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Linguistic convergence in U.S.-raised Spanish–English bilinguals' nominal demonstrative use

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Research Article

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Abstract

This study investigates linguistic convergence in Spanish–English bilinguals' demonstrative use in English (*this/that*) and Spanish (*este/ese*). Participants completed a task that tested the influence of speaker-referent distance on demonstrative use. Study 1 includes Spanish-speaking monolinguals in Mexico, English-speaking monolinguals in the USA, and Spanish–English bilinguals who were born in the USA or arrived at a young age. Results show that speaker-referent distance constrained all groups' demonstrative use; however, this effect was weaker in the bilinguals' Spanish as compared to the Spanish-speaking monolinguals. Study 2 focuses on the bilinguals' demonstratives. Group-level and individual analyses present evidence for linguistic convergence: the bilinguals' usage patterns were similar across their languages. Additionally, language dominance predicted usage patterns: the more English-dominant the participant, the greater the likelihood of producing proximal demonstratives for near and far referents alike. This pattern mirrors common diachronic changes, supporting the view that bilinguals may propel language change.

Highlights

- Spanish- and English-speaking monolinguals' demonstrative use is similarly impacted by speaker-referent distance.
- English-speaking monolinguals use more non-proximal demonstratives than Spanish-English bilinguals, yet usage is similarly impacted by speaker-referent distance.
- Different from Spanish-speaking monolinguals, Spanish-English bilinguals produce more proximal demonstratives for referents in the non-peripersonal space, where non-proximals are expected.
- Spanish–English bilinguals use demonstratives similarly across their languages.
- Individual analyses of bilinguals' usage of proximal demonstratives in the non-peripersonal space reveal speaker-specific strategies that mirror diachronic changes in demonstratives across languages.

1. Introduction

This study investigates whether Spanish–English bilinguals' use of nominal demonstratives shows evidence of linguistic convergence, which Bullock and Toribio (2004, p. 91) define as "the enhancement of inherent structural similarities found between two linguistic systems," adding that "convergence is not necessarily externally induced." Seen this way, convergence is a broad term encompassing bilingual effects that stem from crosslinguistic influence, as well as those that may arise from bilinguals adopting novel strategies to express a particular concept and then applying those strategies across their languages. Given that both languages are always activated in the bilingual mind (Kroll et al., 2014), we should anticipate that bilinguals' language usage patterns will show evidence of convergence. Numerous studies find that bilinguals' languages "converge" or become more alike (Bullock & Toribio, 2004; Filipović, 2019; Hawkins & Filipović, 2024; Sánchez, 2019). However, not all studies find evidence of convergence in bilinguals' usage patterns (Torres Cacoullos & Travis, 2018). It is possible that certain situations are likelier to result in convergence than others. For example, the "Maximize Common Ground" or "MCG" principle, which forms part of Filipović's (2019) Complex Adaptive Systems Principles, asserts that certain conditions, like a high degree of structural overlap and balanced bilingualism, favor convergence (Hawkins & Filipović, 2024, p. 120). Relatedly, translation equivalents with few competitors are more closely connected in the bilingual mind (Tokowicz & Kroll, 2007) and thus may promote convergence. Moreover, when there is a structural overlap between two translation equivalents, frequent usage may further promote convergence. That is, if translation equivalents are frequently used in similar constructions and similar discourse contexts, this will further reinforce their connection (Bybee, 2010).

Given these conditions, this study involves a context that is ripe for convergence: the bilinguals in the study all grew up speaking both Spanish and English. Like all bilinguals, they vary in their

language histories and usage; however, they all have a strong command of both languages. English and Spanish both mark distance by means of varying among nominal demonstratives (*this* versus *that*). English has two demonstratives, and each has singular and plural counterparts (*this/these, that/those*). Spanish has three demonstratives – proximal *este* "this," medial *ese* "that," and distal *aquel* "that over there"; each inflects for gender and number (*este/ese/aquel* = masculine singular, *esta/esa/aquella* = feminine singular, etc.). Nevertheless, Spanish *aquel* is relatively infrequent in discourse (Shin & Vallejos-Yopán, 2023) and is infrequent in our data. As such, *this/este* and *that/ese* are arguably translation equivalents with few to no competitors. Furthermore, these demonstrative types are highly frequent. In the oral section of the *Corpus of Contemporary American English* (Davies, 2008), *this/these* and *that/those* occur 10,082 and 21,991 times per million words, respectively. In the oral section of the *Corpus del Español* (Davies, 2002), *este/esta/estos/estas* and *ese/esa/esos/esas* occur 5,779 times and 7,111 times per million words, respectively. Together these conditions should pave the way for linguistic convergence in Spanish–English bilinguals' nominal demonstrative use.

The participants completed a puzzle task designed to test the influence of speaker-referent spatial distance on demonstrative use. Puzzle pieces were either within the participant's peripersonal (reaching) space or farther away. Previous research using the same task found that Spanish–English bilinguals' Spanish demonstrative use differed from that of Spanish-speaking monolinguals in Mexico (Shin & Mendieta-Rodríguez, 2024). However, that research did not examine whether the bilinguals' English demonstrative use also differs from that of English-speaking monolinguals. Study 1 fills this gap by comparing 22 bilinguals' Spanish and English demonstratives to those of 20 Spanish-speaking and 20 English-speaking monolinguals, respectively. All 22 bilinguals were born in the USA or arrived at a young age and thus can be characterized as heritage speakers of Spanish (Valdés, 2005).

Study 2 compares usage patterns across the bilinguals' languages. We use a series of statistical analyses to obtain a nuanced perspective of linguistic convergence. We also conduct individual analyses to further examine the strategies that the bilinguals deploy when using nominal demonstratives. Broadly, the results demonstrate that bilinguals' nominal demonstrative use differs from that of both monolingual groups (Study 1), yet their usage patterns are similar across their languages (Study 2), showing a compelling case of convergence that is not driven by cross-linguistic influence. Follow-up analyses demonstrate that some bilinguals marked distance with adverbial rather than nominal demonstratives. This way of marking distance is less frequent among the monolinguals; however, it is common in other languages (e.g., Jungbluth & Da Milano, 2015). This strategy also mirrors diachronic changes that have occurred in numerous languages (e.g., Lander, 2021) and thus supports arguments that bilingualism may accelerate or enhance ongoing language-internal changes (e.g., Silva-Corvalán, 1986, 1994).

2. Nominal demonstratives across languages

2.1. Number of nominal demonstrative terms

Languages vary with respect to the number of nominal demonstrative terms that contrast in function. Many languages have two or three nominal demonstrative terms, while languages with four or more terms are rarer (Coventry et al., 2023; Jungbluth & Da Milano, 2015; Rubio-Fernandez, 2022; Skilton & Peeters, 2021; Woensdregt et al., 2022). As mentioned above, English has two demonstratives: *this* and *that*. Spanish has three: proximal *este*, medial *ese*, and distal *aquel*.[1] However, *aquel* is infrequent in oral discourse (Shin & Vallejos-Yopán, 2023), and some varieties, like Peruvian Amazonian Spanish, rely mostly on *este* and *ese* (Vallejos-Yopán, 2023).

There are also languages with only one nominal demonstrative. In these languages, distance is typically marked by the addition of an adverbial. For example, Present-day French has one nominal demonstrative (*ce*), and spatial distance is marked by constructions that combine *ce* with adverbial *ci* "here" or *là* "there" (*ce-ci* "this-here," *ce-là* "this-there") or with pronominal and adverbial forms (*celui-ci* "this one here," *celui-là* "this one there") (Guillot, 2015; McCool, 1993). Likewise, in German, the archaic distal form *jener* is no longer used for exophoric reference, and distance is marked by combining the nominal demonstrative with adverbs *hier*, *da*, and *dort* (Coventry et al., 2023; Rauth & Speyer, 2021). Similar situations are found in Danish, colloquial Swedish, and Norwegian (Coventry et al., 2023; Lander, 2021, p. 17; Vulchanova et al., 2023).

Shifting distance marking from nominal to adverbial demonstratives also occurs in systems with two demonstrative terms. In spoken Present-day Brazilian Portuguese, the proximal nominal demonstrative *este* has fallen out of use, yielding a two-term system (*esse/aquele*). Adverbs frequently combine with *esse/aquele* to reinforce spatial distinctions (Meira & Guirardello-Damian, 2018). Similarly, in Northern Italian dialects, which have two nominal demonstratives, spatial adverbs reinforced nominal demonstratives so frequently that, as Ledgeway (2020, 456) puts it, "all deictic force has been transferred to the adverb, reducing the demonstrative to a mere marker of definiteness" (also see Andriani et al., 2020).

Thus, a pathway of change across numerous languages involves the loss of spatial contrast in nominal demonstratives and the use of adverbial demonstratives to mark space. Lander (2021, p. 9) describes the pathway as follows: "When the deictic force of a demonstrative is felt by speakers to be too weak, a particle (e.g., adverb) can be added, which in turn gets weakened over time, necessitating reinforcement once again." This common pathway of change is important to keep in mind when interpreting findings that point to bilinguals diverging from monolinguals in their use of nominal demonstratives (see Section 2.3), especially since bilinguals may sometimes lead or accelerate language change (Heine & Kuteva, 2005; Joseph, 2022; Kupisch & Polinsky, 2022; Silva-Corvalán, 1986, 1994).

2.2. Functions of demonstratives

A basic function of demonstratives is to encode the distance between the speaker and a referent (Coventry et al., 2023; Diessel, 1999; Diessel & Coventry, 2020). Speaker-referent distance marking corresponds especially to the division between the speaker's peripersonal (reaching space) and non-peripersonal space; proximal demonstratives are generally used for referents in the peripersonal space, whereas demonstrative usage is more variable in the non-peripersonal space (Caldano & Coventry, 2019; Shin et al., 2020; Skilton, 2024). Addressee-referent distance as well as pragmatic factors, like joint visual attention, and misalignment in referent identification between the speaker and addressee, have also been shown to shape demonstrative use (Peeters et al., 2014, 2021; Rubio-Fernandez, 2022; Shin et al., 2020; Woensdregt et al., 2022).

[1]We disregard number (*these/those*) or gender (e.g., Spanish *este*, *esta*) marking.

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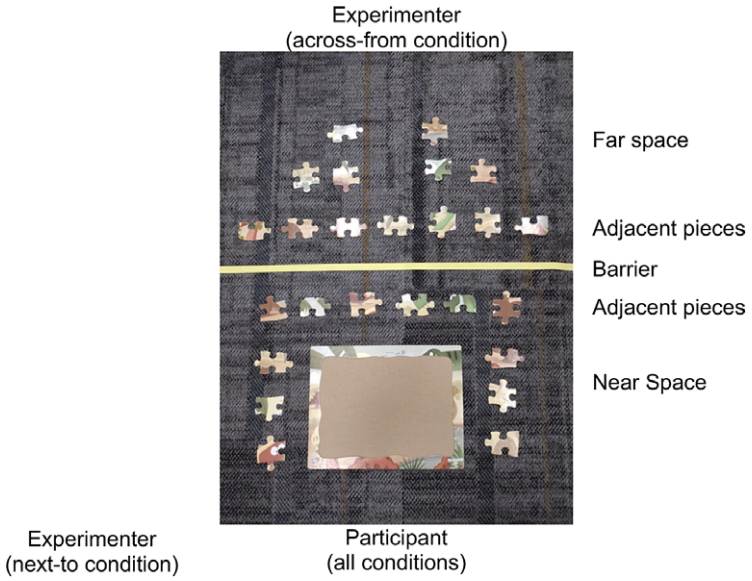

Figure 1. Puzzle task layout.

This study sets aside addressee effects and pragmatic factors and focuses on the impact of bilingualism on the use of nominal demonstratives to mark the speaker-referent spatial distance.

2.3. Bilinguals' nominal demonstratives

To date, research on bilinguals' demonstrative systems has included Spanish–Norwegian, Catalan–Spanish, and Spanish–English bilinguals. Vulchanova et al. (2020) found that Spaniards in Norway produced *aquel* less often than Spaniards in Spain, which they interpret as evidence of a shift from a three-term to a two-term system. At the same time, the decreased use of *aquel* was not impacted by Spanish/Norwegian language use or proficiency (Vulchanova et al., 2023), suggesting that the shift is not necessarily propelled by the structure of Norwegian, but instead may be an example of bilinguals accelerating the common pathway of change in Romance languages (see Section 2.1).

Studies of Catalan–Spanish bilinguals also reveal differences between bilinguals' and monolinguals' Spanish. Rubio-Fernandez (2022) found that Catalan–Spanish bilinguals evinced a weakening in their sensitivity to addressee location effects in Spanish, possibly due to the lack of such effects in Catalan. In another study on Catalan–Spanish bilinguals and Spanish monolinguals, Todisco et al. (2024) found no significant effect of addressee location on demonstratives – neither among the bilinguals (in Catalan and Spanish) nor among the monolinguals (in Spanish).[2] At the same time, they found preliminary evidence that, for referents at a middle distance, Catalan–Spanish bilinguals produced Spanish *este* more often than Spanish monolinguals, who relied more heavily on Spanish *ese*.

With respect to Spanish–English bilinguals, Shin and Mendieta-Rodríguez (2024) compared demonstratives produced in Spanish by Spanish-English bilinguals and Spanish-speaking monolinguals. Participants completed a puzzle task designed to elicit demonstratives. Spatial distance was manipulated by means of a cord that was placed 50 cm from the participant, and the participants were instructed not to reach across the cord. The instructions and the presence of the cord helped create a division between the participants' peripersonal ("near") space from their non-peripersonal ("far") space. This division has been shown to strongly condition demonstrative use (Caldano & Coventry, 2019; Skilton, 2024). Puzzle pieces were placed on either side of the cord and the experimenter sat across from the participant with the board and pieces between them (see Figure 1). The experimenter then asked 25 "find-it" questions that led the participants to identify specific puzzle pieces: *¿Qué pieza tiene los ojos del dinosaurio rojo?* "Which piece has the red dinosaur's eyes?" Overall, participants relied heavily on *esta* and *esa* for puzzle pieces in the near and far space, respectively. However, the bilinguals produced significantly more *esta* for referents in the far space as compared to the monolinguals, which concords with the extension of proximals among Catalan–Spanish bilinguals (Todisco et al., 2024). Shin and Mendieta-Rodríguez (2024) hypothesized that the bilinguals' increased use of *esta* could be related to English influence. However, the authors did not test the bilinguals' demonstrative use in English, nor did they test English monolinguals' usage, rendering their hypotheses about English influence entirely speculative.

To summarize, previous research has found that Spanish–English bilinguals' demonstrative use differs from that of Spanish-speaking monolinguals but has not fully explored explanations for those differences. This article aims to fill this gap and to advance our understanding of whether and how bilingualism shapes demonstrative use by performing comparative analyses between bilingual and monolingual groups (Study 1), as well as examining the effect of language dominance on demonstrative use and linguistic convergence (Study 2).

3. Study 1

The first study directly compares Spanish–English bilinguals' demonstrative use with what can be considered two "reference lects" (Otheguy & Zentella, 2012) – Spanish- and English-speaking monolinguals – to address the following research question:

[2]The discrepancies across studies with respect to addressee location effects in Spanish may be related to task effects. The studies differ in the task used to elicit demonstratives and the number of addressee locations tested.

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RQ1. Is Spanish-speaking and English-speaking monolinguals' and Spanish–English bilinguals' demonstrative use differentially affected by speaker-referent distance?

Previous research yields the prediction (P1) that all groups will produce more non-proximal demonstratives for referents farther from the speakers (Coventry et al., 2023; Diessel, 1999; Diessel & Coventry, 2020). However, there may be variation among the groups, with speaker-referent distance having a weaker impact on the Spanish–English bilinguals' demonstrative use (Shin & Mendieta-Rodríguez, 2024).

3.1. Participants

The participants in this study include 20 Spanish-speaking monolingual adults residing in Monterrey, Mexico; 20 English-speaking monolingual adults residing in New Mexico, USA; and 22 Spanish–English bilingual adults residing in New Mexico. All 20 Spanish-speaking monolinguals grew up in Monterrey, Mexico, and were raised speaking only Spanish at home. The English-speaking monolinguals resided in Albuquerque, New Mexico, at the time of the study, and all grew up monolingually in the USA. All monolinguals report speaking only one language at home and with family and friends, and none report fluency in a second language.

All 22 bilinguals in Study 1 resided in the USA at the time of the study. The bilinguals fall under the umbrella of what are typically considered Spanish heritage speakers since they grew up speaking Spanish at home in the USA, where English is societally dominant (Valdés, 2005). All bilinguals were either born in the USA (N = 17) or in Mexico (N = 5). The Mexico-born bilinguals arrived in the USA by age 7;0 (range = 1;5–7;0, mean = 4.9, SD = 2.51). It is common for heritage speakers to primarily speak the home language until they go to school, which means that bilinguals born in the USA and those who arrive at around 5;0 often have similar language experiences in the early years. Table S1 in the Supplementary Material provides more details about the bilinguals' language histories.

3.2. Puzzle task

Participants completed the 25-piece puzzle task used by Shin and Mendieta-Rodríguez (2024). As mentioned above, in this task, the participant sits at a table that has an empty puzzle board, the puzzle pieces, and a cord placed 50 cm from the participant (Figure 1). Participants are told not to touch any pieces and not to reach across the cord. The inclusion of the cord thus functions as a barrier that divides the space into a near (peripersonal) and far (non-periperonsal) space. As noted before, this division has been shown to condition demonstrative use (Caldano & Coventry, 2019; Skilton, 2024). The near space contains the empty puzzle board and 12 puzzle pieces. The other 13 pieces are placed in the far space. The puzzle task begins with one practice item followed by a series of 25 scripted "find-it" questions like "Which piece has the red dinosaur's eye?" These questions prompt the participant to identify pieces which the experimenter then places on the puzzle board.[3]

Spanish sessions in Mexico and the USA were conducted by an experimenter whose first and dominant language was Spanish, and English sessions in the USA were conducted by an experimenter whose first and dominant language was English. All sessions were video and audio recorded. For the bilinguals who completed the task in both languages (N = 18), the data collection for each language was carried out on separate days: the Spanish session preceded the English session by an average of 10 days (SD = 9.5).

3.3. Data extraction and coding

All responses to find-it questions with nominal demonstratives were extracted. We excluded tokens that did not have an identifiable referent. We also excluded tokens of *aquel/aquella* (n = 31) from the Spanish data due to its infrequency. After these exclusions, our datasets included 858 Spanish nominal demonstratives and 1,127 English nominal demonstratives, which were coded for the variables described below. The second author checked all transcriptions and coding for the dependent and independent variables.

We ignored gender in Spanish and collapsed *este* and *esta* into one level called *esta* and *ese* and *esa* into one level called *esa*. The two levels of the dependent variable, **demonstrative**, are proximal and non-proximal, with proximals comprising *esta* for the Spanish datasets and *this* for the English datasets. Likewise, the non-proximals comprise *esa* for the Spanish datasets and *that* for the English datasets. Henceforth, we label the proximals *esta/this* and the non-proximals *esa/that.*

The puzzle task layout (Figure 1) manipulated speaker-referent distance by placing puzzle pieces in the "near" space (between the barrier and the participant) or in the "far" space (on the other side of the barrier from the participant). This manipulation enabled us to include **distance** as a binary independent variable (near versus far) in the analyses. We also included a binary independent variable called **adjacency** to control for how participants may respond to pieces in different locations within the near and far spaces. The puzzle pieces were either "adjacent" (directly above or below the barrier) or "not adjacent" (Figure 1). Participant **group** – monolingual Spanish, monolingual English, or bilingual – was also included as an independent variable.

3.4. Results

Figure 2 presents a boxplot of the participants' proportions of *esta/this* and *esa/that* by dataset. The language labels "Span" or "Eng" indicate whether the proportions refer to the use of *esta* versus *esa* ("Span") or *this* versus *that* ("Eng"). On average, speakers overwhelmingly produced proximal demonstratives for pieces in the near space and decreased their use of proximal demonstratives for pieces in the far space. At the same time, the proportions for each demonstrative type were variable across datasets and individuals, especially in the far space.

To measure the impact of speaker-referent distance on demonstrative use, we conducted generalized linear mixed-effects models using lme4 (Bates et al., 2015) in R Studio Team (2023). In each model, we predict the likelihood of non-proximal demonstratives. Each best-fit model was determined by iteratively eliminating terms that decreased the Akaike Information Criterion (AIC) when

[3]Find-it questions were interspersed with misunderstanding trials designed to investigate how speakers correct misunderstandings (Shin et al., 2020). This study excludes all misunderstanding trials and thus focuses on find-it questions only. In addition, in the Spanish monolingual speakers' sessions, the experimenter always sat across the table from the participant. In the English-speaking monolinguals' sessions and the Spanish-English bilinguals' sessions, the experimenter either sat across from or next to the participant. Varying the experimenter's position does not significantly impact the English monolinguals' or the Spanish heritage speakers' demonstrative use (Shin & Lease, 2025).

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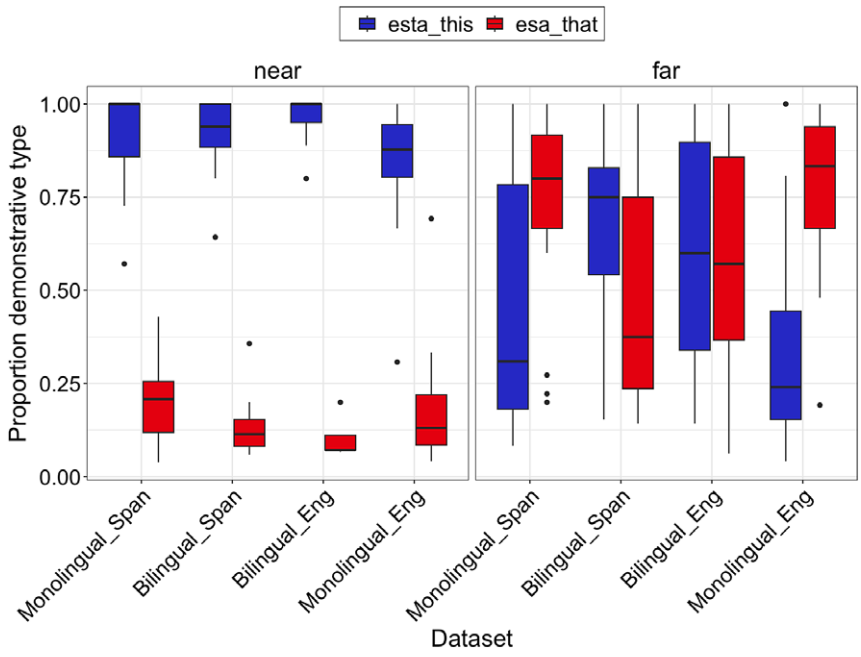

Figure 2. Speakers' proportions of demonstrative forms by distance and dataset.

eliminated, starting with the one that produced the highest AIC until the lowest possible AIC value was reached.

We first compared the Spanish-speaking monolinguals' and English-speaking monolinguals' demonstrative use. The maximal model included an interaction between group and distance and an interaction between distance and adjacency, as well as a random slope that allowed the effect of distance on demonstrative use to vary by participant. The best-fit model retained the interaction between distance and adjacency, as well as group as a main effect. Table 1 reports the best-fit model. Positive estimate (β) values indicate that the likelihood of *esa/that* increases, whereas negative estimate values indicate that the likelihood of *esa/that* decreases. Interaction terms are listed with the pertinent levels of the variables involved in the interaction. The values associated with the main effect of any variable in interaction should be understood as the effect of the reference level of the variable (the one not listed for the interaction term).

Table 1. Results of generalized logistic regressions predicting *esa/that* for Spanish-speaking monolinguals and English-speaking monolinguals

Variable	β	SE	*z*-value	*p*-value
Intercept (near, adjacent, Spanish)	−2.65	0.36	−7.31	< .001
Group	0.83	0.42	1.98	.04
Distance	2.89	0.34	8.35	< .001
Adjacency	−0.26	0.24	−1.07	.28
Adjacency:Distance (not adjacent:far)	1.87	0.38	4.79	< .001
Participant (intercept)	**0.96**			
Participant (distance)	1.65			
AIC	921.4			
R^2 (total)	0.64			
R^2 (fixed effects)	0.45			

The best-fit model (Table 1) did not include the interaction between group and distance, suggesting that the English-speaking monolinguals were just as likely as the Spanish-speaking monolinguals to produce non-proximal demonstratives in the far space. That is, the impact of speaker-referent distance on demonstrative use was similar across the two monolingual groups (also see Figure 2). The results also indicate that the likelihood of producing non-proximal demonstratives increased when pieces were in the far space, and even more so when the pieces were "far" and not adjacent to the line. While both monolingual speaker groups were similarly impacted by speaker-referent distance, the English-speaking monolinguals were, overall, significantly more likely to produce non-proximal demonstratives as compared to the Spanish-speaking monolinguals.

Next, we compared the bilinguals to each reference lect. That is, we compared the bilinguals and Spanish-speaking monolinguals' Spanish demonstratives in one model and the bilinguals and English-speaking monolinguals' English demonstratives in a separate model. The maximal models included an interaction between group and distance and an interaction between distance and adjacency, as well as a random slope that allowed the effect of distance on demonstrative use to vary by participant. Table 2 reports the results of the models, with the Spanish data in the left columns and the English data in the right columns. Empty cells indicate that the term was dropped from the best-fit model. In this and subsequent tables, we also report the percentage of simulations (out of 1,000) in which the results are significant when we randomly sample the dataset with replacement (i.e., bootstrapping) up to the size of the original dataset and run the data through the maximal model (Hay & Foulkes, 2016). We offer these values to address a reviewer's concern about the composition and sample size of the bilingual group. Despite introducing differing amounts of heterogeneity into the dataset with each simulation, the results are consistent across simulations.

The results in Table 2 show a significant interaction between group and distance for the Spanish data; as compared to the

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Table 2. Results of two generalized logistic regressions predicting *esa/that*; one for bilinguals' and Spanish-speaking monolinguals' Spanish demonstratives (left) and one for bilinguals' and English-speaking monolinguals' English demonstratives (right)

	Spanish (n = 858)					English (n = 1,127)				
	β	SE	z	p	% sig runs	β	SE	z	p	% sig runs
Intercept (near, adjacent, monolingual)	−2.82	0.40	−6.98	<.001	100%	−1.62	0.27	−5.86	<.001	100%
Group	−0.01	0.47	−0.03	.98	1.1%	−1.86	0.48	−3.82	<.001	96%
Distance	3.74	0.49	7.57	<.001	100%	2.47	0.39	6.24	<.001	100%
Adjacency					4.6%	−0.56	0.27	−2.07	.03	57.8%
Group:distance (bilingual:far)	−1.43	0.59	−2.41	.01	85.3%					7.2%
Adjacency:distance (not adjacent:far)					17.7%	2.79	0.42	6.65	<.001	100%
Participant (intercept)					**σ = 0.97**					**σ = 0.86**
Participant (distance)					σ = 1.06					σ = 1.57
AIC					671					851
R^2 (total)					0.51					0.69
R^2 (fixed effects)					0.31					0.48

Spanish-speaking monolinguals, the bilinguals were less likely to produce *esa* when referring to pieces in the far space. The results for the English data show a main effect of group, but no interaction with distance. This indicates that the bilinguals were overall less likely to use *that* than the English-speaking monolinguals, but this difference was not conditioned by speaker-referent distance.

3.5. Study 1: Discussion

Study 1 compared the impact of speaker-referent distance on demonstrative use among Spanish-speaking monolinguals in Mexico, English-speaking monolinguals in the USA, and Spanish–English bilinguals in the USA. The study investigated whether these groups' demonstrative use is differentially affected by speaker-referent distance (RQ1). Previous research had demonstrated that bilinguals were significantly less likely to produce *esa* as compared to Spanish-speaking monolinguals (Shin & Mendieta-Rodríguez, 2024), but it was unclear whether their English demonstratives would also differ from those produced by English-speaking monolinguals. We predicted that all speakers would produce more non-proximal demonstratives when referring to pieces in the far space. At the same time, we anticipated that the impact of speaker-referent distance would vary across groups.

Supporting our prediction, all groups produced more non-proximal demonstratives for referents farther from the speaker, which is a common cross-linguistic tendency (Coventry et al., 2023; Diessel, 1999; Diessel & Coventry, 2020). The comparison of English- and Spanish-speaking monolinguals revealed no significant difference with respect to the impact of speaker-referent distance on demonstrative use (Table 1 and Figure 2). However, one difference between the monolingual groups emerged: the English-speaking monolinguals were more likely to produce non-proximal demonstratives overall. This reflects usage patterns in conversational English and Spanish. The frequency counts reported in Section 1 demonstrate that the English distal demonstratives *that/those* are more than twice as frequent as the proximal demonstratives *this/these*, whereas the Spanish medial demonstratives *ese/esa/esos/esas* are only 23% more frequent than the proximal demonstratives.[4]

The comparisons between the bilinguals and monolinguals showed some differences with respect to speaker-referent distance (Table 2). The bilinguals produced more proximal Spanish demonstratives than the Spanish-speaking monolinguals when referring to pieces in the far space (Figure 2). The bilinguals' English demonstrative use was similar to that of the English-speaking monolinguals with respect to speaker-referent distance, but the English-speaking monolinguals were overall more likely to produce non-proximal *that* than the bilinguals.

The differences between the monolinguals' and bilinguals' demonstrative use lend support to previous research showing that bilinguals differ from monolinguals in their use of demonstratives (Todisco et al., 2024; Vulchanova et al., 2020, 2023). Like our findings, an increase in Spanish proximal *este/esta* at the expense of non-proximal *ese/esa* was also found among Catalan–Spanish bilinguals in Majorca (Todisco et al., 2024). Interestingly, as mentioned above, Vulchanova et al. (2020, 2023) found that Spanish–Norwegian bilinguals in Norway produced fewer tokens of distal *aquel* as compared to monolinguals in Spain, providing evidence of a shrinking demonstrative system among the bilinguals. Yet, language usage and proficiency variables did not significantly impact the bilinguals' use of demonstratives, suggesting that the reduction of *aquel* was not necessarily shaped by crosslinguistic influence form Norwegian, a language in which adverbials rather than nominal demonstratives encode distance. Likewise, in our study, the bilinguals' greater reliance on the Spanish proximal *esta* is not due to the cross-linguistic influence of English. This is evident from the fact that the English-speaking monolinguals were, overall, more likely to produce non-proximals as compared to the other two groups. In other words, the monolingual English data does not point to a preponderance of *this*. In fact, if English were impacting the bilinguals' Spanish, we would anticipate an increase in non-proximal *esa* rather than proximal *esta* (Shin et al., 2021). Thus, an

[4]This distributional difference also parallel findings in child and child-directed speech (González-Peña et al., 2020), which indicates that input frequency impacts children's demonstrative use.

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English-contact explanation cannot explain why the bilinguals produced more *esta* when referring to pieces in the far space.

To further explore the bilinguals' nominal demonstrative use, Study 2 addresses the extent to which these bilinguals' demonstrative use evinces linguistic convergence. Additionally, we consider the impact of language dominance and individuals' strategies to mark distance to further understand the potential sources of linguistic convergence.

4. Study 2

4.1. Research questions

RQ2.1. Does U.S.-raised bilinguals' use of Spanish and English nominal demonstratives show evidence of linguistic convergence?

Previous research yields two predictions (P2.1a and P2.1b) related to RQ2.1:

P2.1a. If there is convergence between their languages (Bullock & Toribio, 2004), the bilinguals' demonstrative use will be similar across their languages.

P2.1b. If bilinguals keep their languages separate (Torres Cacoullos & Travis, 2018), their nominal demonstrative use will differ across their languages.

RQ2.2. To what extent is there evidence for linguistic convergence at the individual level?

Previous research yields two predictions (P2.2a and P2.2b) related to RQ2.2:

P2.2a. Linguistic convergence at the individual level will be comparable to linguistic convergence at the group level because individual speakers conform to conventionalized usage patterns within their community (Labov, 1989; Patrick, 2004).

P2.2b. Linguistic convergence at the individual level may differ from what is found at the group level given inter-speaker variability in general (Barlow, 2013; Tagliamonte & Baayen, 2012) and in demonstrative use in particular (Coventry et al., 2023).

RQ2.3 Is linguistic convergence impacted by language dominance?

Previous literature yields two competing predictions (P2.3a and P2.3b) associated with RQ2.3:

P2.3a. Following the "Maximize Common Ground" principle (Filipović, 2019; Hawkins & Filipović, 2024), demonstrative use among more balanced bilinguals will show more evidence of convergence.

P2.3b. Since less balanced bilinguals have been shown to transfer linguistic features from their more dominant to their less dominant language (e.g., Silva-Corvalán & Treffers-Daller 2016; Treffers-Daller 2019), demonstrative use among less balanced bilinguals will show more evidence of convergence.

4.2. Participants

The study includes the same bilingual participants from Study 1, but only those who completed the puzzle task in both Spanish and English (N = 18).

4.3. Puzzle task

Each participant completed the puzzle task described in Study 1 using the same layout and procedure.

4.4. Independent variables

Study 2 tests the effects of three independent variables on bilinguals' demonstrative use. Like Study 1, we include **distance** and **adjacency.** The third independent variable is **language dominance**, which is based on participants' responses to the Bilingual Language Profile (BLP; Birdsong et al., 2012). The BLP includes questions on language history, language usage, self-rated language proficiency, and language attitudes. To calculate language dominance, sections are scored, weighted, and then combined to obtain a global language score. Then one global language score is subtracted from the other to obtain the language dominance score. In this study, participants responded to the history, usage, and proficiency questions, but not the attitudes questions, which are a slightly less reliable indicator of language dominance (Olson, 2023). With three sections included, the potential range for the global language score was 0–163.5. To obtain the language dominance score, the English global language score was subtracted from the Spanish global language score. As such, positive scores indicate Spanish-language dominance, and negative scores indicate English-language dominance. Scores close to zero indicate balanced bilingualism. The average BLP score of the 18 bilingual participants in Study 2 is −29.96 (range = −104.78–5.19, SD = 26.41). In the statistical analysis, we use scaled BLP scores, which are standardized scores around the mean. Table S1 in the Supplementary Material provides more details about the bilinguals' responses to the BLP questions.

4.5. Data coding

All coding procedures and exclusion criteria followed those described in Study 1. After all exclusions, the dataset for Study 2 included 416 tokens of Spanish nominal demonstratives and 339 tokens of English nominal demonstratives. As in Study 1, all tokens were coded for distance, and the second author checked each video and all coding.

4.6. Results

4.6.1. Results from generalized linear mixed-effect models

We constructed one generalized linear mixed-effects regression model for the bilinguals' Spanish and English data combined. We addressed our research questions by including a three-way interaction between language session (Spanish versus English), BLP score, and distance. This way, we investigate the effect of BLP score and distance on demonstrative use and examine whether this effect is different in the bilinguals' Spanish and English. We also included an interaction between adjacency and distance, as was done in Study 1. Random slopes led to model overfitting, so the maximal models only included participant as a random effect. We adopted the same model selection procedure used in Study 1, as well as the

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Table 3. Results of generalized logistic regressions predicting *esa/that* for bilinguals

	β	SE	*z*	*p*	% Sig. runs
Intercept (near, adjacent, English, BLP score ≈ −29.96)	−2.93	0.39	−7.44	<.001	100.00%
Distance	2.16	0.33	6.61	<.001	99.10%
Adjacency	−0.92	0.49	−1.88	.06	53.86%
Scale(BLP)	−0.26	0.32	−0.82	.41	22.32%
Scale(BLP):distance (scale[BLP]:far)	0.54	0.24	2.29	.02	59.00%
Distance:adjacency (far:not adjacent)	1.94	0.56	3.46	< .001	96.42%
Random intercept (participant)	**σ = 1.11**				
AIC	549.5				
R^2 (total)	0.53				
R^2 (fixed effects)	0.36				

same bootstrapping procedure. Table 3 reports the results of the model.

The results of the best-fit model reveal a significant interaction between BLP score and distance. The direction of the effect indicates that when the bilinguals referred to pieces in the far space, the likelihood of *esa/that* increased as BLP scores increased. Stated differently, the more balanced the bilingual, the higher the likelihood of using *esa/that* in the far space. Figure 3 illustrates the interaction between BLP scores and distance by plotting the predicted probabilities of *esa/that* in the near (solid line and solid circles squares) and far (dotted line and open squares) space by the participants' BLP scores in both language sessions. On the far left of each panel, the most English-dominant participants infrequently produce *esa/that*, producing instead primarily *esta/this* in the far and near spaces. On the far right of each panel, the more balanced bilinguals more frequently produce *esa/that* in the far space and less frequently produce *esa/that* in the near space. There was no effect of BLP score for referents in the near space on the likelihood of *esa/that*, as evidenced by the nonsignificant main effect of BLP score in Table 3. In other words, all bilinguals, regardless of BLP score, primarily produced *esta/this* when referring to pieces in the near space.

The results also reveal an interaction between distance and adjacency of puzzle piece to the barrier. When bilinguals referred to puzzle pieces in the far space that were also not adjacent to the barrier, rendering these pieces even farther from the participant, the likelihood of *esa/that* significantly increased. The main effects associated with this interaction reiterate that proximal demonstratives were the dominant forms in the near space, and that non-proximal demonstratives were more common in the far space.

Absent from the best-fit model is the "language" variable, as well as interactions between language and BLP scores and between language and distance. The lack of a language effect suggests that the interaction between BLP score and demonstrative use spans across the two languages. Indeed, Figure 3 illustrates the similar effect of BLP score on demonstrative use in both English and Spanish. It seems that individuals adopt patterns that either coincide with tendencies in the reference lects (i.e., producing *esa/that*

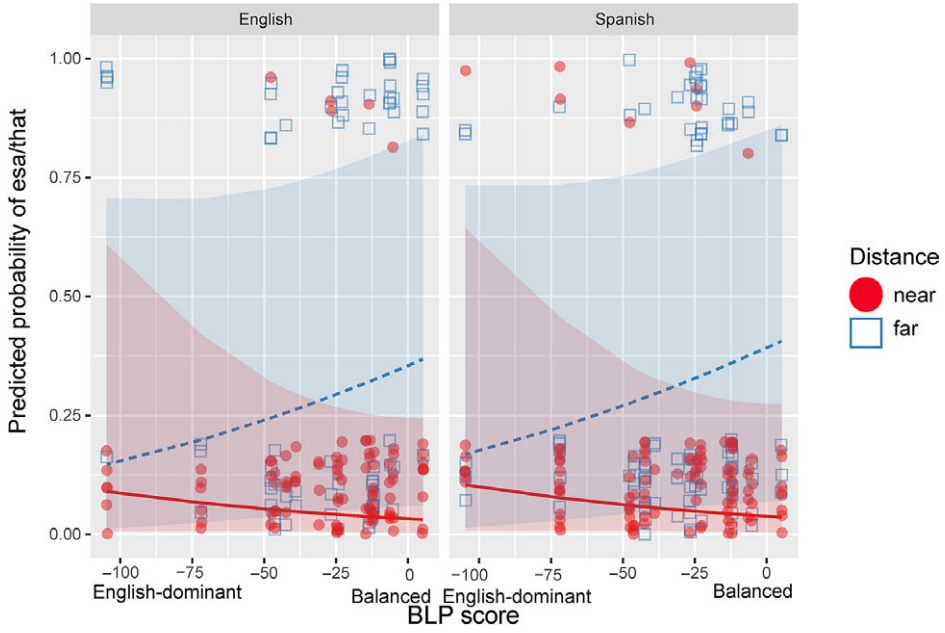

Figure 3. Predicted probabilities of *esa/that* by BLP score and distance.

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in the far space) or contradict these tendencies (i.e., producing *esta/this* in the far space), and regardless of which pattern they adopt, they apply it across both their languages. Nevertheless in 18.7% of datasets simulated in the bootstrapping procedure, there was a significant effect of the three-way interaction between language, BLP, and distance. It is possible that with more data, a significant three-way interaction would emerge. Thus, we adopted a second type of statistical analysis to further investigate language convergence in the bilinguals' use of demonstratives.

4.6.2. Results from recursive partitioning models

The second set of analyses was conducted with recursive partitioning methods: a conditional inference tree (CIT) and conditional random forest (CRF) in *partykit* (Hothorn & Zeileis, 2015). The goal of the CIT algorithm is to partition the data into maximally homogenous subsets based on the strength of the associations between the predictors and the dependent variable and until partitioning is no longer justified (Levshina, 2020). The results of the CRF yield variable importance scores for each predictor as ascertained from growing numerous CITs. This approach is meant to further explore the three-way interaction and uncover variation among individuals in the present dataset.

Recursive partitioning models are beneficial in cases where the number of predictors is too large for the number of datapoints and when there are complex interactions involved (Levshina, 2020). Both scenarios apply here. More specifically, determining whether individuals' usage patterns exhibit linguistic convergence involves testing a three-way interaction between participant, distance, and language. Additionally, demonstrative use might be predicted by the joint influence of BLP scores and distance in one language but not the other. We tested for these interactions in the regression model; however, the three-way interaction was not significant. One interpretation is that we have found a case of widespread linguistic convergence wherein "language" is not a significant predictor of bilinguals' usage patterns. Another interpretation is that testing these interactions via regression models requires a larger dataset. The output of inference trees, which includes "participant" as a variable, also offers an efficient way to group participants with similar demonstrative use and thus provides a principled approach to individual analyses.

In this study, the CIT analysis assesses the likelihood of producing *esa/that* versus *esta/this* based on three predictors: **distance**, **language**, and **participant**. If individual participants use different strategies across their languages (i.e., they have a higher likelihood of producing non-proximal demonstratives in the "far" space in one language rather than in both languages), we should see an interaction between language and distance for those participants. By "interaction" we mean that the datapoints associated with these participants end up in separate subsets of the data as partitioned by the algorithm. In contrast, for individuals that use the same strategy across languages, we should not find any interaction with the language variable; these participants' Spanish and English datapoints should be partitioned into the same subset.

The results of the CIT reveal two significant predictors: distance and participant (Figure 4). The algorithm first splits the data by distance. In the "near" subset (n = 431), no further splitting was justified, which indicates that language and participant do not constrain demonstrative use in the near space: all speakers, in both languages, overwhelmingly produce *esta/this* (Figure 4, Node 2). In the far space (n = 324), participant, but not language, constrains nominal demonstrative use (Nodes 3–7). The algorithm identifies three groups of participants with distinct demonstrative behavior in the far space (Nodes 5–7). The language variable does not appear in any CIT node, which suggests that the participants who fall into each group behave the same way across their languages. Figure S1 in the Supplementary Material presents each participant's rates of *esa/*

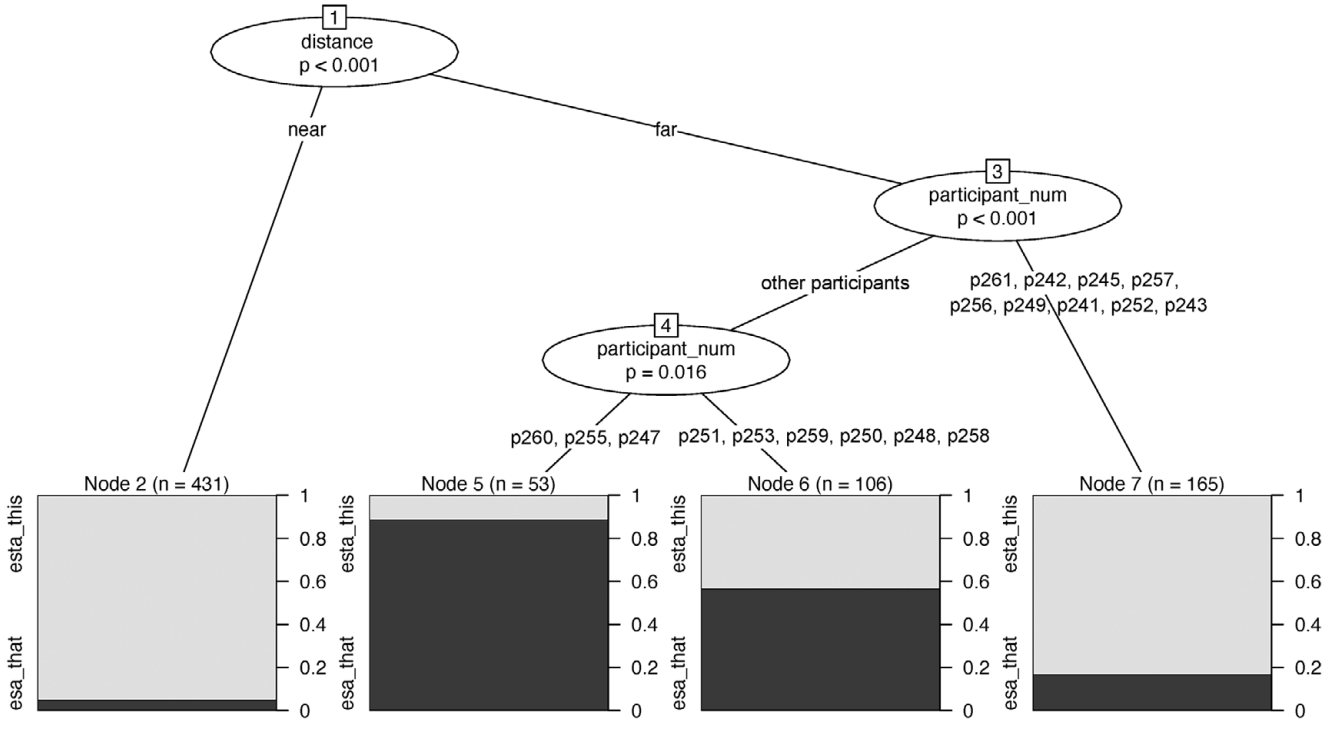

Figure 4. Conditional inference tree for Spanish–English bilinguals' demonstrative use.

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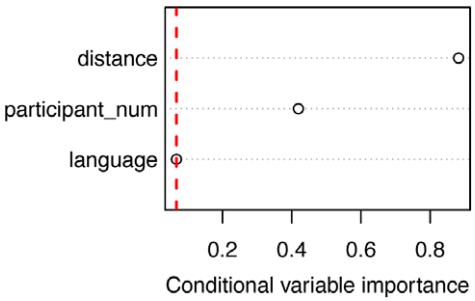

Figure 5. Variable Importance Factors extracted from conditional random forest results predicting Spanish–English bilinguals' demonstrative use.

that and *esta/this* in the near versus far space and in each language, further demonstrates that most individuals behave similarly across their languages.

The results of the CRF performed in *partykit* are presented in Figure 5. The higher the variable importance score, the more strongly the predictor impacts demonstrative use. Figure 5 indicates that distance is the strongest tested predictor of demonstrative use, then the individual, and language has a score of 0, indicating that its effect is inconsequential to demonstrative use.[5]

The CIT and the CRF show that the participants' use of demonstratives is similar across their languages. At the same time, the CIT results (Figure 4) indicate that there are three groups of participants who vary in their use of demonstratives for referents in the far space. The first group of participants (N = 3; Node 5) followed the typical trend found among monolinguals: they generally produced non-proximal *esa* and *that* for puzzle pieces in the far space. As such, we consider these participants to be "conservative" in their nominal demonstrative behavior with respect to distance marking. The participant IDs for these three speakers are provided above Node 5. Figure S1 in the Supplementary Material further confirms that these speakers are conservative across their languages: their *esa/that* rates are appreciably high in the far space (75% or greater) and low in the near space.

The second group of participants' (N = 6; Node 6) far-space demonstrative use was highly variable. In English, each speaker produced *that* in at least 30% of responses, and in Spanish, each participant produced *esa* in 25% of responses (Figure S1 in the Supplementary Material; refer to Figure 4 Node 6 for participant IDs). Among the participants in this group, some exhibited divergent behavior across their languages, whereas others tended to be similar. For instance, for the far space p251 and p258 produced primarily *esa* (85%; 75%, respectively) but produced *that* less frequently (60%; 57%, respectively). By contrast, p253's rate of *that* in the far space was high (80%), but her rate of *esa* was low (30%).

The third and largest group of participants (N = 9; Node 7) primarily produced *esta* and *this* for puzzle pieces in the far space, thereby bucking the typical trend of producing non-proximals in the far space. We consider these participants to be "innovative" in their demonstrative use since this is not a strategy typically found among Spanish and English speakers. Moreover, as illustrated in Figure S1 in the Supplementary Material, eight of these nine innovative speakers produced high rates of proximal demonstratives in the far space in both their languages (see Figure 4 above Node 7 for participant IDs). P256 is the only exception; his assignment to the innovative group may be related to his small number of datapoints. To summarize, the results of the recursive partitioning models uncover a large amount of linguistic convergence among individual speakers. Discounting p256, 11/18 bilinguals' demonstrative use exhibits linguistic convergence. Of these 11 speakers, 8 exhibit innovative behavior (i.e., producing proximal demonstratives for referents in the far space) and 3 exhibit conservative behavior across their languages. Table 4 provides a summary of the far-space proximal demonstrative usage and language dominance information for each of the three groups of bilinguals that were identified by the CIT algorithm.

With respect to the question of whether language dominance impacts convergence (RQ2.3), we performed a correlation between the absolute difference in the rate of *esa* and *that* in the far space and BLP scores. We take this absolute difference to be an indicator of how similar bilinguals' use of nominal demonstratives is across their languages; smaller absolute differences indicate greater similarity. Figure S2 in the Supplementary Material plots the absolute differences by BLP score for each participant. A Spearman's rank correlation test shows no correlation between the absolute difference in the rate of *esa* and *that* in the far space and the participants' BLP scores [$\rho(16) = 897.89$, $p = .38$]. This finding corroborates the results from the group-level regression analysis discussed earlier: language (Spanish versus English) was not a significant predictor of demonstrative use – neither as a main effect nor in interaction with BLP scores. Thus, language dominance predicts which demonstrative form a bilingual is more likely to produce (Figure 3), but it does not predict which types of bilinguals are more likely to exhibit linguistic convergence (Figure S2 in the Supplementary Material).

4.7. Study 2: Discussion

The primary goal of Study 2 was to investigate the extent to which Spanish–English bilinguals' use of nominal demonstratives is shaped by linguistic convergence at the group (RQ2.1) and at the individual level (RQ2.2), and whether linguistic convergence is impacted by language dominance (RQ2.3). To that end, the study analyzed 18 bilinguals' use of nominal demonstratives in both Spanish and English. In addition, we conducted group-level and individual analyses of demonstrative use with a range of statistical tests to gain insight into the extent of convergence (RQs 2.1, 2.2) and to examine the impact of language dominance on convergence patterns (RQ2.3). In what follows, we discuss how our findings answer the three research questions.

We found that 11/18 participants' nominal demonstrative use provides evidence for linguistic convergence, and this linguistic convergence manifested at the group and individual levels in two different trends (RQs 2.1, 2.2). On one hand, some bilinguals' (N = 3) demonstrative use in both their languages was "conservative." That is, their usage was similar to the trend found among monolinguals in that they produced non-proximal demonstratives for referents that were farther away (Table 2 and Figure 4, Node 5). The results from the regression model suggest that this behavior was more common among the more balanced bilinguals in the sample (Figure 3). Furthermore, these three "conservative" speakers' BLP scores were relatively close to 0, indicating balanced bilingualism (Table 4). For these three participants, the relationship between speaker-referent distance and demonstrative forms in one language reinforces the same relationship in the other language. We interpret this as evidence of enhancement or

[5]The random forest analysis was repeated with the *ranger* package (Wright & Ziegler, 2017). As with the *partykit* package, the VIF score associated with distance was highest (38.50), followed by participant (13.05), and language was the least important variable (1.40).

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Table 4. Language dominance information for groups identified via CIT

Group	Node	N participants	N participants who show convergence	Mean rate of *esta/this* in far space	Mean BLP	BLP range
Conservative	5	3	3	Spanish: 25% English: 14%	−14.52	−22.79 to −6.26
Variable behavior	6	6	–	Spanish: 47% English: 40%	−34.90	−104.71 to 5.18
Innovative	7	9	8	Spanish: 84% English: 84%	−31.82	−71.93 to −5.09

entrenchment of a structural similarity across the bilinguals' languages (Bullock & Toribio, 2004).

Linguistic convergence in other bilinguals' (N = 8) nominal demonstrative use manifested as producing primarily proximal demonstratives in the far space in both languages, thereby bucking the more typical trend of producing *non*-proximals for referents that are farther away. The results from the regression model suggest that this behavior is more common among the English-dominant bilinguals in the sample since the likelihood of producing non-proximal demonstratives decreased with increasing English dominance. The fact that these bilinguals' usage pattern goes against the typical trend in the reference lects and that they apply this pattern across their languages suggests that this "innovative" behavior also illustrates linguistic convergence.

The manifestation of linguistic convergence among the "innovative" bilinguals is unlikely a result of crosslinguistic influence but rather an internally induced enhancement of structural similarities between linguistic systems. This interpretation is supported by the comparisons between the Spanish-speaking monolinguals and English-speaking monolinguals (Study 1). Figure 2 presents all three groups side-by-side and illustrates the bilinguals' higher rates of proximal demonstratives when identifying referents in the far space as compared to the other groups. That is, the bilinguals' use of proximals in the far space outstrips that of both monolingual groups. Moreover, the group-level analysis of the bilinguals' data shows that it is the most English-dominant participants who are most likely to produce proximal demonstratives when referring to pieces in the far space (Table 3). But again, these English-dominant bilinguals' extension of proximals does not appear to stem from English influence since the English-speaking monolinguals do not exhibit this same trend. In fact, the English-speaking monolinguals produce, overall, more non-proximal demonstratives than the Spanish-speaking monolinguals. An increase in Spanish *esta* at the expense of *esa* was also found among Catalan–Spanish bilinguals in Majorca (Todisco et al., 2024), and an increase in *esa* at the expense of *aquel* was found in analyses of Spanish–Norwegian bilinguals in Norway (Vulchanova et al., 2020, 2023). Thus, our findings concord with previous research in the sense that the bilinguals extend their use of one demonstrative at the expense of another, and this difference does not appear to be due to cross-linguistic influence.

The finding that the "innovative" bilinguals mainly use proximal demonstratives may initially give the impression that they do not mark speaker-referent distance. Nevertheless, subsequent individual analyses reveal that, instead of varying between nominal demonstratives, the "innovative" bilinguals use other strategies already available in both Spanish and English to indicate speaker-referent distance. The principal structure is a schema that combines a proximal nominal demonstrative and locative language: [DEM.PROX + LOCATION]. Consider p242, who used *esta/this* categorically. This innovative bilingual most frequently produced ***esta*** *de aquí* "this one here" for near pieces. For pieces in the far space, she used ***esta*** *de acá* for pieces that were adjacent to the barrier and thus closer to herself, and for those that were not adjacent to the barrier and thus farther away, she produced ***esta*** *de allá*. This suggests that, for this speaker, *esta de acá* means "this one here," but is used for referents slightly farther away, and ***esta*** *de allá* means "this one there." Thus, the speaker places the functional load of locating the referent on adverbial demonstratives rather than on nominal demonstratives when speaking Spanish. This same participant used a similar strategy in English. Her two most frequent phrases in the English condition were ***this*** *one right here*, for referents in the near space, and ***this*** *one over here*, for referents in the far space, demonstrating that, just like in Spanish, the speaker placed a greater functional load on locative language rather than on nominal demonstratives to guide the interlocutor to the location of the referent.

Similar to p242, another innovative bilingual, p241, alternated between ***esta*** *de aquí* and ***esta*** *de acá* when referring to near and far pieces, respectively. Deploying the adverbs in a different way, p243 frequently used ***esta*** *pieza* "this piece" for near-space pieces and added adverbial demonstratives when referring to pieces in the far space. Other innovative bilinguals tended to rely on prepositional constructions to guide the experimenter to the relevant puzzle piece. For example, p261 produced just ***esta*** for near pieces, but consistently produced ***esta*** *en el otro lado* "this one on the other side" for far pieces. In sum, the "innovative" bilinguals rely less on nominal demonstratives to locate referents in space, deploying other locative constructions, primarily adverbial demonstratives, to mark distance instead.

It is worth noting that the combination of nominal and adverbial demonstratives is also found among the Spanish- and English-speaking monolinguals. However, compared to the monolinguals, the bilinguals produce more constructions that combine nominal demonstratives and adverbials (15% and 25%, respectively). More importantly, when referring to far pieces using a proximal nominal demonstrative, the bilinguals produce non-proximal adverbial demonstratives (e.g., *this one there*) more often than the monolinguals do (27% and 22%, respectively). Also, when referring to far pieces using a non-proximal demonstrative, the bilinguals produce non-proximal adverbials (e.g., *that one there*) more often than the monolinguals do (38% and 13%, respectively). Thus, these analyses reveal a case in which bilinguals enhance a structural similarity across their languages. This construction is available in both Spanish and English and, while it is found among monolinguals, bilinguals produce it to a greater extent. In this case, the shared structure is a schema of [DEM.PROX + LOCATION], primarily using a [DEM.PROX + LOC.ADV] construction. This finding, along with findings from the studies on Spanish-Catalan and Spanish–Norwegian bilinguals, shows that Spanish nominal demonstratives undergo changes in bilingual contexts. More specifically, the

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individual analyses uncover an innovative analytic construction, whereby nominal demonstratives serve as a reference marker and adverbial demonstratives, or other locative constructions, mark distance.

This "innovative" strategy of relying on adverbials rather than nominal demonstratives is found in other languages, too, like Italian (Jungbluth & Da Milano, 2015). Moreover, this "innovative" strategy is more grammaticalized in languages like French and some varieties of German (Coventry et al., 2023; Guillot, 2015; Rauth & Speyer, 2021). In other words, the bilinguals in this study are only innovative in comparison to the Spanish- and English-speaking monolinguals. In fact, the bilinguals' "innovative" usage reflects a common cross-linguistic diachronic change whereby first the distance meaning of nominal demonstratives is supported by adverbials that reiterate the distance meanings, and then the distance meaning becomes associated with the adverbials rather than the nominal demonstratives. Farther along this path, we may expect that the nominal demonstrative continues to serve only as a marker of definiteness (Ledgeway, 2020), while the adverb or other locative language encodes distance. As discussed in Section 2.1, this change is found in diachronic analyses of demonstratives across languages. Again, the bilinguals' usage patterns are only "innovative" when we compare them to Spanish-speaking monolinguals and English-speaking monolinguals (Figure 2); they are not unusual when we consider diachronic changes in demonstratives in other languages. If anything, the bilinguals' usage patterns are perhaps further along on a common cycle of language change. If this is the case, this finding aligns with the assertion that heritage speakers (Kupisch & Polinsky, 2022) and bilinguals in general can accelerate or enhance language change (Heine & Kuteva, 2005; Joseph, 2022). For example, Silva-Corvalán (1986, 1994) found that U.S. Spanish–English bilinguals extended the use of the copula verb *estar* at the expense of copula verb *ser* and that this was an internally motivated language change that was accelerated by language contact. In the present study, the bilinguals' [DEM. PROX + LOCATION] schema is already available in Spanish and English spoken by other groups, including monolinguals. With continued usage, the eventual shift to marking distance by means of the adverbials rather than the nominal demonstratives is likely the next step. Nevertheless, future research is needed to understand the motivations and mechanisms behind this change, as well as document its progress in bilingual and monolingual communities.

Having established that the bilinguals' usage patterns provide evidence of convergence, we now turn to the question of whether language dominance mediates the extent of linguistic convergence (RQ2.3). We entertained two possible ways in which language dominance may predict convergence. On the one hand, balanced bilinguals might show more convergence due to the tendency to "maximize common ground" (P2.3a; Hawkins & Filipović, 2024). On the other hand, less balanced bilinguals may transfer linguistic features and usage patterns from their more dominant to their less dominant language (P2.3b; Silva-Corvalán & Treffers-Daller 2016; Treffers-Daller, 2019). However, the results indicate no effect of language dominance since we find cases of convergence among the more balanced bilinguals and the more English-dominant ones. Moreover, there was no correlation between BLP scores on the one hand and the difference in the rate of *that* and *esa* on the other (Figure S2 in the Supplementary Material). It is possible that the composition of the bilinguals in our study accounts for the lack of a language dominance effect on linguistic convergence. All the bilinguals, including the more English-dominant ones, grew up speaking Spanish at home, and thus had a strong command of both languages. Perhaps bilinguals with a more uneven command of their languages would exhibit less convergence.

Another factor that may have promoted convergence in this study relates to the linguistic structure at hand. Words with fewer translation equivalents are more closely connected in the bilingual mind (Tokowicz & Kroll, 2007). Previous studies suggest that bilinguals reduce their use of *aquel/aquella* (Shin & Mendieta-Rodríguez, 2024), which means they rely primarily on *este* and *ese*. As such, the proximal demonstratives *this* and *este/esta* are arguably translation equivalents with no competitors. Thus, it is likely that the bilinguals in this study strongly associate *this* with *este/esta* and *that* with *ese/esa* and subsequently apply usage strategies across these associated lexemes. The lack of semantic competitors coupled with the high frequency of these demonstrative forms across the two languages may further intertwine bilinguals' usage patterns.

5. Conclusion

Study 1 and Study 2 together document patterns of nominal demonstrative use among Spanish-speaking monolinguals, English-speaking monolinguals, and Spanish–English bilinguals who were either born in the USA or arrived at a young age. Study 1 confirmed that speaker-referent distance conditions both Spanish- and English-speaking monolinguals' use of demonstratives; both groups tend to use proximals and non-proximals for referents in the peripersonal and non-peripersonal spaces, respectively. Study 1 also confirmed that the bilinguals produced more proximal *esta* for referents in the far space as compared to Spanish-speaking monolinguals in Mexico, as well as more *this* overall as compared to English-speaking monolinguals in the USA.

Delving further into the Spanish–English bilinguals' demonstrative use, Study 2 found evidence of linguistic convergence. With respect to speaker-referent distance, some bilinguals mirrored the monolinguals and marked spatial distance with nominal demonstratives, whereas others marked spatial distance by means of adverbials or other constructions paired with nominal demonstratives. Regardless of the strategy adopted, individual bilinguals tended to apply that strategy across their languages, indicating abundant convergence in their use of demonstratives. These findings are compatible with models of bilingual language production in which lexemes from each language can be associated with one lemma (De Bot, 2007; Winford, 2013) and with models that account for the simultaneous activation of both languages (Kroll et al., 2014). In addition, we have argued that the demonstrative forms' high token frequency and lack of semantic competitors may promote convergence, although this should be explicitly tested in future research.

Finally, this study also corroborates the importance of studying both group- and individual-level language use patterns. Given that individuals belong to a speech community (Labov, 1989; Patrick, 2004), many shared patterns are to be expected. Nevertheless, inter-speaker variability may be extensive and systematic (Barlow, 2013; Coventry et al., 2023) and, as we have found in this study, may spotlight linguistic convergence and innovative strategies among bilinguals.

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Data availability statement. The data that support the findings will be available in the Open Science Framework at https://osf.io/yr7ms/ following a 1-year embargo from the date of publication to allow for the commercialization of research findings.

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