘Actually, that cup leaks!’

Constructed example

Similarly, in (14), the speaker wishes to acknowledge their addressee’s expectation that raisins might be brown, while at the same time providing a contradictory correction:

- (14) a. *Haisa pa’isim huhusai?*
 Haisa pa’asi-m hu-husai?
 Q raisin-PL RED-brown

‘Are raisins brown?’

- b. *E’e, pa’asim chea momorao.*
 E’e, pa’asim chea mo-morao.
 no, raisin CHEA RED-purple

‘No, they’re actually purple.’

MSV *chea* 1

In (15), the subject of the mythical Mexican figure of the ghostly *Llorona* is under discussion, and the speaker wants to contradict the expectation that it’s ‘just a story’:

- (15) *In achai chea Yoronata au vitla tia.*
 In achai chea Yorona-ta au vit-la tia
 my father CHEA llorona-acc self see-PFV.PPL REP

‘My father reportedly actually saw the Llorona.’

MSV *chea* 2

This sentence is translated with *really* in the dictionary: “My father really did see the Llorona!” but since that is not the same predicate-intensifier sense of ‘really’ we illustrate below in what we are calling the ‘really’ category, we have placed it with the ‘actually’ cases.

Even when ‘actually’ does not occur in the translation, our approach sometimes suggests categorizing a sentence in the ‘actually’ category, based on the options in the potential English correlates:

- (16) a. A: “*Omme, onta katee kommonia.*”
 Omme, on-ta katee kommonia
 Man, salt-ACC don’t.you moisten

“Man, don’t get the salt wet.”

- b. B: “*E’e, nee chea aet katek,*” ti *hiia uu Looles.*
 E’e, nee chea ae-t katek,” ti hiia uu Looles
 no, 1SG CHEA it-on sit, QUOT say D Dolores

“No, I am sitting on it,” Dolores said to him.”

AtW 10.2 MH

Here, the ‘more/most’, ‘even’, or ‘really’ translations for *chea* aren’t appropriate translations, but ‘actually’ could be an appropriate translation—the idea is that Dolores is communicating something like, “No need to worry, although you wouldn’t expect it, actually I am sitting on [the salt] and that will protect it from getting wet.”

Another similar example from the corpus is seen in (17) below. A father is speaking to daughter about some documents they cannot find, which are essential for him to receive his pension:

- (17) *Hunak chea nee Mehikopo vetana yepsaka, Ermosiopo nee*
 Hunak chea nee Mehiko-po vetana yepsa-ka, Ermosio-po nee
 Then CHEA 1SG.NOM Mexico-at from arrive-PPL, Hermosillo-at 1SG.NOM
am suutohak.
 am=suutoha-k
 3SG.ACC=leave.behind-Pfv

‘Then when I returned from Mexico, I left them in Hermosillo.’

AtW 8.8 MH

If we were to try ‘more/most’, ‘really’ or ‘even’ in the translation of (17), we wouldn’t get anywhere close to the right meaning. However, ‘actually’ can yield an appropriate response, in the context where the father is contradicting the daughter’s expectation that he would have kept the papers with him. Here, we think *chea* scopes over the whole sentence, but occurs in second position. This illustrates a morphosyntactic property of *chea*, namely that it is an enclitic and needs a phonological host to its left. The observation that *chea* is an enclitic does not affect our semantic categorization here; even with *chea* taking wide scope, ‘actually’ is still the only use that makes sense.

Finally, *chea* as ‘actually’ is appropriate in (18) as well, where the context is one where a woman was starving and she had found something to eat:

- (18) *Ili usek chea kia a’apo kaa aa bwa’ane.*
 Ili use-k chea kia a’apo kaa aa=bwa’a-ne
 small child.have-if CHEA just she not=eat-IRR

‘If she has small children she would not eat it.’

AtW 1.4 DL

I.e. ‘(You expect she would eat it) but when/if she has small children she actually wouldn’t eat it.’

Again, the other options seem unlikely here, based on the English translation. There’s no way to fit ‘more/most’, or ‘even’ into the translation because the meaning is wrong, and the linear position of *chea* following the whole *if*-clause does not allow for an intensification reading applied to, *e.g.*, ‘small’. An ‘actually’ use, on the other hand, would convey an appropriate idea that the speaker is countering the hearer’s expectation that the hungry mother would herself eat whatever food she had. To correctly derive the propositional scope this reading requires, *chea* needs to scope either over the conditional or over the whole sentence; the latter seems most likely because it occurs in second position following the first constituent of the main clause, not in second position of the conditional.

Finally, the *chea* sentence used as a reminder in (6a) above, repeated below as (19), also plausibly seems to be an ‘actually’ use: you (look like you) aren’t thinking that you are going to do this, but actually you were going to do this.

- (19) *Heidi, empo chea woimpo imin noitivaen.*
 Heidi, empo chea woim-po imin noiti-vae-n
 Heidi, 2SG CHEA two-at there visit-going.to-IMPF.PST
 ‘Heidi, (remember), you were going over there at 2 o’clock.’ = (6a)

2.3 ‘Even’ use

Here are some examples where the most plausible English counterpart seems to be ‘even’:

- (20) *O chea ili tavum, hitasa animalta itom aa bwa’e’u.*
 O chea ili wakas-im, hita-sa animal-ta itom aa bwa’e-‘u
 or CHEA little cow-PL, some-EMPH animal-OBJ we can eat.TR-OBJ.REL
 ‘Or maybe even a cow, some animal that we can eat.’ AtW 0.8 JMC

- (21) *Intok huname itom wawaimtakasu vat katne o chea itom yoemiamtakasu*
 intok huname itom wawaimtaka=su vat kat-ne o chea itom yoemia-m-ta-ka=su
 And those our relatives=EMPH first go-IRR or CHEA our children-PL-be-PPL=EMPH
vat katne.
 vat kat-ne
 first go-IRR
 ‘And those who were our relatives would be in front, or even our children would be in front.’ AtW 0.8 JMC

- (22) *Kaa machiak chea mekka maachi kawimmet.*
 kaa machia-k chea mekka maachi kawi-m-met
 not light-COND/WHEN CHEA far appear mountain-PL-on
 ‘At night you can see the fire far away on the mountains’, ‘If it’s night you can even see the fire far away on the mountains.’ AtW 1.5 AS

- (23) *Ta ii chea kaa oviachi; islaavom.*
 ta ii chea kaa oviachi; islaavo-m
 but this CHEA not difficult; flint-PL
 ‘But that’s not even difficult, (you would use) flint.’ AtW 1.6 DL

It is important to note that there are other lexical items used in Hiaki to convey the meaning ‘even’, the main one being *huni’i*, as shown in (24) and (25) below:

- (24) *Yukeo huni’i.*
yuke-o huni’i
rain-when even

‘Even when it was raining.’

AtW 1.8 DL

- (25) *Hunumevetchi’ivo huni’i.*
hun-u-me-vetchi’ivo huni’i
DEM-D-PL-for even

‘Even for them.’

AtW 8.5 DL

As shown in (26) and (27) below, *chea* also combines comfortably with *katchansan* ‘not.even’, and *chikti* ‘even.DIST’ (?). Note the lack of ‘even’ in the translation of (26), similar to the lack of ‘actually’ in the translation in some of the examples we ended up categorizing as ‘actually’ cases.

- (26) *Reeve, chea te tua katchansan am hu’une’iya’ane.*
reeve, chea=te tua katchansan am hu’une’iya’a-ne.
half.the.time, CHEA=1PL really not.even them know-IRR

‘Half of the time, we did not know about them.’

AtW 7.7 MH

- (27) *I’an chea divisionim chikti im aayuk.*
I’an chea division-im chikti im aayuk
Now CHEA faction-PL even.DIST here be

‘Now there are even factions.’

AtW 8.5 ML

These double ‘even’ examples are not surprising in one sense, in that *chea* is an adverbial, and non-contradictory redundancy, perhaps for emphasis, would not be expected to be problematic for such an optional element. Our eventual analysis, however, will suggest that *chea* and these particles that really mean ‘even’ are not quite the same.

The example in (28) could be an ‘even’ use, as we have it below, but it’s also possible here that the right translation is ‘Even though it is a littler rock, it’s heavy,’ and so *chea* there has a ‘more/most’ use instead. Also a possible view is that *chea* is taking propositional scope and *huni’i* is taking scope over the antecedent, with an ‘actually’ reading: ‘Even though it is a little rock, it’s actually heavy.’

- (28) *Hunu'u chea ili tettataka huni'i vette.*
 hunu'u chea ili tetta-ta-ka huni'i vette
 the CHEA little rock-BE?-PPL even heavy.

'Even though (it) is a small rock, it is heavy'

lit.: That CHEA, even being a little rock, is heavy.

Constructed example

2.4 'Really' use

Our last category is 'really', in the intensifier sense (rather than the 'actually' sense of English *really*), as shown in, *e.g.*, (29), with *so* in the translation:

- (29) *I'i intok Hiaki, chea poovetaka...*
 I'i=intok Hiaki chea poove-ta-ka
 this=and Hiaki, CHEA poor-be-ppl

'And this one, the Hiaki, being so poor...'

In (30), we land on the intensifier interpretation, despite there being nothing like 'really' or even 'so' in the translation, again by thinking about the plausibility of the options. The use of 'sure' in the translation provides some support for the intensifier interpretation, and our three other possibilities, 'more/most', 'actually', and 'even', are implausible. The sentence occurs in a narrative where the speaker is talking about how the Hiakis were always one step ahead of the Mexican military—the Mexicans chasing them didn't know their way around the mountains, but the Hiakis knew them intimately, so they'd always have the upper hand when they went into them.

- (30) *Kaupo ha'amuk chea vea sewuro.*
 Kau-po ha'amu-k chea=vea sewuro.
 mountain-in climb-WHEN CHEA=then safe

'When they climbed the mountains, it was a sure thing.'

AtW 0.8 JMC

Similarly to what we saw above with 'even', there are other lexical items in Hiaki used for 'really', namely *si* and *tua*. And similarly again to what we saw above with *huni'i* 'even' and *katchansan* 'not.even', *chea* combines comfortably with these other 'really' words. The *chea* examples in (31) and (32) contain *si*, and the *chea* examples in (33) and (34) contain *tua*:

- (31) *Ne chea si amea chuchuyu.*
 Ne CHEA si am=ea chu-chuyu
 1SG CHEA really it-with HAB-indigestion

'(I can't eat it) I get indigestion.'

Constructed example

- (32) *Ne chea si vaamse.*
 Ne chea si vaamse
 I CHEA very in.a.hurry

‘I’m really in a hurry.’

Constructed example

- (33) *Havesa hiva tua aa he’en...*
 Have-sa hiva tua aa he’e-n
 who-PRT always/just really it drink-PST

‘(You know) who really used to drink...’

AtW 6.7 DL

- (34) *Hunume bweere naassom chea kaa tua kaka, ta ume illitchi ala kaka.*
 Hunu-me bweere naasso-m chea kaa tua kaka, ta u-me illitchi ala kaka.
 those-PL big.PL orange-PL CHEA not really sweet but the-PL little AFFIRM sweet

‘Those big oranges are not really sweet, but the little ones are sweet.’ Constructed example

As above, we can wonder whether adverbial redundancy, perhaps for extra emphasis, underlies such uses.

To round out our discussion of the ‘really’ use of *chea*, we examine one more case where none of our proposed equivalents occurred in the translations, but where only one of our categories yielded a plausible reading for *chea*. The example in (35) occurs in a narrative where some women are reporting a lost child to some officials. They are reported to have said:

- (35) *Hunaa uusi chea aman weeka bwaana.*
 Hunaa uusi chea aman weeka bwaana
 that.SG child CHEA there stand.PPL cry.PRES

‘That child is standing over there crying.’

AtW 4.1 MH

None of our ersatz *chea* translation equivalents appear here in the translation. We propose ‘really’ because it would make sense to insert *really* in the English translation *That child is standing over there really crying*, whereas none of ‘more/most’ ‘actually’ or ‘even’ make sense in the context.

3 Analysis

Our unified proposal for these four use of *chea* hinges on the idea that they can all be captured by a comparative semantics, given a particular idea about the scalar nature of truth. We detail each use in turn below.

3.1 ‘More/most’ use

We hypothesize that the comparative/superlative (‘more/most’) is the basic use, since it’s not possible to do comparison or superlativity without *chea*. In what follows we will leave aside the superlative ‘most’ use. For the comparative ‘more’ meaning of *chea*, given in (36) below, d' is either a contextual standard, or alternatively is a degree introduced by a postpositional standard phrase *DP-vepa* (literally ‘above’ DP)).

(36) ‘More’ semantics for *chea*: $\lambda p_{adj} \in D_{\langle e,d \rangle} \lambda x . \exists d, d' : p_{adj}(x) = d$, where $d > d'$

3.2 ‘Actually’ use

For inspiration for the ‘actually’ use of *chea*, we look to English *actually*. According to Taglicht (2001), English *actually* has several uses, but its core contribution is something like “[incompatibility] with some other proposition which has been expressed or implied” (Taglicht (2001): 2). Hickey (1991, 369) takes the core meaning to be ‘surprise’. These points taken together show what we think is going on with the ‘actually’ use of *chea*: the speaker is expressing that the hearer does not expect the conveyed proposition to be true.

The idea we want to pursue here, to link this use to the ‘more’ use, is that the ‘actually’ use of *chea* conveys that the actual truth value is greater than the expected truth value.

What we are doing is drawing an analogy between degrees and truth values, with truth values understood to be modeled using a scale, very similarly to the way that degrees are modeled using scales. In this case, truth values form a categorical scale containing just two values: 0 (false) and 1 (true). In support of this idea, we note that it is felicitous to say *That proposition/story/sentence is completely true/false*, which shows a) that ‘true/false’ are scalar predicates and b) that the ‘true/false’ scale is closed on both ends), according to the *completely* test (Kennedy and McNally, 2005). For our analogy to work, we need only say that “true” counts as “more” than “false”. Luckily, convention treats “true” as 1 and “false” as 0. And, very probably, this is not an accident, but is due to the very intuition we are formalizing here.

Analogously to the comparative semantics in (36), then, our hypothesized ‘actually’ reading is shown in (37). We use the variables t, t' to refer to truth values, type t ; we have not separated out the at-issue vs. not-at-issue meaning. The first argument is a proposition rather than an adjective, and we are using truth value variables instead of degree variables, but otherwise the $>$ relation is used in the same way as in (36).

(37) Proposal: The ‘actually’ use of *chea* reflects a variant of (36) that takes a propositional argument instead of an adjectival argument, and uses truth values instead of degrees:

$\lambda p \in D_{\langle s,t \rangle} \lambda s . \exists t, t' : p(s) = t$ and the addressee expects $p(s) = t'$ where $t > t'$

In fact, (37) simply conveys “ $p(s)$ is true and the addressee expects $p(s)$ to be false.” The reason we have written it in this slightly unusual form is to make it formally closer to (36), in order to make the point that (37) and (36) are formally related.

Consider (38) (= (13) above) in light of the proposal in (37):

- (38) *Hunuu vaaso chea hihikia!*
 Hunuu vaaso chea hi-hikia!
 That cup CHEA HAB-leak
 ‘Actually, that cup leaks!’

Here the speaker expresses that hearer would expect the cup to not leak, and asserts that it does leak, as articulated in (37).

The fact that when *chea* is used to mean ‘actually’, its syntactic location is typically in second position, provides morphosyntactic support for the idea that it scopes over the sentential proposition. Hiaki places a number of discourse-related sentential operators in this position, including *intok* ‘and’ and *veha* ‘then’. *Chea*’s morphosyntactic location, then, is consistent with the idea that *chea* on its ‘actually’ use takes the whole proposition, i.e. the truth-value-bearing constituent, in its scope.

3.3 ‘Even’ use

We extend this account directly to the ‘even’ use. English *even*, as characterized in relevant literature, includes comparison as a component of its content. Like other focus-sensitive particles, when *even* combines syntactically with a DP, it says something about a set of propositions obtained by replacing the referent of the DP in the proposition. In particular *even* says that the referent of the DP is the least likely to have the proposition be true of it. For example, *The dean invited even Bill* says that Bill was the least likely to be invited by the dean. We can build off the ‘least’ component of the meaning of English *even* for the ‘even’ use of *chea*, while aiming for a formal similarity with the proposed comparative and ‘actually’ uses of *chea* in (36) and (37). Following an established line of thinking for *even* (e.g. Rooth, 1992; Guerzoni, 2004), we explain the ‘even’ use for *chea* via (39), where C is the set of focus alternative propositions. The core meaning is the same as as for the ‘actually’ use in (37), but the grounds for asserting it are reminiscent of English ‘even’:

- (39) Proposal: The ‘even’ use of *chea* (= (37) with ‘even’ grounds):
 Propositional argument variant of *chea* from (37): $\lambda p \lambda s . \exists t, t' : p(s) = t$ and the addressee expects that $p(s) = t'$, where $t > t'$
 ‘Even’ grounds for assertion: The speaker asserts (37) because they think the addressee would expect that for all $q \neq p \in$ an alternative set C , $q(s)$ is more likely to = 1 than $p(s)$.

More work should be done to confirm or disconfirm this proposal, but we note that if it is valid, the ‘even’ uses are really a subset of the ‘actually’ uses, sharing exactly the same denotation, but with a more precise grounds for assertion.

We illustrate the application of this proposal with the example in (40) (= (21) above):

- (40) ...o *chea itom yoemiamtakasu* *vat katne.*
 ...o *chea itom yoemia-m-ta-ka=su* *vat kat-ne*
 ...or CHEA our children-PL-be-PPL=EMPH first go-IRR
 ‘...or even our children would be in front.’ = (21)

The speaker expresses that out of anyone who might be in front, the hearer would not expect (= would expect not) the children to be in front, and asserts that they are. The set C of focus alternative propositions for (40) might be, e.g. {The adults were in front, the elders were in front, the men were in front, the women were in front, our relatives were in front, the children were in front ... }.

As with the ‘actually’ uses, *chea* appears in these cases in the left periphery, scoping over the whole proposition. This makes morphosyntactic sense because *chea* on this use has to take the proposition as an argument in order to calculate the set of focus alternative propositions.

3.4 ‘Really’ use

The ‘really’ use of *chea* can take as its first argument either an adjective, as in (29), repeated below as (41), or a proposition, as in (4), repeated below as (42):

- (41) *I'i intok Hiaki, chea poovetaka...*
 I'i=intok Hiaki chea poove-ta-ka
 This=and Hiaki, CHEA poor-be-ppl
 ‘And this one, the Hiaki, being so poor...’ = (29)

- (42) *Te chea hi'ibwa.*
 Te CHEA hi'ibwa.
 1PL **really** eat.INTR
 ‘We are **really** eating!’ (said at a big meal) = (4)

We can see how a ‘really’ meaning in a sentence like (4), repeated as (43) below, might arise from the denotation we gave above in (37) for the ‘actually’ meaning if the truth value scale were to be treated as graded rather than categorical. The idea is that there are many situations that count as eating to some degree, but the situation under discussion counts as an example of eating to a higher degree than expected (or than is standard; we’ll stick with “expected” as it echoes what we need to say about the ‘actually’ and ‘even’ uses, while “standard” does not). So the expected truth value t' need not be 0, it could be a degree of truth more than 0 but less than t .

- (43) Proposal: the ‘really’ use of *chea* can either be (36) (takes adjectival argument) with an expected rather than a real degree, or (37) (takes propositional argument) with the truth value scale understood as graded.

The difference between ‘more’ and the adjective-taking version of ‘really’ is that with ‘more’ the degree d' may be contextually given but it is a “real” degree that actually holds of some named or understood entity. With ‘really’, however, d' is an expected degree.

4 Conclusion

We have proposed that the contribution of *chea* in the four uses we identified is closely related to its comparative use, specifically because we can characterize their denotations using the $>$ relation, as long as we treat truth values as being on a scale where “true” has a greater value on the scale than “false”. The different readings are then attributed to several variables, as shown in Table 1 below. These variables include: a difference in whether the argument given to *chea* is adjectival or propositional, and thus whether the scale is adjectival or truth-value based (related to where *chea* takes scope); whether the degree d' or truth value t' is real or expected; whether the ‘even’ grounds are present (which would be the only reason to distinguish ‘even’ uses from ‘actually’ uses); and whether the scale is graded or categorical (which would distinguish propositional ‘really’ uses from ‘actually’ uses).

	argument type	scale type	degree type	grounds	categorical/graded
‘more/most’	adjective	adjectival	real	none required	graded
‘actually’	proposition	truth	expected	none required	categorical
‘even’	proposition	truth	expected	‘even’ grounds	categorical
‘really’	adj or prop	adj or truth	expected	none required	graded

Table 1: Our analysis of the uses of *chea*

On this analysis, the four uses we identified are related through the basic meaning of comparison of two values, with this relatedness made available by the treatment of truth values as analogous to degrees. There will be more to say on the topic, including understanding how the meaning of *chea* fits into certain teasing contexts as in (5). We hope, however, to have advanced the state of knowledge about *chea*.

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