Where pointing matters: English and Korean demonstratives *

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1. Introduction

Traditionally pronouns and demonstratives are discussed as separate semantic elements. While pronouns receive a lot of discussion of their anaphoric properties, demonstratives rarely appear in studies of anaphora. Instead, work on demonstrative descriptions as in *that person* assume that they are fundamentally different from pronouns in referring to an entity in the context of speech with a demonstration such as pointing (see the entry on demonstratives in *The Routledge Pragmatics Encyclopedia* (Cummings 2010)). In this paper, we call this an 'exophoric' reference and avoid the use of the word 'deictic', to separate this use of demonstratives from elements such as first and second person pronouns.

Kaplan (1977) argues that demonstratives differ from definites and pronouns in having a rigid, wide-scope interpretation. This is illustrated by the contrast between (1a) and (1b), where the demonstrative description *that person* rigidly refers to John, unlike the definite.

(1) (Pointing at John) If John and Mary switched places...
   a. ...that person would be a woman. (false)
   b. ...the person I'd be pointing at would be a woman. (true) [Kaplan 1977]

More recent studies have shown that the use of *that* is not restricted to exophoric uses (Nowak 2014, Roberts 2002, Wolter 2006). These uses include anaphoric readings as in (2a) and bound variable readings as in (2b).

(2) a. I saw a dog. That dog looked happy.
   b. Every dog in my neighborhood, even the meanest, has an owner who thinks that that dog is a sweetie. [Roberts 2002]

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Despite these observations, however, the assumption that remains in the literature is that demonstratives fundamentally differ from pronouns in having an exophoric meaning. Thus, we the current literature analyzing demonstratives as encoding exophoricity and then deriving the non-exophoric readings from that basic, exophoric meaning. For example, Nowak (2014) starts with an analysis of an exophoric demonstrative and extends it to covarying uses. Roberts (2002) argues that, while a demonstrative presupposes demonstration, the anaphoric use can be derived by involving a more metaphorical, non-physical demonstration to a linguistic entity. Wolter (2006) also argues that the presupposition encoded in demonstratives allows it to be more anaphoric than definites. In other words, in current accounts of demonstratives, the source of the anaphoric interpretation of *that NP* is very different from that of a pronoun.

Upon closer look, however, there is a strong similarity to be found between demonstrative descriptions and pronouns, especially in terms of allowing both anaphoric and exophoric uses, as shown in (3). In this paper, we indicate the presence of pointing with $\rightarrow$ following the pronoun or the demonstrative, as in *that boy*$_{\rightarrow}$ and *she*$_{\rightarrow}$.

(3) a. Every time I met a girl, I talked to {her, that girl}.
b. (Talking about two girls) I like {her$_{\rightarrow}$, that girl$_{\rightarrow}$} but not {her$_{\rightarrow}$, that girl$_{\rightarrow}$}.
c. (Pointing out a person to the addressee) Look at {her$_{\rightarrow}$, that girl$_{\rightarrow}$}!

Data from other languages of the world corroborate a strong similarity between the two based on morphological forms. For example, in Korean, the anaphoric demonstrative *ku* serves as the 3rd person pronoun when not accompanied by the noun (5), and in American Sign Language (ASL) there is no clear distinction in form between a pronoun and a demonstrative description, both of which use the indexical point IX.

(4) ku salam
ku person
'that person'

(5) ku
ku
'he'

The Korean/ASL pattern is hardly unique or coincidental: Himmelmann (1996) shows that historically definite articles and third person pronouns are derived from demonstratives in many languages. In fact, even after a designated form for the third-person pronoun had been established in the history of Old English, the language continued to use the demonstrative *se*, *sēo*, *þæt* (Modern English *that*) as a pronoun (Bosworth & Toller 1955).

Of course, there are some differences between pronouns and demonstratives in terms of pragmatic preference as noted in previous literature. For example, in a context where a pronoun is adequate to resolve to the right referent, demonstrative descriptions are less preferred. Moreover, while both pronouns and demonstrative descriptions allow pointing (exophoric readings) but do not require it (they allow anaphoric readings), there may still be an asymmetry in preferences there that could point toward underlying different syntax or semantics. Recall that in English, anaphoric and exophoric references are not distinguished morphosyntactically for either pronouns or demonstratives, but exophoric reference is often prosodically more focused, and involves some demonstration such as pointing.

One way to see a semantic reflex of exophoricity is to note the bound reading that is typically possible with an anaphoric pronoun or a demonstrative description is blocked with an exophor. For example, with an anaphoric pronoun or demonstrative, (6) allows a covarying reading where the speaker talked to every girl she met. However, when pointing is added, the only reading possible is the fixed referential reading, where there is one specific girl that the speaker is pointing to. There also seems to be an affective reading from anaphoric demonstratives that disappears when pointing is added. Lakoff (1974) observes that a nurse coming into the room asking (7) conveys affection, and Ahn (2017) hypothesizes that this affective reading comes from the anaphoric use of *that* which suggests that the speaker is familiar with the addressee's situation. When *that* is used exophorically with the nurse pointing to a specific toe, the affective reading disappears.

(6) Every time I met a girl, I talked to $\{\text{her, that girl}\}_{\rightarrow}$.

(7) How's that($_{\rightarrow}$) toe?

This semantic distinction can also be morphosyntactically realized in some languages. Korean is argued to be one such language, which has a three-way distinction in the demonstrative paradigm (Sohn 1994, a.o.). It has been recently argued that while two of the demonstratives — the proximal *i* and distal *ce* — are truly exophoric, the third element *ku* is restricted to anaphoric uses (Ahn 2017). Ahn uses several diagnostics to show that while *ce* is restricted to exophoric uses, *ku* is restricted to anaphoric uses. One such diagnostic is the ability to introduce new referents to the addressee, as in (8).

(8) **ce/*ku** pyel-ul pwa!
ce/*ku star-ACC look.IMP
'Look at that star!'

In sum, while previous literature associated exophoricity with English demonstrative descriptions and anaphoricity with English pronouns, we have shown that the anaphoric vs. exophoric distinction does not align with the pronoun vs. demonstrative distinction. In order to investigate how the two dimensions interact with each other, we designed an experiment where two potential referents are presented and the participants are asked to guess which referent the speaker is referring to. We manipulated both the referential item (pronoun and demonstrative description) and the presence of pointing (absent for anaphoric and present for exophoric reference) to see how the two factors affect participants' interpretation. We tested this in Korean first, where the morphological distinction aligns with the anaphoric vs. exophoric distinction. Our results show that, regardless of the presence of pointing, participants base their answers on the morphologically encoded meaning of anaphoric *ku* and exophoric *ce* expressions. Then, we turn to English, with a distinction between personal pronouns *he*, *she*, and *it* and demonstratives, of which each category allows pointing but does not require it. Our results show that, contrary to traditional ways of viewing demonstratives, pronouns and demonstratives in English do not differ in terms of exophoricity, but that within exophoric uses, pronouns and demonstratives do show a dif-

ference in whether they maintain the anaphoric link available or break it. We discuss these results and suggest further questions to be investigated.

2. Study 1: Anaphoric vs. Exophoric in Korean

The goals of this experiment were two-fold. First, we wanted to explore how native speakers determine the intended referent when an introduction of a referent is followed by an anaphor vs. an exophor. Korean *ku* is lexically anaphoric while *ce* is lexically exophoric, so we would be able to set a baseline for how participants respond to a referent guessing game in the presence of an anaphor and an exophor. Second, we wanted to test how the presence and absence of pointing affects the lexically encoded meaning of anaphoricity and exophoricity. In order to address the first goal, we designed a comprehension task, where participants were asked to choose the intended referent. For the second goal, we designed a ratings task, where the same video was shown but the participants were asked to rate the felicity of the sentence.

2.1 Comprehension Task

2.1.1 Methods

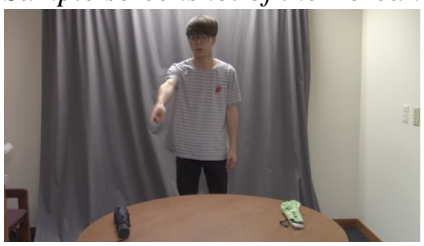
Thirty-seven self-reported native speakers of Korean were recruited via social media and email and provided with a link to a Qualtrics survey (Qualtrics Labs 2016). The survey was comprised of thirteen test trials and five filler trials. There were two factors, referential item (*ku* or *ce*) and pointing (present or absent), resulting in four conditions as shown in (9). For each test trial, the participant was shown one randomly selected condition out of the four.

(9) *Experiment Schema*

[ce,+point]	[ce,-point]
[ku,+point]	[ku,-point]

In each trial, participants were shown a video followed by a question prompt. All videos had a speaker behind a table with two objects on the table, as shown in Figure 1. The objects differed from each other in at least one visible property, such as size, color, and shape. In all conditions, the speaker started by introducing one of the objects with a property that is not visible, such as broken (umbrella), as in (11). Then, in order to test rates of co-reference (anaphoric linking between the first mentioned object and a second mention), the speaker continued with the second sentence in (12), where the visible property was mentioned. The four conditions of (9) appeared in the second sentence as in (12).

(10) *Sample screenshot of the Korean test*



(11) wusan hana-nun kocangnasss-upnita.
umbrella one-TOP broken-DECL
'One umbrella is broken.'

(12) {ce$_{\rightarrow}$, ce, ku$_{\rightarrow}$, ku} wusan-un kemunsayk-ipnita.
umbrella-TOP black-COP-DECL
'That umbrella is black.'

The question prompt then asked the participant to choose the object that has the invisible property. In the umbrella trial, for example, the participant was asked to choose which umbrella is broken. The participants were given two choices that mentioned the visible property. Thus, in the umbrella trial, they were asked to decide whether the black umbrella or the green umbrella is broken. The prompt is shown below.

(13) taum cwung kocangna-n wusan-ul kollacwusipsio.
next among break-RC umbrella-ACC choose
'Please choose the broken umbrella among the following choices.'

a. kemunsayk wusan
black umbrella

b. choloksayk wusan
green umbrella

The five fillers involved possessive determiners rather than *ku* or *ce* in the second sentence, as shown in (14). The fillers did not involve pointing. The participant was asked to answer which object the speaker owns, which was easily identifiable from the property mentioned in the second sentence (such as being on top).

(14) chayk-i twu-kwen isssupni-ta. cey chayk-un wi-ey isssupnita.
book-NOM 2-CL be-DECL my book-TOP top-DAT be-DECL
'There are two books. My book is on top.'

All trials involved inanimate objects such as clocks, calendars, laptops, and backpacks.

2.2 Ratings Task

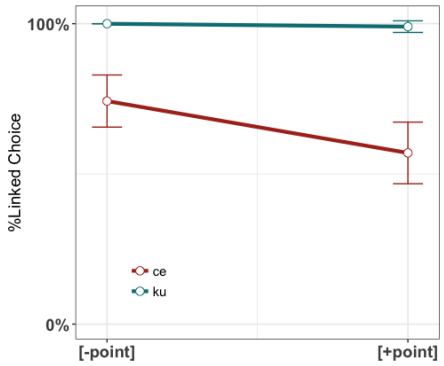
The Ratings Task was given to 23 participants who did not take part in the Comprehension Task. In this task, participants saw the same test videos as in the Comprehension task

(randomized per trial) and were asked to rate the sentence out of a scale from 0 to 6, 6 being the highest. The same filler trials were also used.

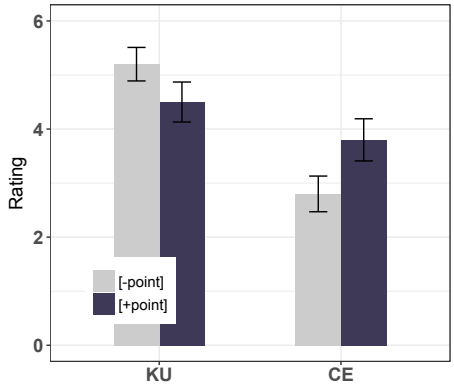
2.3 Results

The participants' responses in each trial of the Comprehension Task were coded as '1' if it matched the referent described in the second sentence (eg. the black umbrella) and '0' if it did not. Responses coded as '1' reflect what we call a linked choice, because the participant linked the description ('it is black') to the referent introduced in the first sentence ('the broken umbrella'). Responses coded as '0' suggests that the participant inferred the umbrella being described in the second sentence to be distinct from the one introduced in the first sentence, thus not interpreting the referential element in the second sentence as anaphoric. On the left side of Figure 2, we plot the average percent of linked choice based on the presence and absence of pointing, and on the referential element. *Ku* and *ce* are shown in blue and red, respectively. There was a main effect of the referential element: when *ku* was used, regardless of pointing, the response was 100% linked, but when *ce* was used, again regardless of pointing, the average percent of the linked reading was significantly less ([+pt] z=-3.839, p <.0001; [-pt] z=-2.826, p <.005).

(15) *Average percent of linked choice*



(16) *Average rating of each condition*



The average rating per condition is shown on the right side of Figure 2, with 95% confidence intervals. Both conditions with *ce* were generally rated low, and *ce* without pointing was rated the lowest.

2.4 Discussion

We set out to determine how native speakers choose the intended referent in the presence of anaphoric and exophoric elements, and how pointing affects the interpretation. The results of our Korean study suggest, first, that the analysis of the distinction between *ku* and *ce* indeed fits the anaphoric/exophoric prediction: regardless of pointing, *ku* resulted in an anaphoric (linked) interpretation, while *ce* resulted in breaking the linked reference. Going forward, we can also use this as a baseline in determining English participants' response

to pronouns and demonstratives, to see if or how it matches this anaphoric/exophoric distinction. While in Korean pointing did not affect the choices, we expect pointing to play a larger role in English, since it is the only marker other than prosody for exophoricity.

In addition, the addition of pointing (slightly) decreased ratings for *ku* while it increased ratings for *ce*. It is also consistent with the overall difference between ratings for *ku* and *ce*, since the discourse was highly coherent with a linked interpretation but much less so with an non-linked interpretation (e.g. why mention the other umbrella that isn't broken?). We predict that, if we created a context in which a non-linked interpretation is pragmatically more expected, the overall difference between *ku* and *ce* would reverse, while the effects of pointing would remain the same for each of these items (decreasing ratings for *ku* but increasing for *ce*).

3. Study 2: Anaphoric vs. Exophoric in English

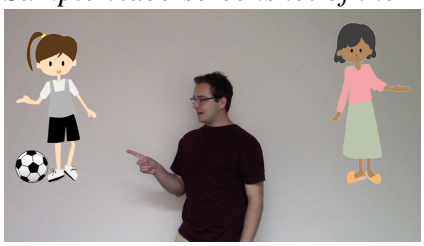
The goals of this experiment were two-fold. First, we asked whether pronouns and demonstratives do indeed differ in terms of exophoricity as traditional studies assume. Our Korean data, where the difference of exophoricity is clear, can serve as the baseline to which we can compare our English data. If demonstratives are indeed more exophoric than pronouns, demonstratives should behave more like the Korean *ce* in resulting in lower percentage of linked reference. Second, we asked whether the addition of pointing affects these expressions in terms of allowing anaphoric and exophoric reference. Unlike Korean, where pointing did not affect the overall interpretation, we expect a larger effect in English where both morphological expressions can be anaphoric or exophoric, and thus pointing is the only marker of exophoricity (in addition to possibly prosody).

Just as in the Korean study, our English study had two parts: (1) a Comprehension task and (2) a Ratings task.

3.1 Comprehension Task

Fifty self-reported native speakers of English were asked to complete a Qualtrics survey, recruited via Amazon Mechanical Turk. There were 14 test trials and four filler trials. The 14 test trials were divided into four conditions based on two factors: referential element (pronoun vs. demonstrative) and pointing (present or absent). Per item, the participant was randomly shown one condition out of four. In order to include trials with animate referents in addition to inanimate objects (given that animacy determines personal pronoun use), we designed our English study to involve a speaker pointing to abstract pictures overlaid on the screen, as in Figure 3. A sample script with the four conditions is shown in (18), with the question prompt in (19).

(17) *Sample video screenshot of the English test*



(18) One woman is my friend.

a.	That$_{\rightarrow}$ woman plays soccer.	[that, +point]
b.	That woman plays soccer.	[that, −point]
c.	She$_{\rightarrow}$ plays soccer.	[pronoun, +point]
d.	she plays soccer.	[pronoun, −point]

(19) Which woman is Aidan's friend?

As in the Korean study, the filler items contained a possessive determiner, as shown below.

(20) One cake is mine. My cake has strawberries.

3.2 Ratings Task

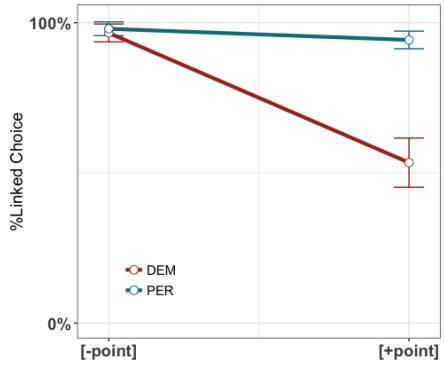
The Ratings Task was given to 40 participants who were not part of the Comprehension Task. In this task, participants saw the same test trial videos (randomized per trial) and were asked to rate the sentence out of a scale from 0 to 10, 10 being the highest. This task included six additional filler trials, in which the speaker used pointing infelicitously. For example, he would point to the top or to himself when referring to another referent. A sample is shown in (21). These trials were added to make sure the participants were rating the use of pointing given the lexical item, rather than just the grammaticality of the sentence without pointing.

(21) One boy is my friend. He$_{\rightarrow}$ is happy. [Pointing at both boys]

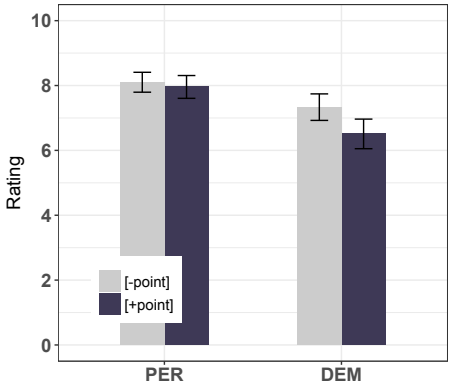
3.3 Results

The plot on the left side of Figure 4 shows the average percentage of linked choice, parallel to the Korean data. There was a significant interaction between the referential item and the presence of pointing (z=-3.197, p <0.01). Without pointing, both the demonstrative and the pronoun conditions received a 100% linked response. With pointing, the pronoun condition received a 100% linked response, while the demonstrative condition was at chance.

(22) *Average percent of linked choice*



(23) *Average rating of each condition*



With regard to the rating task, the test items were generally rated highly, reflecting the felicity of pointing (and lack thereof) with both pronouns and demonstrative noun phrases in English, as we noted in the introduction (and which differs from Korean). The decrease in felicity tracks with a decrease in linked interpretations (in demonstratives), suggesting, as in Korean, an affect of the lower discourse coherence with unlinked reference.

3.4 Discussion

We see from the results that without pointing, both pronouns and demonstratives in English only receive an anaphoric reading. This is not predicted by traditional accounts in which demonstratives are predicted to be more exophoric than pronouns regardless of the presence of pointing. Thus, this experiment shows that the exophoricity of demonstratives and pronouns actually depend much more on the presence of pointing than the lexical element.

Moreover, there seems to be an asymmetry in pointing for personal pronouns and demonstratives in English: for pronouns (both animate and inanimate), pointing did not break the anaphoric link but rather seemed to play a supplemental role, indicating where the targeted referent was. It could also be supplementing the information conveyed by the predicate (e.g. pointing at the girl with the soccer ball for the sentence *She plays soccer*). There might be potential connection with work on *depictive* co-speech gestures as supplemental (Ebert & Ebert 2014, see also Schlenker 2017). In contrast, for demonstratives, pointing breaks possibility for anaphoric reference, leaving no preference for a linked reading between the referent mentioned in the first clause to the referent mentioned in the second clause (at chance behavior).

How can we explain the 100% linked reference for pronouns with pointing when we know that exophoric readings of pronouns are possible? As we noted for the Korean study, there was a strong bias for anaphoric reading in the way the experiment was designed. The participants were asked to figure out who Aidan's friend is, and so as long as the sentence was grammatical, participants would reasonably have pushed for the anaphoric reading. Another possibility is that there were prosodic differences that we could not control for in the stimuli, which although designed to have the same amount of prosodic stress on all of the referential elements, were not confirmed to be identical across conditions.

4. General Discussion and Conclusion

We presented two studies designed to probe the relationship between exophoric and anaphoric reference. In Korean, this distinction is made clearly and overtly through different morphemes: the anaphoric morpheme *ku* led to more linked reference, and lower acceptability ratings when pointing was added, in contrast to the exophoric morpheme *ce* which had chance rates of linked reference (indicating a lack of anaphoric reading) with and without pointing, and lower acceptability ratings without pointing. In English, on the other hand, the distinction shows up more subtly when testing the pronominal and demonstrative morphemes: without pointing, both pronouns and demonstratives had fully linked readings (indicating anaphoric readings). Acceptability was generally high with and without pointing with both morphemes, although lowest in the case of non-linked reference (demonstratives with pointing), which we take to be due to discourse coherence effects. We suggest more work on these and other languages, including child language, can provide more nuanced insight onto the relationship between pronominal forms (demonstrative and personal) and the relationship between anaphoric and exophoric interpretations.

References

Ahn, Dorothy. 2017. Definite and demonstrative descriptions: a micro-typology. In *Proceedings of GLOW in Asia XI*, volume 1, 33–48. MIT Working Papers in Linguistic.

Bosworth, Joseph, & Thomas Northcote Toller. 1955. *An Anglo-Saxon Dictionary*. Oxford University Press.

Cummings, Louise. 2010. *The Routledge Pragmatics Encyclopedia*. Routledge.

Himmelmann, Nikolaus P. 1996. Demonstratives in natural discourse: A taxonomy of universal uses. *Studies in anaphora* 33:205.

Kaplan, David. 1977. Demonstratives. *Themes from Kaplan* .

Lakoff, Robin. 1974. Remarks on this and that. In *Proceedings of the Chicago Linguistics Society*, volume 10, 345–356.

Nowak, Ethan. 2014. Demonstratives without rigidity or ambiguity. *Linguistics and Philosophy* 37:409–436.

Qualtrics Labs. 2016. Qualtrics Research Suite .

Roberts, Craige. 2002. Demonstratives as definites. *Information sharing: Reference and presupposition in language generation and interpretation* 89–196.

Sohn, Ho-Min. 1994. *Korean*. Descriptive Grammars. London / New York: Routledge.

Wolter, Lynsey. 2006. That's that: The semantics and pragmatics of demonstrative noun phrases. Doctoral dissertation, University of Calfornia Santa Cruz.

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