



The 42nd Penn Linguistics Conference

March 23-25, 2018

University of Pennsylvania

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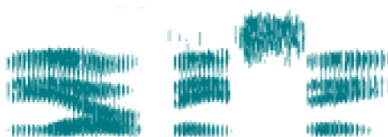


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PLC42: SCHEDULE OF EVENTS

Friday, March 23, 2018

2:00-4:30 PM

Registration

Houston Hall: Hall of Flags (HHG26)

2:30-5:45 PM

Special Panel:

Signals and Symbols: Linking continuous and discrete representations

Houston Hall: Hall of Flags (HHG26)

2:30

Introduction

Mark Liberman

University of Pennsylvania

2:45

Searching the brain for speech representations

Jen Segawa

Stonehill College

3:15

Evaluating how children might, or might not, interpret phonetic variation phonologically

Daniel Swingley

University of Pennsylvania

3:45

Questions

4:00

Coffee Break

4:30

Continuous and discrete representations in coarticulation to /ɪ/ in English

Jeff Mielke

North Carolina State University

5:00

Signs, speech, and gesture: integrating continuous and discrete representations into a single proposition

Kathryn Davidson

Harvard University

5:30

Questions

5:45-7:00 PM

Reception

Houston Hall: Hall of Flags (HHG26)

8:30AM-5:30 PM **Registration**
Claire Fagin Hall

8:30 AM **Breakfast**

	Session 1A: Syntax I <i>Claire Fagin Hall 116</i>	Session 1B: Phonetics <i>Claire Fagin Hall 118</i>
9:15 AM	French exceptive (<i>ne</i>) ... que at the syntax-semantics interface Marc Authier and Lisa Reed	A corpus phonetic study of contemporary Persian vowels in casual speech Taylor Jones
9:40 AM	Reinterpreting <i>Ne</i>-cliticization as split-topicalization Pietro Cerrone and Hiromune Oda	Modified two-component Shepard tones and their application to Sine Wave Speech Jon Nissenbaum
10:05 AM	Perspectives under ellipsis Rong Yin and Jeremy Hartman	An investigation of the articulatory correlates of vowel anteriority in Kazakh, Kyrgyz, and Turkish using Ultrasound Tongue Imaging Jonathan Washington
10:30 AM	On the subject of subjectless ‘let’ complements Einar Sigurðsson and Jim Wood	The influence of pitch contour on Mandarin speakers’ perception of English stress Yaobin Liu

10:55 AM **BREAK**

	Session 2A: Semantics I <i>Claire Fagin Hall 116</i>	Session 2B: Syntactic Variation & Change <i>Claire Fagin Hall 118</i>
11:10 AM	De Re attitude reports about disjunctive attitudes Petr Kusliy and Ekaterina Vostrikova	Macro differences in dialects Pritha Chandra and Gurmeet Kaur
11:35 AM	On dimensional property concepts in Palestinian Arabic: Evidence for uniformitarianism Abdel-Rahman Abu Helal	Holistic approaches to syntactic variation: Wh-all questions in English Mary Robinson and Daniel Duncan
12:00 PM	Formal sources of cross-linguistic variation in additivity Karoliina Lohiniva	Retroproductive case and frequency effects Dagbjört Guðmundsdóttir, Iris Nowenstein and Sigríður Sigurjónsdóttir
12:25 PM	Depictive acceptability is conditioned by Inner Aspect and its correlates Jake Farrell	Grammars compete late: Evidence from embedded passives Daniel Duncan

12:50 AM	BREAK	
1:15-2:40 PM	Lunch & Poster Session <i>Claire Fagin Hall: Ground floor lobby</i> Lunch will be provided	
	Session 3A: Case <i>Claire Fagin Hall 116</i>	Session 3B: Phonology <i>Claire Fagin Hall 118</i>
2:40 PM	Nominal and clitic case: Evidence from Choctaw and Yimas Matthew Tyler and Michelle Yuan	Turkic nasal harmony as surface correspondence Andrew Lamont and Jonathan Washington
3:05 PM	The dual face of dependent case: On Lithuanian genitive of negation Einar Sigurðsson and Milena Šereikaitė	Variable word-final schwa in French: An OT analysis Ruaridh Purse
3:30 PM	Case syncretism in Russian numeral constructions Sarah Asinari	Phonological constituents in Armenian: When cyclicity misaligns Hossep Dolatian
3:55 PM		MATCH WORD does not discriminate between functional and lexical categories Matthew Tyler
4:20 PM	BREAK	
5:00 PM-6:30 PM	Keynote Address <i>Claire Fagin Hall: Auditorium</i> How I got into sociolinguistics, and what I'm (still) tryna get out of it John Rickford	
9:00 PM	Party at Clarkville, 4301 Baltimore Ave.	

Sunday, March 25, 2018

9:20AM-1:00PM	Registration <i>Claire Fagin Hall</i>	
9:20 AM	Breakfast	
	Session 4A: Semantics II <i>Claire Fagin Hall 116</i>	Session 4B: Morphology <i>Claire Fagin Hall 118</i>
9:50 AM	Prosody and semantics in disjunctive questions: The open list case Erlinde Meertens	The neuter agreement constraint in Lithuanian Luke Adamson and Milena Šereikaite
10:15 AM	An experimental investigation of anti-presuppositions Nadine Bade and Florian Schwarz	The power of syncretisms: How syncretisms can serve double duty Fenna Bergsma
10:40 AM	Simultaneous present-under-past in relative clauses: Evidence from fronted VPs Petr Kusliy	Morphological priming of Dutch prefixed verbs in auditory word processing Ava Creemers, Amy Goodwin Davies and Robert J. Wilder
11:05 AM	Quantifier raising derives factivity and its prosody Deniz Özyıldız	
11:30 AM	BREAK <i>A small lunch will be served</i>	
	Session 5A: Syntax II <i>Claire Fagin Hall 116</i>	Session 5B: Sound Change <i>Claire Fagin Hall 118</i>
12:15 PM	The A-/A'-distinction in scrambling revisited Akihiko Arano and Hiromune Oda	Mining corpora for gestural timing differences as a precursor to metathesis Tyler Lau
12:40 PM	Two types of preverbal movement and duration/frequency phrases in Mandarin Chinese Hsin-Lun Huang	The Northern Cities Shift and Low Back Merger in three cities in Northeastern Pennsylvania Joseph Butkiewicz
1:05 PM	P-Stranding when a CP has shifted rightward is not ungrammatical Benjamin Bruening	Production and perception of word-initial Korean stops undergoing sound change Andrew Cheng
1:30 PM	A passive analysis of morphological causatives in Korean Jinwoo Jo	Korean vowel mergers: Contrastive hierarchies and distinctive features Joy Kwon

Poster session

Tonal Cues to Contrastive Phonation in Macuiltianguis Zapotec

Maya Barzilai and Kate Riestenberg

Gender-Region Interactions in Perceptual Dialectology Evaluations of Southern Speech

Marie Bissel

QP-intervention Condition as a Constraint in Focus Environments

Zhuo Chen and Yeonju Lee

The effect of Spanish immersion schooling on the English comprehension of null subjects in child heritage speakers

Michele Goldin

Parent L1-effects in NYC English short-a variation

Bill Haddican, Zi Zi Gina Tan, Sabrina Lagreca, Rebecca Rich, Kurt Werber, Michael Newman, Cece Cutler, Ariel Diertani and Christina Tortora

Finite-State Models of Harmonic Serialism

Yiding Hao

“All” quantifiers can float, but not all quantifiers can float

Renato Lacerda

The difference between perception and production of prosodic information in Chinese wh-scope disambiguation

So Young Lee, Hongchen Wu, Lei Liu, Jiwon Yun

ASL Register Variation L2 Interference: An Analysis of Nyle Dimarco's Speech

Carmen Lugo

A Decomposition Analysis of Color Terms in Korean

Mythili Menon and Emily Posson

Gender difference in syntactic acceptability judgments

Amanda Payne

Effect of Speaker on the Nonword Repetition Task in Monolingual and Bilingual Children and Adults

Claudia Valdivia

Keynote Abstract

How I got into sociolinguistics, and what I'm (still) tryna get out of it

John R. Rickford

Linguistics, Stanford University

Abstract for Keynote talk at Penn Linguistics Colloquium, March 24, 2018

In this talk, modeled after Labov (1987), I will discuss how I came to graduate with a self-designed undergraduate BA in "Sociolinguistics" in 1971 from UC Santa Cruz, before going on to my MA (1973) and PhD (1979) in Linguistics at Penn.

Researching and "professing" in sociolinguistics for 44 years (1974-80 U of Guyana, 1980-Stanford) has been a fascinating and rewarding career, but as I approach retirement, I find myself with some unresolved questions, including these:

1. Why did teenaged Foxy Boston (the AAVE speaking East Palo Alto superstar I've written about in several papers, e.g. Rickford and McNair Knox 1994) report that some people said she "talks like a White girl")?
2. What did Rachel Jeantel really say (and intend) when Prosecutor Bernie de la Rionda asked her, in an interview prior to the Zimmerman murder trial, if she could "hear" who was saying what, as Trayvon and Zimmerman scuffled, with his phone headset off? Her answer was the source of Defense Attorney Don West's repeated attempts to impeach her during her 6-hour testimony.
3. How well/badly are US schools doing teaching Black (and Brown) children to read, why, and what can sociolinguists do to improve the situation?
4. What do we have to do to persuade schools and courts to pay more attention to dialect prejudice and non-comprehension in their institutions and to the contributions linguists might be able to offer to alleviate these problems?
5. Whatever happened to the study of "Social Class" in Sociolinguistics, and does Sociology have any promising new approaches to offer to revive it?
6. Whatever happened to the concept of "Speech Community," and is "Community of Practice" really better?
7. Whatever happened to "Creole Studies" within "Sociolinguistics," and to "Sociolinguistics" within "Creole Studies"?

Time may not permit me to get to all of these, but they are among the issues, large and small, that leave me "bewitched, bothered, and bewildered." I hope that airing them at this forum might enable me (and/or others) to resolve them.

References:

Labov, William. 1987. How I got into linguistics, and what I got out of it.

<http://www.ling.upenn.edu/~wlabov/Papers/HowIgot.html>

Rickford, John, and Faye McNair-Knox. 1994. Addressee- and Topic-Influenced Style Shift: A Quantitative Sociolinguistic Study." *Perspectives on Register: Situating Register Variation within Sociolinguistics*, ed. by Douglas Biber and Edward Finegan. Oxford: Oxford University Press, 235-76.

Panel Abstracts

Searching the brain for speech representations

Jen Segawa
Stonehill College

Currently, biologically-based models of speech motor control focus on phonemic or gestural representations within a syllable, despite linguistic and psycholinguistic evidence for additional representations. I will present work that uses neuroscience techniques to test two theoretical speech representations: sub-syllabic constituents – e.g. syllabic onset, coda – and syllabic frames.

To study sub-syllabic constituents, we employed a paradigm traditionally used to study non-speech motor sequence learning. Participants practiced producing novel phoneme sequences with phonotactically illegal consonant clusters. After 2 days of practice, participants produced the new illegal sequences as quickly and accurately as the practiced sequences – even in novel vowel contexts – only if they contained no novel consonant clusters, implicating consonant clusters as important speech motor representations. We then compared brain activity using functional magnetic resonance imaging (fMRI) during the production of practiced and novel sequences to better understand the neural mechanisms of this learning.

We also tested the slot-filler and frame-content theories which both posit that a syllable's sounds (e.g., /k/, /æ/, /t/) and structure (frames, e.g., consonant-vowel-consonant) are represented in parallel during speech production. We measured patterns of fMRI-repetition suppression across a series of experimental speech conditions. Based on these patterns, we identified a phonological representation in left inferior frontal sulcus, a brain region implicated in phonological working memory. Left presupplementary motor area and right posterior cerebellum responded to syllabic structure; these regions are implicated in auditory-based timing coordination. We believe these areas independently select the phonological and structural elements of a syllable.

Collectively, this work suggests that speech and language research can benefit from conversations across its many disciplines by combining linguistics knowledge and neuroscience techniques to pursue a biological understanding of speech.

**Evaluating how children might, or might not,
interpret phonetic variation phonologically**

Daniel Swingley

University of Pennsylvania

Infants learn something about perceptual categorization of their language's phonetic categories very early in life. Infants also learn that there are words and what some words mean. But do infants intuit that phonetic categories signal lexical contrast? In this sense, do they have a phonology, or just a phonetics? In this brief talk I will boldly claim that, contrary to received wisdom, we don't know; and I will support this defiant agnosticism with some interesting experimental data.

Continuous and discrete representations in coarticulation to /ɪ/ in English

Jeff Mielke

North Carolina State University

Authors: Jeff Mielke, Bridget Smith, Lyra Magloughlin, Eric Wilbanks, and Jessica Hatcher

English /ɪ/ appears to trigger several forms of coarticulation and assimilation, including retraction of /s/ in /stɪ/ clusters and affrication and retraction in /tɪ/ and /dɪ/ clusters. These patterns are potentially ambiguous between coarticulatory effects and categorical assimilatory patterns. On one hand, tongue body retraction and lip rounding are both expected coarticulatory effects of English /ɪ/, and on the other hand, the results of extreme /ɪ/ influence are very similar to the typical realization of the phonemes /ʃ tʃ dʒ/.

Analysis of 162 sociolinguistic interviews from Raleigh, North Carolina (Dodsworth and Kohn 2012) shows that retraction of /stɪ/ and affrication and retraction of /tɪ/ and /dɪ/ have been increasing over time in this community (Wilbanks 2016, Magloughlin 2018), while retraction of /s/ and /z/ next to /ɪ/ is stable.

Lingual ultrasound and lip video were collected from 28 additional talkers drawn from the same community. The articulatory study shows that /s/ in /stɪ/ clusters resembles postalveolar consonants, not [ɪ], whereas word-final sibilants before /r/ (/z#ɪ/) only show resemblance to [ɪ], especially in lip posture. /tɪ/'s articulation is consistent with being a phonologically affricated allophone of /t/ that is coarticulated with [ɪ]. These data indicate that /stɪ/, /tɪ/, and /dɪ/ are phonologized in the (mostly young) group of speakers. Retraction of /ɪ/-adjacent /s/ and /z/ involve gestures more similar to /ɪ/ than to postalveolar consonants, evidence that they are directly phonetically conditioned.

**Signs, speech, and gesture: integrating continuous and
discrete representations into a single proposition**

Kathryn Davidson
Harvard University

Human language is infinitely productive because it makes use of discrete symbolic representations that can combine with each other to form new structures with new meanings. This is equally true of spoken languages and sign languages, but the latter have often been considered to include additional levels of continuous/depictive representations, which are typically outside the domain of traditional linguistic analysis. At this panel, I will discuss briefly two experimental studies and one set of corpus data from bimodal bilingual language which show that these are naturally compared to combination of spoken language plus gesture, and then discuss formal semantic models of how continuous and discrete representations compose in several examples of sign+gesture and speech+gesture.

Session 1A Abstracts

FRENCH EXCEPTIVE (*NE*)...*QUE* AT THE SYNTAX-SEMANTICS INTERFACE
 MARC AUTHIER & LISA REED
 The Pennsylvania State University

Van Riemsdijk (2002, 2005), Kayne (2005, 2006, 2012) and others have argued for the presence in syntax of silent elements (SE's). SEs are not elided elements (i.e. elements that undergo PF-deletion); they are items that enter the derivation with formal and semantic features but no phonological features (cf. Her & Tsai 2015). Further, the meaning of SEs is recoverable from their pronounced counterparts rather than through overt discourse antecedents, as is the case for PF-deletion ellipsis.

In this paper, we will pursue a SE approach to French exceptive (*ne*)...*que* sentences like (1).

(1) Je (**n'**)ai acheté **que** quelques tomates. 'I only bought a few tomatoes.'

We will build on a proposal first argued for in Baciú (1978) and more recently in O'Neill (2011) and Homer (2015) that *ne*...*que* is a hidden comparative that contains covert material, which they take to be a silent n-word followed by silent AUTRE 'other', as illustrated in (2).

(2) Je (**n'**)ai acheté **RIEN** AUTRE que quelques tomates.

'I bought NOTHING OTHER than a few tomatoes.'

We will first provide novel evidence for the existence of a silent n-word component. For example, the overt n-word *rien* 'nothing' that optionally (obligatorily in non-prescriptive Canadian French) appears in the exceptive construction can, in colloquial registers, occupy a pre-participial position, as in (3b).

(3) a. Je (**n'**)ai acheté **rien que** quelques tomates.

b. Je (**n'**)ai **rien** acheté **que** quelques tomates.

If the conjugated verb is a modal like *être obligé* 'be required', this results in two possible scope relations for *rien* with respect to the modal, which yields two different readings, as (4) illustrates.

(4) a. On est **obligé de ne rien** apprendre que l'espagnol. 'We are required to learn only...'

b. On **n'est rien obligé** d'apprendre que l'espagnol. 'We are only required to learn...'

In (4a) and (4b), *ne* and *rien* are clausemates; that is, *ne*, in some sense, marks the scope of *rien*. Further, in (4a), the deontic modal *être obligé* c-commands *rien* and therefore scopes over it, yielding an interpretation according to which one is required to learn Spanish and nothing else. In (4b), on the other hand, *rien* c-commands the modal and takes wide scope, and the sentence is taken to mean that all one is required to learn is Spanish. Assuming that (*ne*)...*que* contains a covert RIEN, we then expect similar readings to be available and, if *ne* is present, we expect it to "reveal" the scope of covert RIEN and select one reading or the other, depending on its position. These are indeed the right predictions, as the paradigm in (5) makes clear.

(5) a. On est obligé d'apprendre que l'espagnol.

b. On est **obligé de n'**apprendre que l'espagnol.

c. On **n'est obligé** d'apprendre que l'espagnol.

While (5a) is, in the absence of *ne*, ambiguous between the two readings associated with (4a) and (4b), (5b) only has the reading available in (4a) and (5c) the reading available in (4b).

Next, we will challenge the hypothesis, defended by O'Neill (2011) and Homer (2015) that *ne*...*que* configurations also contain a silent AUTRE 'other' that introduces the comparative complementizer *que* 'than'. One problem with AUTRE pointed out in Homer (2015) is that its overt counterpart *autre* does not trigger the preadjacent inference associated with exclusives.

(6) I don't know if Alice bought tomatoes but I'm sure that...

a. #...elle n'a acheté que des tomates.

b. ...elle n'a acheté rien d'autre que des tomates.

Given the discourse background in English, the infelicitous continuation in (6a), which involves the minimal realization of *ne*...*que* attests to the obligatory presence of the inference that Alice

bought tomatoes (the prejacent inference). Unexpectedly, however, the hypothesized total realization *ne...rien d'autre que* in (6b) is felicitous, which indicates that it does not (or not necessarily) yield the same inference.

There is a second problem with AUTRE, one that has gone unnoticed in the literature. Total realizations with *autre* appear to systematically enforce a complement exclusion reading even in those cases where the minimal realization (*ne*)...(*rien*) *que* does not display such a reading. For example, *rien que* is sometimes associated with what Grosz (2012) calls a ‘minimal sufficiency reading’ (this reading has been discussed in the semantic literature on English *just* by Grosz 2012, Coppock & Beaver 2014 and Coppock & Lindahl 2014). The sentence in (7) illustrates the phenomenon in French.

(7) **Rien que** l'idée de boire me répugne. ‘Just the thought of drinking disgusts me.’

The sentence in (7) does not have the complement exclusion inference that nothing other than the idea of drinking disgusts me. It implies instead that *at least* the idea of drinking disgusts me, which is the minimal sufficiency reading. The alleged maximal realization *rien d'autre que*, while being substitutable to *rien que*, does not, however, yield the same interpretation. Thus, (8), unlike (7), does have the complement exclusion inference that nothing else besides the idea of drinking disgusts me and therefore disallows the minimal sufficiency reading.

(8) **Rien d'autre que** l'idée de boire me répugne. ‘Only the thought of drinking disgusts me.’

Given these problems, we will propose that a more likely candidate for the second silent component of *ne...que* is DE PLUS ‘more’, thus taking French exceptive *ne...que* (9) to be nearly identical to its Spanish counterpart (10), which is like French in having as a “first component” an overt or covert n-word; namely *nada* ‘nothing’ but which, unlike French, obligatorily spells out the “second component” as *más* ‘more’.

(9) Sophie (**n**)a mangé (**rien de plus**) **que** des dates. ‘Sophie only ate dates.’

(10) Sofía **no** comió (**nada**) **más que** dátiles. ‘Sofia only ate dates.’

Sofía NEG ate nothing more than dates

Unlike (*ne*)...*rien d'autre que*, (*ne*)...*rien de plus que* does not give rise to Homer’s (2015) prejacent problem, as (11) shows.

(11) I don’t know if Sophie drank wine but I’m sure that...

a. #...elle n’a bu *que* du vin.

b. #...elle n’a bu **rien de plus** *que* du vin. ‘...she drank nothing more than wine.’

The infelicitous continuation in (11a), which involves the minimal realization of *ne...que*, signals the obligatory presence of the inference that Sophie drank wine (the prejacent). Given that the new hypothesized total realization of *ne...que* in (11b) is also infelicitous, we must conclude that it yields the same inference. This immediately solves Homer’s (2015) prejacent problem.

Second, unlike (*ne*)...*rien d'autre que*, (*ne*)...*rien de plus que* yields the minimal sufficiency readings of *rien que* in the appropriate contexts. This is illustrated in (12).

(12) Rien de plus *que* l'idée de boire me dégoûte. (minimal sufficiency reading)

In (12), *rien de plus que* mimics its minimal realization counterpart in (7) in that it does not have the complement exclusion inference that nothing other than the idea of drinking disgusts me but implies instead that at least the idea of drinking disgusts me (the minimal sufficiency reading).

Finally, just like (*ne*)...*que*, and in the same contexts, (*ne*)...*rien de plus que*, can have a single or a double-negation reading when combined with another n-word like *jamais* ‘never’.

(13) a. Un ordinateur ne fera **jamais (rien de plus)** **que** ce qu’on lui fera faire. (prominent single negation reading) ‘A computer will never do anything more than what we make it do.’

b. J’ai juré de ne **jamais** me retrouver avec **rien (de plus)** **que** dix euros en poche. (prominent double negation reading) ‘I swore to always find myself with more than 10 euros in my pocket.’

Reinterpreting Ne-cliticization as Split-topicalization

Pietro Cerrone and Hiromune Oda - *University of Connecticut*

Introduction: *Ne*-cliticization has been widely discussed in Italian syntax (Burzio 1986, Belletti and Rizzi 1982, Perlmutter 1989 a.o.), with comparison to similar constructions in other Romance languages (see Cardinaletti and Giusti 2006 for an overview). In this paper, however, we propose a novel way to investigate this construction, from a more cross-linguistic perspective. More specifically, we show that there are a number of similarities between (quantitative) *ne*-cliticization and split-topicalization, which is attested in many languages such as German and Japanese, and we will propose a unified account of the two constructions, based on Zamparelli's (1995) and Ott's (2011) proposals on those constructions.

Split-topicalization: Split-topicalization has been discussed for many languages, with extensive focus on German. As shown in (1), the head noun can be topicalized by stranding its modifier in situ in German. There are a number of characteristics of split-topicalization. First, the topic has to be non-specific (Ott 2011). Thus, a definite article is not allowed with the topic, as in (2).

- (1) **Bohnen**_i mag er (nur) [**grüne** t_i]. (2) ***Die** bohnen_i mag er (nur) [grüne t_i].
beans likes he only green the beans likes he only green
'As for beans, he likes (only) green ones.'

Second, this construction has a topic-secondary focus intonation: the left-dislocated noun has a topic intonation, and the stranded modifier has a secondary focus intonation. Third, the stranded modifier has to have a strong form in German as in (3a). This form is not allowed in the non-split case as in (3b).

- (3) a. Geld_i hat er [kein-es/*kein t_i]. b. Er hat [*kein-es/**kein** Geld].
money has he no-STRONG/no-WEAK he has no-STRONG/no-WEAK money
'As for money, he has none.' 'He has no money.'

van Hoof (2006) argues the strong form in split-topicalization is a "nominalizer" of the stranded modifier. In fact, strong forms nominalize adjectives as in (4). If a stranded modifier is a more nominal element like numerals, it doesn't need a strong form (or it doesn't have the strong/weak distinction), as in (5).

- (4) Er hat **keines**. (5) Autos_i hat er sogar [**drei** t_i]
he has no-STRONG cars has he even three
'He has none.' 'As for cars, he has even three.'

The form of nominalizer is different in other languages. E.g., in Japanese, the nominalizer is *-no*, which is homophonous between a genitive marker and a pronominal element, as in (6a). *-No* is not allowed in the non-split case as in (6b), patterning with the strong form in German (Sugawara (2010)).

- (6) a. **Jisho**_i-wa Taro-ga furui-**no** ___i-o tsukau. b. Taro-wa furui(*-**no**)jisho-o tsukau.
dictionary-TOP Taro-NOM old-NO -ACC use Taro-TOP old-NO dictionary-ACC use
'As for dictionaries, Taro uses an old one.' 'Taro uses an old dictionary.'

Ne-cliticization: We argue that *ne*-cliticization also shows the properties discussed above. First, the referent of *ne*, which is a topic, has to be non-specific, so that a definite article is disallowed, as in (7)

- (7) **Di ragazze**/***Delle ragazze**, ne ho vista una bella.
of girls of.the girls NE I.have seen.F.SG INDEF.F.SG beautiful.F.SG
'As for girls, I saw a beautiful one.'

Second, the topic (*di ragazze* in (7)) receives a topic intonation, and the stranded modifier (*una bella* in (7)) receives a secondary focus intonation. Third, the stranded modifier has to be nominalized when it is not nominal. When an indefinite article is attached to a singular masculine noun, it has a weak form (8a), but when attached to a stranded modifier of *ne*-cliticization, it has to have a strong form (8b) like in German.

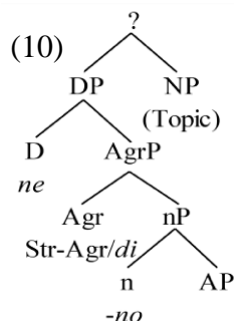
- (8) a. Ho letto **un**/*uno lungo libro. b. Ne ho letto *un/**uno** lungo.
I.have read INDEF.M.WEAK/STR long.M.SG book NE I.have read INDEF.M.WEAK/STR long.M.SG
'I have read a long book.' 'I have read a long one (book).'

As for plural, a stranded modifier has to co-occur with *di*, which is a genitive marker, as in (9). Thus, Italian shows both the strong form nominalization like German and the genitive-like nominalization like Japanese.

- (9) Ne ho viste *(**di**) belle.
NE I.have seen.F.PL of beautiful.F.PL
'I saw beautiful ones.'

Thus, *ne*-cliticization and split-topicalization share certain properties.

Analysis: The similarities discussed above indicate presence of the same underlying mechanism in these constructions. Interestingly, Ott 2011 and Zamparelli 1995 independently propose a symmetry-breaking analysis in Moro's (2000) sense for split-topicalization in German and *ne*-cliticization in Italian, respectively, in which the topic is a predicate of the stranded modifier in the base position and undergoes left-dislocation. Thus, following their insights regarding unification, we propose a unified base-structure for split-topicalization in German and Japanese and *ne*-cliticization as in (10). We assume the stranded



modifier (DP) and the topic (NP) are sisters in the base-position, which creates a symmetry problem, so the topic has to move to solve it (movement of the stranded modifier is in principle possible, but it violates a general topic-comment schema; see Ott 2011). Note that we assume *ne* is base-generated within the stranded modifier, unlike Zamparelli, who assumes *ne* is a topic. Our proposal is supported by the fact that in (7) the past participle agrees with the stranded modifier, not the topic: *ne* shares the ϕ -feature with *n* and Agr, and mediates past participle agreement with the stranded modifier as an object clitic, which generally triggers past participle agreement. *Ne* selects AgrP, whose head is a strong form in German and singular in

Italian or *di* in plural in Italian. This assumption is motivated by the fact that *di* appears only with the plural modifiers and shows complementary distribution with the singular strong form. Following Lobeck 2006, we assume strong agreement licenses ellipsis of the head noun (or *n*). In Japanese, *-no* is not an agreement form but a light noun in Hiraiwa's (2016) sense, which is *n* and has a pronominal status (Sugawara 2010). Finally, we suggest *di* with the topic in (7) is a topic marker, on a par with the topic marker *-wa* in Japanese.

Consequences: There are interesting consequences of our proposal for both *ne*-cliticization and split-topicalization. First, it accounts for the otherwise puzzling gender pattern found with 'egg(s)' in *ne*-cliticization. In Italian, 'egg' is masculine when singular (11a), but it is feminine when plural (11b).

- (11) a. **Un** uovo / *una uova b. *due uovo / due uova
 INDEF.M. egg.M INDEF.F egg.F two egg.M two egg.F

When it is used in a partitive construction, both 'one' and 'egg' have to be feminine, as in (12).

- (12) a. **Una** delle uova b. *uno delle uova c. *uno delle uova d. *una delle uova
 one.F of.the egg.F one.M of.the egg.F one.M of.the egg.M one.F of.the egg.M

Crucially, *ne*-cliticization with 'egg' is grammatical only when the stranded modifier is masculine, as in (13a), which is not allowed in the partitives as in (12c).

- (13) a. Di uovo/a, ne ho mangiato **uno** solo. b. *Di uovo/a, ne ho mangiata **una** sola.
 Of egg.M/F NE I have eaten.M one.M only.M of egg.M/F NE I have eaten.F one.F only.F

This is not expected in analyses where *ne* + the stranded modifier and the *di*-phrase constitute a partitive construction (e.g., Cardinaletti and Giusti 2006), since they expect that *ne*-cliticization in (13) and partitives in (12) would show the same gender pattern. In contrast, our analysis can capture the difference: there is no partitive construction involved so that when the stranded modifier is singular, its gender has to be masculine, as in the usual singular case (11a). In addition, the gender of the elided singular *n* (*uovo*) is expected to be independent of that of the topic, which can be masculine or feminine as in (13a). Thus, the gender pattern indicates that *ne*-cliticization is not a partitive construction. Second, our proposal predicts that we may find a counterpart of the clitic *ne* at least in some languages. This is borne out in Brabant Dutch as in (14), where a d-pronoun occurs between the topic and V in C. If the d-pronoun in (14) is analyzed as a phrase that moves to Spec,CP, it is unclear how come the topic *koeien* can appear at the same time, given that Brabant Dutch is a V2 language where only one constituent can fill Spec,CP. However, given Zwart's (1993) argument that weak d-pronouns are heads/clitics, which van Hoof 1997 specifies as D, *die* in (14) can be considered as a counterpart of *ne*: *die* starts from D in (10) and incorporates to the verb *heeft* as a clitic like *ne*, and only *koeien* is located in Spec,CP, without violating the V2 requirement.

- (14) [Koeien]_i **die** heeft-ie [een helehoop _i] in de achterste wei.
 cows D-pro has-he a whole.heap in the rearmost meadow
 'As for cows, he has quite a lot in the rearmost meadow.' (van Hoof 1997)

Selected Ref: Cardinaletti, A. and G. Giusti 2006. The syntax of quantified phrases and quantitative clitics. In *The Blackwell companion to syntax*. Ott, D. 2011. The syntax of split topics. Harvard diss. Zamparelli, R. 1995. Layers in the determiner phrase. U. of Rochester diss.

Perspectives under Ellipsis
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Synopsis: We make a new observation that there is a contrast in felicity between (1a) and (1b), under a context where Macron is in Paris but Obama is not; and crucially, neither A nor B is in Paris.

- A: (1) *Macron thinks that Obama will come to Paris.*
B: (1a) *# I doubt that he will come to Paris.*
(1b) *I doubt that he will.*

The question is why the elided version (1b) is felicitous, given that the unelided version (1a) is not. We argue that a PF-deletion analysis of ellipsis cannot readily account for this contrast, at least without making substantial new assumptions about how to interpret deictic verbs of motion. We propose that an LF-copying analysis of ellipsis can better explain this contrast.

The Semantics of *Come*: Cinque (1972), Oshima (2006a,b) and Barlew (2017) observe that *come* is anchored to an individual's perspective, and carries the presupposition that the perspective holder (or in Barlew (2017)'s term, "the anchor") is located (or at least *thinks* s/he is located) at the destination of *come*. For example, in (1), *come* is anchored to Macron's perspective; the anchor Macron is located in Paris, and the destination of *come* is also Paris, so the presupposition of *come* in (1) is satisfied. According to Barlew (2017), the possible anchors for the perspective of *come* are salient individuals in a given context, normally including the speaker, the addressee, the attitude holder, etc. With regards to (1), the speaker A, the addressee B, and the attitude holder *Macron* are all salient individuals, but only the perspective holder *Macron* satisfies the presupposition. For (1a), the possible anchors are A and B. Neither of the possible anchors, A or B, can satisfy the presupposition of *come*, so (1a) is infelicitous. It is worth pointing out that the infelicity of (1a) shows that the attitude holder *Macron* from the previous utterance cannot serve as a possible anchor of *come* in (1a).

Under PF-deletion: Under a PF-deletion analysis (Merchant 2001), the elided material in (1b) is derived by initially building the full VP *come to Paris* as in (1a), and then deleting it at PF. If this is true, (1b) should be infelicitous for the same reason as (1a): there is no available anchor for *come* in (1b) that will satisfy the location presupposition. (Note again that *Macron* from the previous utterance is not a possible anchor, as the infelicity of (1a) demonstrates; the possible anchors in (1b) only include A and B, neither of which is in Paris.)

Under LF-copying: Under an LF-copying analysis (Chung et al. 1995), the elided material in (1b) is derived by copying the LF of the VP from (1a). Crucially, this copied LF can contain information about the (possible) anchor(s) of *come*. For example, according to Oshima's (2006a,b) analysis, the VP in (1) contains the output of a function from the context to a set of possible anchors. A simplified version of this analysis for (1) at LF would be [_{VP} *come*^{speaker, addressee, Macron} to Paris]; the set of possible anchors for *come* is shown in superscript. If the elided VP in (1b) is a copy of this LF, then we account for the felicity of (1b), since the information about possible anchors is copied from the antecedent; the possible anchors in (1b) are the same as the ones in its antecedent. The infelicity of (1a) is still accounted for, since the VP in (1a) is *not* derived by the LF-copying operation, but built up as in (1). A simplified version of the analysis for (1a) would be [_{VP} *come*^{speaker, addressee} to Paris].

A different view of *come* and *go*: We also explore whether the PF-deletion view might be able to account for (1b) by adopting a non-standard analysis of *come* and *go*. Suppose the unelided source of (1b) is not (1a), but rather *I doubt that he will <go to Paris>*. PF-deletion might then

correctly predict the felicity of (1b), but only if we assume that the verbs *come* and *go* can be treated as identical under ellipsis. We explore one possible implementation of this idea, where *come* and *go* are essentially two realizations of a single abstract lexical item *MOVE*, spelled out as *come* or *go* depending on the choice of anchor. That is, (1) could underlyingly be *Macron thinks that Obama will MOVE to Paris*. In narrow syntax, *MOVE* is anchored to *Macron*. At PF, since the anchor *Macron* is located at the destination of *come*, namely *Paris*, *MOVE* is spelled out as *come*. (1b) could also be *I doubt that he will MOVE to Paris*. In narrow syntax, *MOVE* is anchored to the attitude holder (i.e., the speaker B). At PF, since B is not at the destination of *come*, *MOVE* would be realized as *go*, but be unpronounced due to deletion. However, one conceptual problem for this analysis is that the spell-out rules for *MOVE* would require PF to access information about where the anchors' locations, which is not encoded syntactically.

Problems with a bound variable treatment of *come/go*: Furthermore, under this different view of *come/go*, the anchoring of the perspective of *come* happens in narrow syntax. It is natural to ask what syntactic mechanism might be involved in anchoring the perspective. One potential mechanism is to anchor the perspective of *come* by variable binding. A possible analysis for (1) in narrow syntax is shown in (2), where *MOVE* is bound by *Macron*.

(2) *Macron_i thinks that Obama will MOVE_i to Paris.*

This is not a completely novel mechanism, considering this is how pronouns get interpreted: in both (3a) and (3b), *him* is a bound variable. (“<...>” means that “...” is syntactically present, but gets deleted at PF.)

(3a) *Macron_i thinks that Mary will visit him_i.*

(3b) *John_j also thinks that she will <visit him_{*j/i}>.*

However, we argue against this bound-variable treatment of *MOVE*. Crucially, previous work has identified constraints on the interpretation of bound-variable pronouns under ellipsis, and the interpretation of *MOVE* under this analysis fails to obey these constraints. For instance, Takahashi & Fox (2005) point out that bound-variable pronouns give rise to “MaxElide” effects in examples like (3a-b): *him* in (3b) can refer to *Macron*, but not *John*. This poses a problem for applying the variable binding mechanism to *MOVE*: if the mechanism used for interpreting pronouns is the same used for *MOVE*, we would predict that in (4b), *MOVE* in the ellipsis site could not be bound by *I*. However, the fact that (4b) is felicitous indicates that it should be possible for *MOVE* in the elided site to be bound by *I*, where *MOVE_i* in the antecedent is spelled out as *come*, and *MOVE_j* in the ellipsis site would have been realized as *go* if pronounced.

(4a) *Macron_i thinks that Obama will MOVE_i to Paris.*

(4b) *I_j also think that he will <MOVE_j to Paris>.*

In this sense, we have to either treat *MOVE* as a variable, but one which behaves differently from pronouns, or appeal to another syntactic mechanism to anchor *MOVE*. Either way, this involves invoking an *ad hoc* mechanism for *come/go* without independent motivations.

Conclusion: To account for the facts in (1a-b), we must either reject the PF-deletion analysis of ellipsis for this case, or else reject a standard view of *come/go* as two separate lexical items.

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On the subject of subjectless ‘let’ complements

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1. Introduction We argue that the division of indirect causative constructions into ‘active’ versus ‘passive’ variants is too coarse-grained. The Icelandic counterpart has more passive properties than previously assumed, but is still not quite as clear cut as languages like Danish, French or German in its passive properties. Nevertheless, its properties are fairly close to those of the so-called New Impersonal Passive (NIP), suggesting that assimilating the structure of the embedded infinitive to the overall Voice system is essentially correct.

2. Background Indirect causatives (ICs) are causative constructions where the agent is left unspecified, as in Icelandic (1); they show considerable cross-linguistic variation (Larson 2014).

- (1) Ég lét { *húsið } byggja { húsið }.
I let { *house.the } build { house.the }
‘I had the house built.’ (Icelandic)

According to a well-known Scandinavian paradigm, Icelandic and Swedish only allow the object to follow the verb (VO) in ICs, whereas Danish only allows the object to precede the verb (OV); Norwegian and Faroese allow both orders. Interestingly, passive by-phrases are said to be allowed only in the OV order—they are thus ruled out in Icelandic and Swedish.

- (2) Hun måtte lade { tæppet } støvsuge { *tæppet }.
she must.PST let { rug.the } vacuum.clean { *rug.the }
‘She had to have the rug vacuum cleaned.’ (Larson 2014:182) (Danish)
- (3) ?? Martin lat bygga huset af Peter.
Martin let build house.the by Peter
‘Martin had the house built by Peter.’ (Vikner 1987:271) (Swedish)
- (4) Han lod kapellet udsmykke af Matisse.
he let chapel.the decorate by Matisse
‘He had the chapel decorated by Matisse.’ (Vikner 1987:271) (Danish)

Following Pitteroff’s (2014) analysis of German, we can analyze the OV order as the embedding of a passive Voice head, which is unavailable in Icelandic and Swedish. For the VO order, we show that at least Icelandic is not exactly passive, but not exactly active either. This raises the question of whether VO in the other languages is similar, as well as how these properties arose diachronically.

3. Analysis In previous “active” analyses of the Icelandic/Swedish type (Taraldsen 1984, McFadden 2004, Wood 2011), ‘let’ embeds a bare VP with no external argument layer, as in (5).

- (5) [VoiceP EA [VP ‘let’ [VP build the.house.ACC]]] (Bare Active Analysis)

However, drawing on Alexiadou et al. (2015), there are reasons to assume that there is a VoiceP layer in the complement, encoding external argumenthood. First, by-phrases are allowed, as long as they are indefinite and nonspecific; see (6). Second, instrument phrases are allowed; see (7).

- (6) Ég lét gera við tölvuna { *af Jóni / af fagmanni }.
INOM let repair computer.the.ACC { *by Jón / by professional }
‘I had the computer repaired (by a professional).’ (Adapted from Jónsson 2009:294)

- (7) Jón lét mála húsið með mjög litlum penslum.
 John let paint the.house with very small paint.brushes
 ‘John had people paint the house with very small paint brushes.’

Third, the embedded verb must be transitive, and may not be unaccusative. Such transitivity restrictions are most naturally encoded in a Voice layer, and are harder to capture without one (though see Wood & Sigurðsson 2014). These facts suggest that the embedded verb projects at least a Voice layer, but do not tell us whether that Voice is passive, or has a syntactically projected but phonetically silent Weak Implicit Argument (WIA), as in Legate’s (2014) analysis of the NIP. The two possibilities are shown in (8)–(9); ϕ P in (9) is a WIA, by hypothesis bearing nominative case.

- (8) [VoiceP EA [VP ‘let’ [VoiceP Voice_{Pass} [VP build the.house.ACC]]]] (Passive Analysis)
 (9) [VoiceP EA [VP ‘let’ [VoiceP ϕ P Voice [VP build the.house.ACC]]]] (NIP Analysis)

We argue that the analysis in (9) is on the right track. First, if the matrix verb is passivized, the embedded object stays accusative and is not promoted to subject position; see (10a). This is expected if there is a null EA present, but surprising otherwise (see Wurmbrand 1998 on long passives).

- (10) a. Það var látið drepa Maríu. b. * María var látin drepa.
 EXPL was let kill.INF María.ACC María.NOM was let kill.INF
 ‘Somebody let someone kill María.’

Second, although by-phrases are possible, identifying a Voice layer, the fact that they are restricted (roughly to indefinites) is unexpected if we are dealing simply with passive Voice. Such restrictions are found, however, with other silent EA constructions in Icelandic, such as the Impersonal Modal Construction (E.F. Sigurðsson 2012). Third, Icelandic ICs license, for some speakers at least, an accusative remnant in sluicing; see (11). That is normally not possible with embedded passives; see (12). It is well-known that unlike VP-ellipsis, sluicing does not allow Voice-mismatches (Merchant 2013), so the existence of (11) strongly supports a structure like (9) over one like (8).

- (11) Kóngurinn lét myrða konuna sína, en ég veit ekki hvern.
 king.the let murder wife his but I know not who.ACC
 ‘The king had his wife murdered, but I don’t know who
 (he had <who> murder his wife).’
 (12) * Hún taldi hafa verið veidda marga fiska, en ég veit ekki hvern.
 she believed have been caught many fish but I know not who.ACC
 INTENDED: ‘She believed many fish to have been caught, but she didn’t know who (she
 believed to have caught many fish).’

4. Implications The resulting analysis fits indirect causatives into the Voice system, but only if we go beyond the classic active/passive dichotomy, and treat voice alternations not as primitives, but as the products of individual, interacting components.

Alexiadou et al. 2015. *External Arguments in Transitivity Alternations* • Jónsson 2009. The new impersonal as a true passive • Larsson 2014. Word order under *lade* ‘let’ and *høre* ‘hear’. *NALS Journal* 1 • Legate 2014. *Voice and v: Lessons from Acehnese* • McFadden 2004. *The Position of Morphological Case in the Derivation* • Merchant 2013. *Voice and ellipsis* • Pitteroff 2014. *Non-canonical ‘sich lassen’ middles* Stuttgart Diss. • Sigurðsson 2012. *Active but still passive*. M.A. Thesis • Taraldsen 1984. Some phrase structure dependent differences between Swedish and Norwegian. *WPSS* 9 • Vikner 1987. Case assignment differences between Danish and Swedish. *7th Conference of Scandinavian Studies in Great Britain* • Wood 2011. Icelandic let-causatives and case. *WPSS* 87 • Wood & Sigurðsson 2014. *Let-causatives and (a)symmetric DAT-NOM constructions*. *Syntax* 17 • Wurmbrand 1998. *Infinitives*

Session 1B Abstracts

A Corpus Phonetic Study of Contemporary Persian Vowels in Casual Speech

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Modern Persian has six phonemic vowels, however in the last decades there has been disagreement in the literature as to their precise classification, both regarding their appropriate phonological classification and the relevance of historical distinctions of length. With regards to phonological classification, the low-back vowel is particularly controversial, with Lazard [1992], Miller [2013], and Toosarvandani [2004] *inter alia* claiming the low-back vowel is /ɒ/, and Ansarin [2004] and Aronow et al. [2017] arguing for /ɔ/, based on limited acoustic measurements. With regards to length, various linguists argue historical pairings of three short and three long vowels (/i:/ ~ /e/, /u:/ ~ /o/, and /æ/ ~ /ɒ:/) are still phonologically relevant, either outright claiming historical length distinctions still obtain [Lazard, 1992], or that such distinctions inform phonological processes like vowel assimilation [Rahbar, 2009, Toosarvandani, 2004]. The present study aims to settle both debates, through the use of a new forced-aligner, and automatic alignment and vowel extraction of over 40 hours of casual, telephone speech.

This study makes use of the CALLFRIEND FARSI corpus [Canavan and Zipperlen, 1996], a telephone corpus of casual speech among native speakers of Modern Iranian Persian, comprising 100 recordings. The corpus was used to train an HTK-based forced aligner [Young et al., 2002], using the McGill Prosody Lab wrapper [Gorman et al., 2011]. While previous studies have extremely small sample sizes when they use empirical phonetic data at all (e.g., Aronow et al. [2017] uses 90 total vowels from 2 speakers, one male, one female), the present study evaluates 70,711 vowels from 104 speakers.

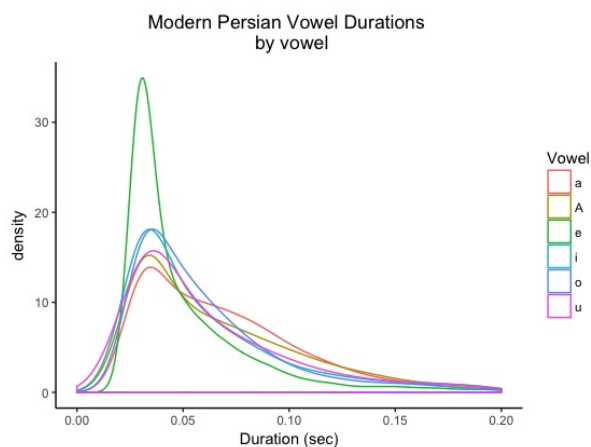


Figure 1: Vowel Durations

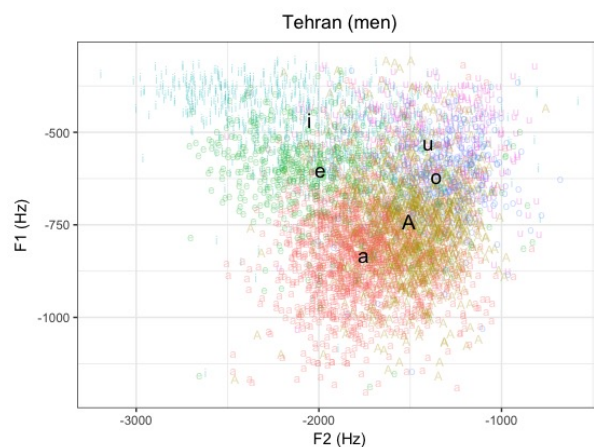
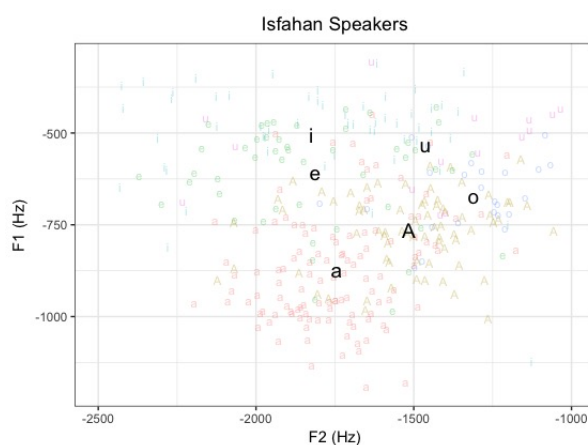


Figure 2: Tehrani Vowel Space

It was found that there is no empirical phonetic support for the claim that vowel length is distinctive in Modern Persian, with all vowels showing similar distributions, centered

around approximately 30 milliseconds in duration. Furthermore, the empirical evidence suggests that the low back vowel in Modern Persian is not the traditionally claimed /ɒ/, but may be better characterized as /ɔ/. There is some evidence for fronting of /u/ for speakers from Tehran, but not to the extent claimed by Aronow et al. [2017]. There is also strong evidence of regional variation, with distinct vowel spaces for speakers from, e.g., Isfahan, suggesting the focus common in the literature on speakers from Tehran may be limiting our understanding. There is also evidence of socially conditioned variation, with age, education, and gender affecting both low-back vowel raising, and high back vowel fronting.

The results of this study have implications for both our understanding of sociolinguistic variation in Modern Persian and for phonological analysis of Modern Persian, especially insofar as traditional phonological analyses are predicated on the assumption that Persian has two low vowels.



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Modified two-component Shepard tones and their application to Sine Wave Speech

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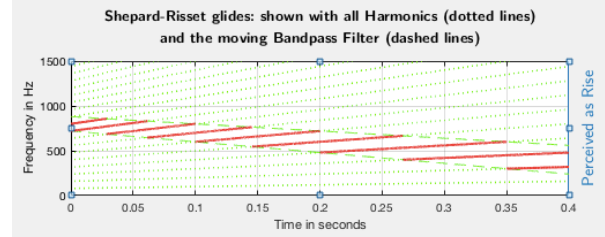
Sine wave speech (SWS), which consists only of several frequency- and amplitude-modulated sinusoids representing vocal tract formants, can elicit perception of words and sentences despite its sparse acoustic structure [1]. For this reason SWS has proven extremely useful as a tool for investigating the perceptual primitives of the segmental content and other aspects of speech. However, SWS contains no information relevant for pitch perception, making it unsuitable for investigating prosody [2, 3] or tone languages [4-6].

This talk describes a new method for creating SWS, modified to add a minimal but powerful cue for pitch, thereby expanding the range of perceptual phenomena that SWS is capable of probing so as to include tone and prosody. In order to achieve this, we discarded the lowest sinusoid of the traditional SWS replica (representing the first vocal tract formant, F1), and replaced it with a “modified Shepard-Risset tone”: a two-component tone glide formed from a bandpass whose center frequency tracks F1. The bandpass was wide enough at any timepoint for exactly two harmonics of an independently specified fundamental frequency (f_0) contour. In its most general form, a Shepard-Risset tone can be characterized as a complex pitch glide whose individual harmonic components pass through a particular frequency region. Shepard's original experiment [7] used sequences of discrete tones composed of harmonics spaced at octave intervals within a wide frequency range; at each successive tone, as the harmonics moved up (or down), they passed in and out of a bell-shaped spectral envelope, creating the effect of an endlessly rising or falling scale. Risset [8] demonstrated that the same effect could be achieved by scrolling the harmonics through the frequency region, forming a glide instead of a discrete scale.

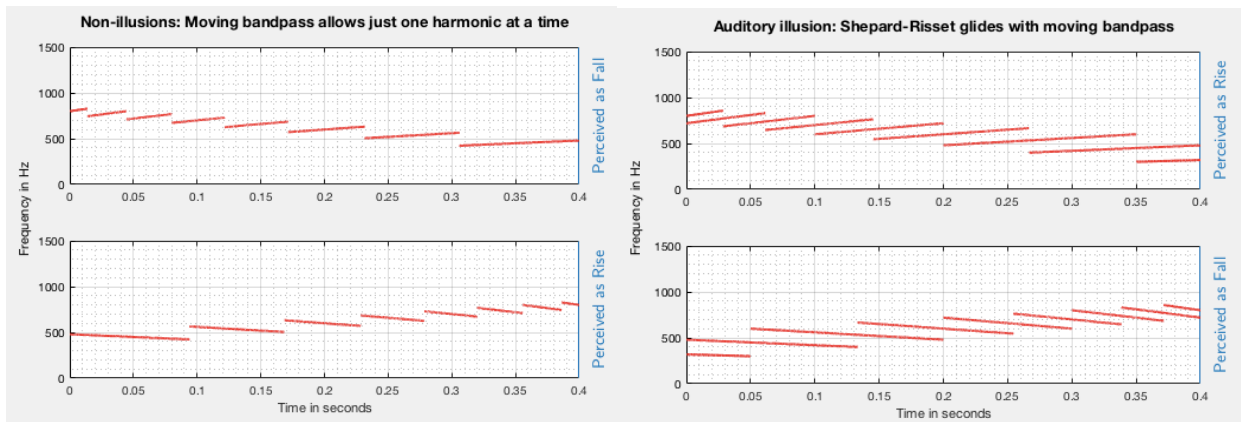
Our method for creating pitch-enhanced SWS representations takes advantage of this perceptual effect but makes two important modifications to the Shepard-Risset paradigm: (1) Instead of using an invariant amplitude envelope to filter the harmonics, we allowed our bandpass filter's center frequency to vary over time, tracking the frequency of F1 (and, moreover, our bandpass had a rectangular rather than a bell-shaped envelope so that there was no attenuation of the harmonics as they passed in and out of its range). (2) Instead of using octave spacing of harmonics (which, in the Shepard-Risset illusion, creates ambiguity as to the height of the fundamental frequency), we used consecutive harmonics of a well-defined and unambiguous fundamental frequency contour.

Crucially, the f_0 was never included as one of the two frequency components of the complex tones that we synthesized. Consequently the perception of pitch relied on the “missing fundamental” effect [9] in a rather extreme way: listeners recovered the f_0 solely on the basis of an adjacent pair of higher harmonics (ranging between the 2nd and 10th). It has been shown previously [10, 11] that tones consisting of 2–3 harmonics (and even, under special circumstances, just one higher harmonic [12]) can elicit perception of pitch despite the absence of any f_0 component. The prior studies using fewer than three harmonics found that masking the complex tones with noise was required for pitch perception. The present study used no masking; the use of pitch glides in conjunction with a moving bandpass filter turned out to be sufficient to induce simultaneous impression of harmonic direction and formant direction.

An initial experiment demonstrated that a bandpass whose center frequency fell from 800-400 Hz over 400ms, when intersected with harmonics of a rising f_0 (80-160Hz, elicited strong perception of a rising contour, and vice versa (*see fig. right*). Strikingly, the pitch at the end of this complex “rise” was perceived as the peak despite the fact that the actual frequency components were lower than at any previous point in the stimulus.



Complex, two-component tones constructed in this manner contrasted sharply with single-component glides formed by passing the same set of harmonics through a narrower bandpass. Glides consisting of just one component at any given time were strongly perceived as having a pitch direction determined by the *bandpass*, not by the direction of the harmonics (*see fig. 2 below*).



A second experiment replaced F1 in a set of SWS replicas with these two-component tones and elicited robust perception of contrasting pitch contours. Two pairs of stimuli were used: modified and unmodified SWS replicas of the sentences “I ate it raw” and “I ate it now.” The final words in each of these sentences were synthesized using F1 transitions identical to those shown in the tone glides (*fig. 2, right side*): the replica of the word “Raw” includes a 400 ms span during which F1 rises from 400 to 800 Hz, while “Now” includes a 400 ms span in which F1 falls from 800 to 400 Hz. With unmodified SWS, listeners tend to perceive (unnatural) pitch-like contours that are determined by the frequency contour of the first formant [2, 3]. Thus “Raw” is perceived as rising in pitch while “Now” is perceived as falling. In our modified SWS replicas, by contrast, we induced perception of pitch on each of these words going in the opposite direction, with a fall on “Raw” and a rise on “Now.”

After demonstrating the pitch illusion and describing the method of creating the complex tones, we will conclude by discussing future directions and broader significance of pitch-enhanced SWS.

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An investigation of the articulatory correlates of vowel anteriority
in Kazakh, Kyrgyz, and Turkish using ultrasound tongue imaging

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This study uses ultrasound tongue imaging (Stone, 2005)—or UTI—to examine the articulatory correlates of the vowel anteriority contrast in three Turkic languages: Kazakh, Kyrgyz, and Turkish. It is demonstrated that each of these languages exhibits a single anteriority contrast, but that it is implemented differently in Turkish (primarily through the position of the tongue body) than in Kazakh and Kyrgyz (through a correlated position of tongue body and tongue root), despite greater acoustic similarity between the vowel systems of Turkish and Kyrgyz.

It has long been understood that the anterior and posterior distinction present in the vowel systems of many languages is implemented during articulation by the front-back position of the tongue body (Ladefoged & Maddieson, 1996). A second anteriority distinction has also been documented for a number of languages of Africa—namely, that of tongue root position (Lindau, 1978; Stewart, 1967). In languages employing this latter distinction, any given vowel is both tongue-body front or back *and* tongue-root advanced or retracted—i.e., both anteriority contrasts are used independently of one another.

Based on similar acoustic properties and accompanying phonetic and phonological patterns, sources like Ard (1983), Rialland & Djamouri (1984), and Svantesson (1985) began to demonstrate that the vowel systems of various Tungusic and Mongolic languages of northern Asia are very similar to the “dual-anteriority” systems documented in languages of Africa. Vajda (1994) has further argued that the single anteriority contrast in the vowel system of Kazakh is one of tongue root position and not tongue body position. This is the only known claim of a tongue-root-only vowel anteriority system, and the only claim based on phonetic data for a tongue-root contrast in a Turkic language. Vaux (2009) hypothesises on phonological grounds that most Turkic languages have a phonologised redundancy between tongue-root and tongue-body posteriority.

The present study is the first to use articulatory data (in the form of UTI) to investigate which region(s) of the tongue is/are involved in the anteriority contrast in Turkic languages. Kazakh is examined with Vajda’s (1994) claims in mind; in addition, two other Turkic languages are examined: Kyrgyz, a close relative of Kazakh with a notably different vowel system, and Turkish, a more distant relative of the two which has received considerably more attention in the linguistics literature.

Native speakers of each language were recorded (12 total participants to date) reading similarly structured carrier phrases containing words with a balance of consonant contexts for each vowel and a range of syllable structures and number of syllables. Short vowels in open initial syllables of multi-syllabic words were measured for all speakers to avoid effects of vowel harmony, prosodic position, syllable structure, and phonemic vowel length contrasts. The imaged tongue surface at the midpoint of each monophthong was hand-traced, and the first and second formants at the same time index were measured.

To impressionistically understand the data, averaged traces (with standard deviation bands) for each vowel type were plotted. Additionally, a measure of tongue region differentiation was developed to understand the role that the position of different areas of the tongue plays in the anteriority contrast of each language. This measure is a calculation of the ratio of the number of degrees separating the region of most positive and most negative difference in tongue position during the articulation of anterior and posterior vowels from the point at which the tongue positions for these two categories of vowels overlaps. It has the potential to be speaker-agnostic, allowing for generalisations at the level of the linguistic variety. Both types of plot are shown in figure 1 for a speaker of Turkish and a speaker of Kyrgyz.

These ratios are found to be consistently around 1.0 for Turkish and 2.0 for Kazakh and Kyrgyz. Together with observations about the averaged traces, this leads to the conclusion that in

Turkish, the anterior and posterior vowels are contrasted using primarily the tongue body—much like other languages with a single anteriority contrast—while Kazakh and Kyrgyz contrast anterior and posterior vowels using the positions of the tongue body and the tongue root combined. In other words, Kazakh and Kyrgyz exhibit an anteriority contrast where tongue body position and tongue root position are coupled, as predicted by Vaux (2009), while Turkish does not. These findings suggest that the tongue root may not always simply be “along for the ride” in vowel systems where the tongue body and tongue root positions are not involved in separate contrasts.

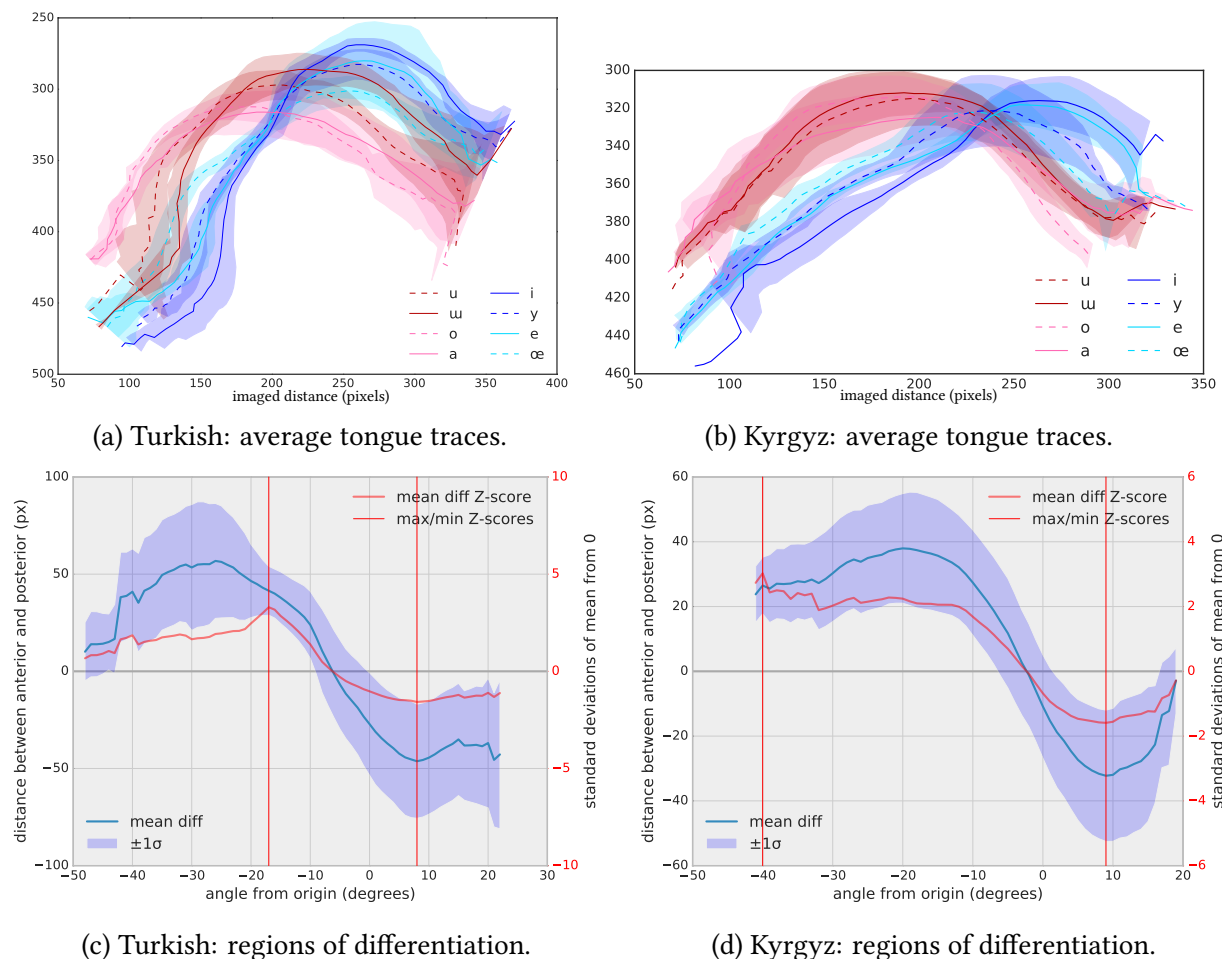


Figure 1: Plots of tongue traces (with standard deviation bands) for vowel categories of Turkish and Kyrgyz (one speaker each), and plots presenting the regions of maximum differentiation in tongue shape between anterior and posterior vowels. Anteriority increases from left to right.

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The influence of pitch contour on Mandarin speakers' perception of English stress

Yaobin Liu

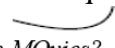
Stony Brook University

BACKGROUND: Previous studies on L2 stress perception have mostly focused on words in isolation or in invariable intonational contexts (see Archibald 1993, 1997, Wang 2008, Peperkamp et al 2010, etc.). This paper reports on a study exploring the influence of different intonation contours, i.e. falling (declarative) and rising (yes/no question), on nonnative speakers' stress perception. The acoustic correlates of English lexical stress include duration, intensity, pitch (F0) and vowel quality, all of which serve as active cues in perceiving stress, despite the dynamics of their relative weighting (Fry 1955, 1958, 1965, Lieberman 1960, Lehiste 1970). As a result, pitch and stress may not interact in an unambiguous way. When intonation contour is imposed on stress contour, the stressed syllable may not necessarily have the highest pitch in a sentence as in citation forms. In citation forms and declarative sentences (intonation: H* L-L%), the nuclear pitch accent bears a high tone. However, at the end of a yes/no question (YNQ) (intonation: L* H-H%), the nuclear pitch accent bears a low tone with high pitch on the following phrase accent and boundary tone (Ladefoged & Johnson 2011), as exemplified in (1).

(1) a. declarative: falling contour


I like MOvies.
H* L- L%

b. yes/no & echo question: rising contour


Do you like MOvies? *You like MOvies?*
L* H- H% L* H- H%

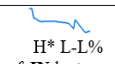

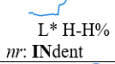

Mandarin, as a tone language, utilizes pitch differently where it signals lexical contrasts. Empirical studies on both production and perception have found F0 to be the primary acoustic correlate of Mandarin tone (Howie 1970, 1976, Chuang et al 1972, Massaro et al 1985, Jongman et al 2006). Presumably, the phonemic nature of tone in Mandarin would render its speakers more sensitivity to pitch than to other cues when they are exposed to English lexical stress. This conjecture was borne out in Wang's (2008) study where only F0 was found to have "a decisive effect on the stress judgments by Chinese learners of English", unlike native speakers. Archibald's (1997) longitudinal study also suggested Chinese learners paid attention only to pitch, which was carried over as part of the lexical entry from L1 to L2. Drawing on these studies, we should predict variability of their stress judgments in different intonation contexts, as intonation is primarily a function of pitch contour in English.

RESEARCH QUESTION: Accordingly, it was hypothesized that Mandarin speakers would be more subject to the influence of pitch contour in stress perception than English speakers; specifically, they would misperceive stress when the stressed syllable bears a low tone, as under the rising pitch contour, while native speakers are less likely to do so for they rely on multiple cues. The hypothesis could be tested by answering the questions: i) Do Mandarin speakers misperceive stress in a rising pitch contour significantly more than in a falling pitch contour? Do English speakers display a similar pattern? ii) Do Mandarin speakers perceive stress in a rising pitch contour significantly differently than English speakers? Does the falling pitch contour display a similar pattern?

EXPERIMENT: As a commonly adopted method (Lieberman 1960, Smith 2016), 12 minimal pairs of noun-verb alternation were used, where the nouns uniformly had initial stress and the verbs final stress, e.g. INdent (n)-inDENT (v). These items were placed in two kinds of intonation contour, namely falling (declarative) and rising (echo question), both of which used the same syntactic template "This word is ____./?". The two stress

patterns, indexed by part of speech (POS) (noun \equiv initial stress, verb \equiv final stress), together with the two intonation contexts form a matrix of 4 experimental conditions: noun-in-falling (*nf*), verb-in-falling (*vf*), noun-in-rising (*nr*), verb-in-rising (*vr*). The target materials, interspersed with an equal number of fillers, were randomly and evenly distributed among participants using a Latin square design. 38 Mandarin learners of English and 15 native American English speakers listened to the audio stimuli and identified the POS of the last word of each sentence by making a forced choice between “noun” and “verb” merely based on its stress pattern they heard. The experiment was conducted via Qualtrics.

RESULTS & DISCUSSION: 636 tokens were collected for the experimental items and the accuracy rate was calculated for each of the four conditions. The summary of the perceptual results, in contrast with actual stress patterns (illustrated with “indent”), is shown in the table below; the statistical strength of these results was confirmed with a mixed effects logistic regression model.

Condition	Native language	Predominantly perceived stress position
 H* L-L% <i>nf</i> : INdent	English	INdent (78%)
	Mandarin	INdent (86%)
 H* L-L% <i>vf</i> : inDENT	English	inDENT (93%)
	Mandarin	inDENT (84%)
 L* H-H% <i>nr</i> : INdent	English	INdent (58%)
	Mandarin	inDENT (61%)
 L* H-H% <i>vr</i> : inDENT	English	inDENT (93%)
	Mandarin	inDENT (81%)

First, in the falling contour, Mandarin speakers matched with native speakers (85% vs. 86%), setting up the baseline that the Mandarin group was capable of perceiving stress in a nativelike fashion under default intonational circumstances. Second, there was a main effect of pitch contour ($p < 0.001$), suggesting that both

Mandarin speakers and English speakers were influenced by pitch contour in stress perception, with lower accuracy rates (60% vs. 76%) in rising pitch conditions in general. To zoom in, the significance of the effect was found only in initially-stressed words, with the difference of 47% for Mandarin speakers and 20% for English speakers between the falling contour and the rising contour, but not in finally-stressed ones (4% vs. 0%). Third, although the English group was also influenced by pitch contour, which was unexpected, there was a significant interaction between native language and pitch contour for words with initial stress ($p < 0.05$), suggesting that the effect of pitch contour was explicitly stronger for Mandarin learners than native speakers at least when they were perceiving initial stress. This contrast is corroborated by the uniquely problematic status of the *nr* condition against the other three conditions. Under this condition, stressed syllables take on a low pitch while unstressed syllables take on a high pitch, as opposed to other conditions where stressed syllables and unstressed syllables are generally aligned with a high pitch and a low pitch respectively. For native speakers, the effect of this “misalignment” in *nr* can be offset possibly by increased duration, or increased intensity, or simply the pitch change itself, or all of them, but can exert itself in Mandarin learners’ interlanguage system and polarize their stress perception, given their susceptibility to tone in native grammar.

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Session 2A Abstracts

(4) $\| (2) \|^\text{g} = [\lambda w. \exists G_1: G_1 \text{ is a CG for Mary in } w \ \& \ \forall w' \in \text{Desire-Alt}(\text{Mary})(w):$
Mary hires in } w' [G_1(\text{you}_{John})](w')]

According to (4), the CG that the attitude verb introduces generates a particular IC when applied to John. But what could this IC be? Given Mary's disjunctive desire, it cannot be $[\lambda w . \iota x(x \text{ is the best semanticist in } w)]$ or $[\lambda w . \iota x(x \text{ is the best syntactician in } w)]$, because it is not the case that the best syntactician is hired in each of her desire alternatives, and neither is it the best semanticist. The IC $[\lambda w . \iota x (x \text{ is the best semanticist in } w \text{ and } x \text{ is the best syntactician in } w)]$ will not do either because it will be undefined in those of her desire alternatives where the best syntactician and the best semanticist are two different people. Finally, the IC $[\lambda w . \iota x (x \text{ is the best semanticist in } w \text{ or } x \text{ is the best syntactician in } w)]$ is also not suitable. Again, in those of Mary's desire-alternatives where the best semanticist and the best syntactician are two different people, this concept will be undefined because it will not be able to pick out a unique individual. There does not seem to be any other options. From this, we conclude that the system of P&S requires a modification.

Proposal. We'll get the TCs right if we can make sure that the IC $[\lambda w . \iota x(x \text{ is the best semanticist in } w)]$ is used in those alternatives where the best semanticist is hired and the IC $[\lambda w . \iota x(x \text{ is the best syntactician in } w)]$ is used in those alternatives where the best syntactician is hired. We thus need a system that will generate weaker TCs for (2) by giving us a (possibly different) John-concept in each of Mary's desire alternatives.

- (5) Key idea: *Step 1.* Separate the following two components that are collapsed into one notion of a CG in P&S: (i) the component that generates the full set of John-concepts for Mary in w ; (ii) a mechanism that chooses a concept from the generated set. *Step 2.* Let the choice of a concept from the set of concepts be new for each desire-alternative.

We substitute variables over CGs by variables over generators of concept sets (GCS), as defined in (6). Such functions will take an individual and return the full set of concepts of this individual for the attitude holder. We introduce variables over choice functions (CFs) of type $\langle\langle se, t \rangle, se \rangle$. A CF applies to a set of concepts and outputs one of them.

We need only one generator of sets of concepts for an attitude holder. Building on (Heim, 1982), we propose an existential closure over CF-variables that can freely apply at any clausal level. The semantics proposed for *want* is given in (7). The LF for (2) is given in (8). The resulting TCs are given in (9).

- (6) Q is the generator of a concept set (GCS) for x in w iff Q is of type $\langle e, \langle se, t \rangle \rangle$ and, for all entities y , $Q(y)$ is the set of y -concepts for x in w .

- (7) $\|want\|^g = [\lambda w . \lambda P_{\langle\langle e, \langle se, t \rangle \rangle, st \rangle} . \lambda x . \forall w' \in \text{Desire-Alt}(x)(w):$
 $P([\iota Q: Q \text{ is the GCS for } x \text{ in } w])(w')=1]$

- (8) $[_S \lambda w \text{ Mary } [_{VP} \text{ wants } w \text{ } [_{CP} \lambda G_{\langle e, \langle se, t \rangle \rangle} [\lambda w' . [_S \exists f : [_S \text{ PRO } [_{VP} \text{ to hire in } w'] [[G \text{ you}] f] w']]]]]]]]$

- (9) $\|(8)\|^g = [\lambda w . \forall w' \in \text{Desire-Alt}(\text{Mary})(w): \exists f: \text{Mary hires in } w'$
 $[f'([\iota Q: Q \text{ is the GCS for Mary in } w](\text{you}_{John}))](w')]$

In this system, an existential closure over CF-variables is allowed either at the level of the embedded TP or at the matrix level. In (8), f is a variable over CFs that is existentially closed at the lower level. Thus, in each desire-world, a different CF might pick out a different concept for one and the same individual John. Consequently, the interpretation in (9) is weaker than the one in (4) and correctly captures the meaning of (2).

This system has an additional technical advantage. In order to account for cases like “John thinks that Clark Kent is not Superman”, P&S require two CGs. So, attitude verbs must be able to potentially introduce infinitely many CGs and take complements of unlimited complexity (known as the *type flexibility* of attitude verbs (Charlow & Sharvit, 2014; Cresswell & Stechow, 1982)). This shortcoming is avoided in our system.

On Dimensional Property Concepts in Palestinian Arabic: Evidence for Uniformitarianism

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There has been ongoing debate within Arabic linguistics over whether comparative formation for gradable adjectives should be analyzed as a root-based or word-based process (Benmamoun 1999; Davis, 2016; Grano and Davis 2017). A closely related question is whether the meaning of property concepts, be it an adjectival or a nominal lexeme (e.g., *ḥikma* “wisdom” or *ḥakiim* “wise”), follows from a uniform semantic structure with a lexicalized, quality-denoting root that requires a default possessive strategy of predication (e.g., the uniformitarian view of Menon and Pancheva (2014)) or it follows transparently from the lexical semantics of property concepts which may behave as an individual characterizing lexeme that composes via canonical predication or as a quality-denoting lexeme that composes via possessive predication (i.e., the transparent view as represented by the *Lexical Semantic Variation Hypothesis* that was put forth by Francez & Koontz-Garboden (2015)). The goal of this paper is two-fold: First, I present and analyze a restricted set of dimensional nominal property concepts (DNPC) in Palestinian Arabic (PA) (e.g., *Tuul* “tallness”, *ṣarD* “width”) whose semantics supports the syntactic analysis under the uniformitarian view and presents a direct theoretical challenge to the semantic analysis under the transparent view. Second, I propose an explanation to the facts based on uniformitarian assumptions along with other independently motivated standard assumptions.

Unlike other quality-denoting property concepts, DNPCs in PA have the following properties: They are qualities with total ordering relation on its portions (i.e., anti-symmetric, transitive, irreflexive), meaning that they introduce scales along which their portions are totally ordered, rather than qualities that have their portions standing in a pre-order, mereological relation as evidenced by the oddness of (1). In this example, if two portions of tallness occupy the same place in ordering, they should be identical. This is not the case in (1). To say that the degrees to which Ali and Ahmad are tall are the same is equivalent to saying that their heights are identical.

- (1) # Ali Tuul-u nafs Tuul Ahmad, bas aTwalh-um mixtalf-a
 Ali tallness same tallness Ahmad but their tallnesses different.PL.
 “Ali is as tall as Ahmad, but their tallness is different”

Second, DNPC sentences are context-independent since they do not allow modification by POS operator and indeed they are not vague as shown in (2). It follows that DNPCs always occur with those degree modifiers (e.g., measure phrases, comparative and equative operators) that introduce lexically specified standard of comparison as exemplified in (3,4).

- | | |
|---|---|
| <p>(2) a. * Ali (fiih) Tuul
 Ali (FIIH) tallness
 “Ali is tall”</p> | <p>b. Ali Tawiil
 Ali tall
 “Ali is tall”</p> |
| <p>(3) a. Ali mitreen Tuul
 Ali 2 meters tallness
 “Ali is 2 meters tall”</p> | <p>b. Il-Gurfa 4 miter Tuul wa 5 miter ṣarD
 The room 4 miter tallness and 5-meter width
 “The room is 4 meters tall and 5 meters wide”</p> |
| <p>(4) a. Tuul Ali nafs Tuul Ahmad
 Tallness Ali same tallness Ahmad
 “Ali is as tall as Ahmad”</p> | <p>b. Ali aktar Tuul/ aTwal min Ahmad
 Ali more tallness/ taller than Ahmad
 “Ali is taller than Ahmad”</p> |

Third, DNPCs are nominalized by the addition of the nominalizing head (CaCC) which is a semantically inert categorizing head. Evidence for its inertness stems from the observation that it can nominalize other non DNPC roots (e.g. *Saam* “fast.V” *Suum* “fast.N” ; *naam* “sleep.V” *nuum* “sleep.V”). This indicates that the nominalizing head never expresses possessive semantics. Nevertheless, DNPC sentences exhibit the properties of part-whole existential-have sentences in PA (Hornstein et al, 1995). In this language, part-whole denoting possession is expressed using a distinct syntactic structure marked by preposition *la* “to” (Boneh and Sichel 2010). The syntactic parallelism between *la*-possessive

On Dimensional Property Concepts in Palestinian Arabic: Evidence for Uniformitarianism

sentences and DNPC sentences lies in the incapability of the indefinite pivot in both types of structure to appear in the preverbal position as in (5.a, b) and their incompatibility with full agreement in the post copular PP-DP structure (6.a, b). The data suggest that the pivot comprising of the DNPC and its degree operator denotes a relation so that it can neither raise nor agree. We suggest that the DNPC sentence has the same underlying structure as relational have-sentence in English that triggers a definiteness effect (Hornstein et al. 1995; Landman and Partee, 1987; Partee 1999).

- (5) a. *tlat Tawabe? kaan-u la-əl-šamaara b. *tlat-a miter Tuul (kaan) rajul l-talʒ
 three stories WERE-3PL to the building three meter tallness (WAS) the snowman
 “The building has three stories” “The snowman (was) three meters tall”
- (6) a. *kaan-u xams šru? la- əš-šajara b. (*kaan-u) tlat-a miter Tuul la-rajul l-talʒ
 WERE.3PL.M five branches to-the-tree WERE.3PL.M three meter tallness to-the snowman
 “The tree had five branches” “The snowman was 3 meters tall”

On the transparent analysis, the problem is crystal-clear. The non-vagueness of the structure cannot be explained without adopting the option of assigning an individual-characterizing denotation to DNPCs. While a quality-characterizing semantics for the scale denoting DNPC necessarily involves a vague predicate, an individual-characterizing semantics is compatible with both vague and non-vague predicates, meaning that a DNPC is necessarily individual-characterizing given the non-vagueness of structure. If so, then DNPCs should compose via canonical predication. This is problematic since it would assume no possessive semantics despite the fact that the non-possessive canonical composition would give rise to the incorrect truth conditions (e.g. #Ali is 2 meters height) and the strict parallelism between possessive *la*-structures and DNPCs sentences. A uniformitarian analysis, on the other hand, does not encounter this problem. It has the theoretical merit of reconciling the two facts of non-vagueness and the possessive semantics. This analysis has the following assumptions: (i) The DNPC has a derived scale-denoting root with an underlyingly relational possessive structure (i.e., $[[[Ali] j [be + IN [[2 \text{ meter Tuul }]_i t_{IN} [t_j t_i]]]]]$). (ii) The root denotes a property of portions with an inherently degree function from portions to degrees (i.e., $[[\sqrt{TwI}]] =: \lambda p \lambda d. p \in \text{tallness} \ \& \ \mu(p) \leq d$). (iii) It composes with the semantically inert nominalizer (CaCC) that denotes an identity function. (iv) The resulting object saturates a covert possessive operator $[[IN]]$ represented as *la* in possessive *la*- sentences. As an existential relational structure with definiteness effects, it is standardly expected to be sensitive to the strong-weak DP distinction (Barwise and Cooper 1981). On the assumption that the POS degree operator is a universal quantifier over the contextually determined neutral set of degrees (i.e., $[\lambda Q: \forall d \in g(N) (S_A) Q(d)]$ (von Stechow, 2009)), it makes a strong DP when it composes with the relational DNPC. This results into a tautologous statement (See Partee 1999). That a DNPC sentence with a POS operator yields a tautology explains the oddness of the vague DNPC sentence in (2). Other degree operators, when applied to relational DNPCs, (e.g., measure phrases, comparative, equative) make weak DPs. This results into contingent statements that are felicitous. This explains the fact that DNPC modified by operators with lexically-specified standards are acceptable as exemplified in (3,4).

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Formal sources of cross-linguistic variation in additivity

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In this paper, I discuss the availability of *double contrast* and *remind-me* readings of additives in Finnish, Hungarian, and Turkish. I propose that the availability of both of these readings is dependent on additive syntax, and that the latter also involves a difference in lexical semantics.

Data. Additives (ADD) signal that the context contains a salient previous answer to the current question under discussion (Beaver and Clark, 2008). In Turkish (Göksel and Özsoy, 2003; Kamali and Karvovskaya, 2013) (1a) and Finnish (Vilkuna, 1984) (1b), that previous answer may also relate to a superquestion. In this case, the previous answer and the host sentence of ADD show double contrast; they differ both in terms of contrastive topic (CT) and of focus (F). In (1), the superquestion is *[Where]_F are [L. and M.]_{CT} going?* and ADD appears adjacent to a CT.

- (1) a. *Leyla sinemaya gidiyor, Meltem de konsere (gidiyor)* [TUR]
Leyla cinema-DAT go-PRES Meltem ADD concert-DAT go-PRES
'Leyla is going to the movies and Meltem is going to a concert'
- b. *Laila on menossa elokuviin, ja Mattikin on menossa konserttiin* [FIN]
Laila is going cinema-ILL and Matti-ADD is going concert-ILL
'Laila is going to the movies, and Matti is going to a concert'

Hungarian does not allow double contrast additivity. However, in Hungarian and Finnish – but not in Turkish – ADDs may also convey a remind-me reading in single *wh*-questions, marking a repeated question (cf. Sauerland and Yatsushiro, 2017). In Hungarian, remind-me *-is* is adjacent to the *wh*-phrase (2a); in Finnish, remind-me *-kAAn* attaches to the finite verb (2b).

- (2) a. *Mi is (volt) a neved?* [HUN]
what ADD was the name-PX/2SG
'What is/was your name again?'
- b. *Mikä sinun nimesi olikaan?* [FIN]
what your name-PX/2SG was-ADD
'What is/was your name again?'

The question addressed in this paper is: What determines whether readings such as double contrast and remind-me are available for a given additive in a given language?

Previous work. Out of the two readings discussed in this paper, only double contrast has been studied previously. Zimmermann (2015) proposes that ADD is a propositional operator that attaches above *vP*, and existentially binds the traces of both CT and F. It then presupposes that the resulting proposition is in the context. On this account, cross-linguistic variation in the availability of double contrast should be related to the number of traces that may be bound by ADD, i.e. semantics.

Double contrast in Hungarian. Hungarian *is* cannot convey a double contrast reading. Instead of attributing this ban on the semantics of ADD, I propose that it follows from Hungarian syntax: *is* is interpreted in DistP, below TopP and above FocP (Szabolcsi, 1997). The unavailability of double contrast follows if the CT is interpreted in TopP; *is* cannot scope over it.

Remind-me in Turkish. Turkish *-dA* cannot convey a remind-me reading. I assume that remind-me ADDs must scope above *wh*-phrases (as in e.g. Hungarian, where *wh*-phrases are in FocP; Surányi, 2002). Given that *-dA* is able to scope over CTs, it is implausible that it cannot scope

above *wh*-phrases, which in Turkish appear either in situ or in the preverbal focus domain (Göksel and Özsoy, 2000). After all, CTs are standardly assumed to scope over foci (e.g. Büring, 2003). Hence, I propose that the lexical semantics of *-dA* precludes a remind-me reading.

Restrictions in Finnish. In Finnish, the bound ADDs *-kin* and *-kAAn* allow double contrast and remind-me readings, while the unbound *myös* and *myöskään* do not (Vilkuna, 1984). Moreover, only *-kAAn* has a remind-me reading. I propose that unbound ADDs disallow double contrast for syntactic reasons (they are *vP*-adverbs), and only *-kAAn* has the semantics required for remind-me.

Implementation. The gist of the proposal for double contrast is that the prejacent has a CT-F structure (Büring, 2003), and ADD and its associated squiggle operator \sim (Rooth, 1992) are *type-flexible*. I introduce this flexibility in a systematic way using unions (\cup), as shown in the table below (cf. Zimmermann, 2015). In the table, α stands for the prejacent, and Γ for the free variable that \sim restricts presuppositionally and that ADD refers to in its presupposition. ‘Baseline’ refers to simple contexts (e.g. *MARY jogs, too*); the presuppositional semantics of \sim is from Rooth 1992.

Under this approach, double contrast ADD searches for a previous answer β in a set that consists of the union of Γ . Remind-me ADD scopes over a question, and searches in the context for an antecedent that is also a question (types in the table as in e.g. Kotek, 2014). Formally, remind-me ADDs target the Table, which contains a stack of questions under discussion (Farkas and Bruce, 2010). Therefore, besides being type-flexible, ADDs may also be *antecedent-flexible*.

	Baseline	Double contrast	Single- <i>wh</i> _{remind-me}
Type of $\llbracket \alpha \rrbracket^o$	$\langle st \rangle$	$\langle st \rangle$	$\langle st, t \rangle$
Type of $\llbracket \alpha \rrbracket^f$	$\langle st, t \rangle$	$\langle \langle st, t \rangle, t \rangle$	$\langle \langle st, t \rangle, t \rangle$
Semantics of \sim	a. $\Gamma \subseteq \llbracket \alpha \rrbracket^f$ b. $\llbracket \alpha \rrbracket^o \in \Gamma$ c. $\exists \beta \in \Gamma [\beta \neq \alpha]$	a. $\cup \Gamma \subseteq \cup \llbracket \alpha \rrbracket^f$ b. $\llbracket \alpha \rrbracket^o \in \cup \Gamma$ c. $\exists \beta \in \cup \Gamma [\beta \neq \alpha]$	a. $\cup \Gamma \subseteq \cup \llbracket \alpha \rrbracket^f$ b. – c. $\exists \beta \in \Gamma [\beta \neq \alpha]$
Semantics of ADD	$\exists \beta \in \Gamma [\beta \in cg]$	$\exists \beta \in \cup \Gamma [\beta \in cg]$	$\exists \beta \in \Gamma [\beta \in Table]$

Conclusion. I propose that some cross-linguistic variation in additivity is rooted in syntax, and some in the lexical semantics of ADD. The prediction is that if a language does not allow ADDs to scope over topics, it should not allow double contrast readings. The fact that some languages marginally accept double contrast (e.g. German and English; Krifka, 1998; Zimmermann, 2012) should then be related to the ease with which ADDs scope over topics in these languages. Moreover, while I do propose that remind-me readings require a specific lexical semantics for ADD, remind-me readings are only predicted to be possible if ADD is able to scope over questions. The syntactic properties of ADD or ADDs (cf. Finnish) therefore play an important role in determining which readings will be available in a given language. Finally, I propose that a type-flexible squiggle is required; the implications of this proposal for other focus-sensitive operators should be considered.

Ref. • Beaver and Clark (2008) *Sense and sensitivity: How focus determines meaning*. Wiley • Büring (2003) On D-trees, beans, and B-accents. *Ling and Phil* • Farkas and Bruce (2010) On Reacting to Assertions and Polar Questions. *Journal of Sem* • Göksel and Özsoy (2000) Is there a focus position in Turkish? *Proceedings of the Ninth International Conference on Turkish Linguistics* • Göksel and Özsoy (2003) *dA*: a focus/topic associated clitic in Turkish. *Lingua* • Kamali and Karvovskaya (2013) ‘Also’ in Turkish and Ishkashimi. *Proceedings of WAFL 8* • Kotek (2014) *Composing Questions*. MIT dissertation • Rooth (1992) A theory of focus interpretation. *Nat Lang Sem* • Sauerland and Yatsushiro (2017) Remind-Me Presuppositions and Speech-Act Decomposition: Evidence from Particles in Questions. *Ling Inq* • Szabolcsi (1997) Strategies for scope taking. In *Ways of Scope Taking*. Kluwer • Vilkuna (1984) Voiko kin-partikkeliä ymmärtää? *Virittäjä* • Zimmermann (2012) ‘Even’ gives even more information. 34. *Jahrestagung der Deutschen Gesellschaft für Sprachwissenschaft* • Zimmermann (2015) Scalar Particles and Contrastive Topics in English and Vietnamese. *Proceedings of IATL 31*

Depictive acceptability is conditioned by inner aspect and its correlates

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Introduction: I show how variation in depictive acceptability reflects their sensitivity to inner aspect (telicity and durativity) and its correlates in other domains. I use this to account for the apparent restriction of Object-oriented depictives to telic, durative VPs.

Puzzle: Depictives are a subclass of secondary predicates. In English, Object-Oriented Depictives (OODs) show restrictions depending on the class of the verb in the matrix clause, but Subject-Oriented Depictives (SODs) do not:

- (1) a. John_i ate the meal_j cold_{i/j} [Accomplishment]
- b. John_i carried Mary_j drunk_{i/*j} [Activity]
- c. John_i recognised Mary_j drunk_{i/*j} [Achievement]

This has led to the claim that OODs can only be predicated of an object when the VP is both telic and durative (Rapoport 1999; Motut 2010). This is supported by the observation that manipulating the telicity of a VP can improve acceptability of an OOD:

- (2) a. John carried the cart { for a minute/*in a minute }
- (i) John carried the cart on the stage { for a minute/*in a minute }
- (ii) John carried the cart off the stage { *for a minute/ in a minute }
- b. ??John carried the cart_i broken_i
- (i) ??John carried the cart_i on the stage broken_i
- (ii) John carried the cart_i off the stage broken_i

However, examples can be found of OODs with VPs that are not both telic and durative:

- (3) a. I recognised him_i dead_i better than I had recognised him_i alive_i
- b. My sister played the guitar_i untuned_i {...for an hour/*in an hour }

Explanations for the particular restrictions on OODs have varied, with many revolving around restricting the type of thematic role that the depictive can be predicated of (e.g. Williams 1980, McNulty 1988, Rothstein 1983). As an alternative account, Motut (2014) has argued that secondary predicates must be mappable to every subpart of the situation. However, it is not clear how a thematic role account or Motut's proposal would explain the difference in acceptability of OODs with the adjectives *full* and *broken*:

- (4) John pushed the cart_i full_i/??broken_i

A new approach: I propose that OODs generally require a durative, telic VP for interpretation reasons, as depictives specify a property relevant to the entity it is predicated of at the time of the matrix event (similar to McNally's (1994) account for unacceptability of Individual-Level Predicate depictives). However, I argue that OODs inside nondurative and/or atelic VPs can be repaired by introducing the corresponding formal analogue in the adjectival domain of the verbal domain's 'missing component' (cf. the formal correspondence between Mass nouns and atelic verbs (Bach 1986), and the interaction of a Count direct object affecting the telicity of a VP).

Adjectives can be gradable or non-gradable, with gradable adjectives further split up into absolute and relative adjectives. Similar to the correspondence between Mass nouns and atelic verbs, gradability in adjectives corresponds with durativity (Beavers 2008), while absolute adjectives correspond to telicity (Kennedy and Levin 2008). Since the VP is

durative and atelic, the ‘missing component’ (in this case, the analogue of telicity) can only be supplied by the absolute adjective *full*, but not by the relative adjective *broken*. This account makes a number of predictions. First, we should see that gradable adjectives are more acceptable with achievement verbs than nongradable adjectives, as gradability supplies the ‘missing’ durativity. Second, while a relative adjective should improve acceptability with achievements, only absolute adjectives should improve acceptability with activity verbs, since only absolute adjectives have the formal analogue of telicity:

- (5) a. I found the casing_i {hot_i [gradable] / *brass_i [nongradable] }
 b. John carried the bag_i {empty_i/full_i} [absolute] / ??{heavy_i/light_i} [relative]

This also predicts that for ambiguous gradable adjectives, OODs should disambiguate them. E.g. *wet* has both an absolute interpretation (the amount of wetness an object has), and a relative interpretation (the climate). With an activity verb, telicity is missing, and so only the absolute interpretation of *wet* should be available:

- (6) John visited the countryside_i wet_i
 a. It had rained heavily for weeks
 b. ??It was a usual spring

Further, we should expect that if a non-gradable adjective can be coerced into giving a gradable reading through a degree modifier, then acceptability should improve in sentences with achievement verbs. Likewise, if an adjective can be coerced into an absolute reading, then acceptability should improve with activities, but not in the case where a degree modifier only coerces a relative adjective reading (even though both are gradable):

- (7) a. John met him_i ??drunk_i / ?/okcompletely drunk_i / ?/okvery drunk_i
 b. John carried the cart ??broken_i / ?/okcompletely broken_i / ??very broken_i

This captures the generalisation of OOD acceptability with durative, telic VPs and the variation in acceptability in (4), without incorrectly ruling out the sentences in (3). I argue that this restriction arises from the OOD being within the domain of computation of inner aspect (Travis 2010) – the property expressed by the OOD must hold at the beginning of the event expressed by the matrix clause. If the property is not interpreted as being relevant to the time expressed by the event, then this results in pragmatic infelicitiousness. Importantly, this change in adjective type does not lead to the entire VP becoming telic, unlike the addition of the directional adverbial in (2b), which suggests that the depictive it is not affecting the computation of inner aspect for the entire VP:

- (8) John carried the bag_i empty_i {for an hour/??in an hour_i}

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Session 2B Abstracts

Macro Differences in Dialects

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In current generative terms, individual features trigger small-scale micro and nano-level differences among mutually intelligible varieties with shared geography (cf. Kayne 2000, 2005; Barbiers 2009). However, as we show in this paper, dialects may also exhibit macro-level differences such as in the domain of case alignment. This is unexplained in the literature, which advocates a complete separation of big, structural differences from featural variation (Baker 2008). Our submission is that structural differences also define dialects and registers, though they are mostly restricted to specific domains, unlike those found in typologically distinct languages with typical cascading effects.

For illustration, we use novel case and agreement variation data from Braj, a Western Indo-Aryan language (Snell 1991; Verbeke 2013; Drocco 2016). The perfective construction, in most varieties, has ergative-marked transitive subjects, which fail to trigger verbal agreement. The verb instead either agrees with the unmarked object or manifests default agreement in the presence of an overtly marked object. This is illustrated in (1) from the Paigaon variety. By contrast, the imperfective subject receives a nominative (un-marked) value and agrees with the verb-auxiliary complex, as in (2).

1. *m -ne/to-ne/b -ne* *ek* *billi* *m r-i*
 1sg-erg/2sg-erg/3sg-erg one cat.sg (f) hit.perf.sg-f
 ‘I/you/(s)he hit a cat.’
2. *m -Ø/tu-Ø/bo-Ø* *ek* *billi-ku* *m tt-o* *u/ /*
 1sg-nom/2sg-nom/3sg-nom one cat-acc hit.imperf.sg-m be.pres.1sg/2sg/3sg
 ‘I/you/he hit(s) a cat.’ (habitual)

Significant to our discussion here, while the transitive domain is rigid and immune to change, part of the unergative domain shows vital signs of big, case alignment differences, of the kind that could define meso-level (Western Indo-Aryan versus Eastern Indo-Aryan) and macro-level variation (Indo-Aryan versus Dravidian). More precisely, some Braj varieties have undergone a macro-level change by opting for phi-triggering, unmarked/nominative subjects in the perfective. But the change is restricted to the unergative ‘laugh’. In our survey of twenty dialects, fifteen Braj dialects exhibit nominative subjects with a perfective ‘laugh’, as shown in (3) of the Atour Nagla variety. Other unergatives (e.g. ‘sneeze’) continue with the ergative pattern (4).

3. *m /tu/u-Ø/h m s re/ t m s re/we* *h s* *h /h se*
 1sg.nom/2sg.nom/3sg.nom/1pl.nom/2pl.nom/3pl.nom laugh.perf.sg be.past.sg/ laugh.perf.pl
 ‘I/you/he/we/you all/they laughed.’
4. *m -ne/t -ne/us-ne/h m s ren-ne/t m s ren-ne/un s ren-ne* *chik* *h*
 1sg-erg/2sg-erg/3sg-erg/1pl-erg/2pl-erg/3pl-erg sneeze.perf.sg/pl be.past.sg/pl
 ‘I/you/he/we/you all/they sneezed.’

Such case-alignment differences between dialects indicate a deep, structural difference, rather than an individual feature-based difference. Following the conception of ergative as an inherent case (Woolford 2006; Legate 2008, 2012), we assume that all Braj dialects bear a *v* that assigns an agent theta role to the subject in its specifier, and values it with an inherent ergative, (5).

5. [vP Subj-erg [VP Obj V]]

This *v* head is present in all transitives and unergatives, resulting in obligatory ergative on the subjects. The predicate ‘laugh’ in some dialects however undergoes a structural change, as in (6).

6. [TP [vP^{-trans} [VP Subj [Obj V]]]]

We claim that the object of ‘laugh’ incorporates into the lexical verb, forming an intransitive VP (cf. Hale and Keyser 1993). This prevents the selection of a transitive *v* that can license a subject. Consequently, the subject generates in the VP (à la Landau’s (2010) analysis of psych predicates), and receives a nominative from the higher T head.

Interestingly, the structurally changed domain also houses other feature-based case differences, in the form of person-number based splits in two dialects of Braj. The first feature-based differential case marking is found in the Marehara variety with 1st plural pronouns that resist ergative marking (7), while all other pronouns in the variety remain obligatorily marked. Something similar is also found in the Nithari variety, where ‘laugh’ forces nominative on all DPs, but the 2nd person singular subject (8).

7. *h m-Ø s re/tum s b-ne/un-ne/mε-ne/tε-ne/b -ne* *h se/h so*
 1pl.nom all/2pl all-erg/3pl-erg/1sg-erg/2sg-erg/3sg-erg laugh.perf.1pl/laugh.perf
 ‘We/you all/ they/I/you/he laughed.’

8. *tu-(ne)/ mε/ wo/ h m s re/t m s re/we* *h so/h se*
 2sg-(erg)/1sg.nom/3sg.nom/1pl all.nom/2pl all.nom/3pl.nom laugh.perf.sg/laugh.perf.pl
 ‘You/I/he/we/you all/they laughed.’

We contend that Marehara and Nithari have just initiated N-V incorporation with ‘laugh’, creating a divide between 1st/2nd and 3rd pronouns/NPs. The former need licensing in a functional head beyond the lexical VP; they are therefore obligatorily licensed at a nominative valuing T head. On the other hand, 3rd NPs continue to be licensed within VP, receiving an ergative case. The general prediction is that if the structural condition for ‘laugh’ continues, these two dialects will follow in the footsteps of Atour Nagla, and discard the ergative for all perfective subjects.

A different type of variation is evident in Mainpuri registers. The first register has a perfective structure without an auxiliary (9), hosting an ergative subject. The second (more formal) register has an unmarked nominative subject, with accompanying phi-agreement on the *v*-T complex (10).

9. *m -ne/tum-ne/us-ne* *bil-le* *m r*
 1sg-erg/2sg-erg/3sg-erg Bill-acc hit.perf
 ‘I/you/(s)he hit Bill.’

10. *m -Ø/tu-Ø/w h-Ø* *bil-k* *m re* */ε/ε*
 1sg-nom/2sg-nom/3sg-nom Bill-acc hit.imperf be.pres.1sg/2sg/3sg
 ‘I/you/(s)he hit(s) Bill.’

We infer from this that speakers of this region have two grammars, one hosting a *v* (transitive) head and the other hosting an active T head. This duality is another piece of a macro-difference between dialects and registers. In the end, we also show how these structural innovations do not affect other grammatical domains in Braj, with the result that it continues to elude the meso-level properties (e.g. numeral classifier, DP-level honorification, gender underspecification) defining Eastern Indo-Aryan languages.

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Holistic approaches to syntactic variation: *Wh-all* questions in English

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Introduction: In Standard English, a *wh*-question is ambiguous as to whether it demands a singleton or plural answer (1). Some dialects, like West Ulster English (McCloskey 2000), resolve this ambiguity by using *all* to mark a question as requiring a plural answer (2).

1. **Who** did you see at the party?

2. **Who all** did you see at the party?

“Who are all the people that you saw at the party?”

McCloskey (2000) observes that sentences as in (2) are only acceptable with *who/what/where* as the *wh*-word, but not *when/why/how*. The *wh*-word and *all* may be separated, as in (3).

3. **What** did you get **all** for Christmas?

“What are all of the things that you got for Christmas?”

This paper explores the largely undescribed use of such *wh-all* questions as in (2) in American English (AmE). Such use is said to be a dialect feature of the Midlands (Murray and Simon 2006), but there is little data in support of this claim. In this study, we combine corpus-based and experimental approaches to show that *wh-all* questions are widespread in AmE, yet subject to regional variation, and that their use is restricted to informal registers.

Approaches to Syntactic Variation: Working with any sort of syntactic variable is difficult from a methodological standpoint in that tokens of the relevant construction may be rare. One method of overcoming this difficulty is to use large corpora such as the Corpus of Contemporary American English (COCA) and others (Davies 2008-). These corpora can give the contexts in which speakers use one variant or another, and can lead to insights about extra-linguistic factors that favor one variant. When the variable is restricted to colloquial speech or subject to regional variation, however, there may not be enough tokens for an analysis. One solution to this problem is to use Twitter as a large corpus, as tweets are generally written in an informal style similar to colloquial speech. Twitter has the advantage that it can capture language changes as they happen, and can be used to track variation among minority groups (as in Jones 2015). Although data from corpora and Twitter may be used to study some of the internal and external language factors that condition the use of one variant over another, they still give an incomplete picture of a speaker’s grammar. Knowing what is allowed in a speaker’s grammar is important for syntactic variation research, because it is impossible to tell what variants are preferred if we do not know which variants the speaker controls. One way to access a speaker’s grammar is through experimental techniques like acceptability judgment tasks, as in Wood et al. (2015), but this technique does not always reveal extra-linguistic conditioning factors on the variable. We contend that, since a holistic approach which combines these methods will yield a more complete picture of a syntactic variable, future studies should implement at least two of the methods used here.

Methods: A three-pronged approach was used to investigate *wh-all* in AmE. First, a search was performed on COCA to look for *wh-all* tokens, which were then coded by genre. Next, over 10 million tweets were collected from Twitter’s streaming API. Tweets were searched to find those that contained the string *wh*-word + *all* + AUX, and hand-checked to determine which were *wh-all* tokens. Finally, an acceptability judgment experiment was conducted on Amazon Mechanical Turk (MTurk). Participants (n=568) who grew up (ages 4-14) in the United States and were native speakers of AmE answered a 47-question grammaticality survey, in which they rated different questions along a 7-point Likert scale. To test language-internal factors of *wh*-word and position of *all*, test sentences were created based on the frame in (4).

4. What (all) did he (all) buy at the store (all)?

Each *wh*-word was inserted into the frame with *all* in one of the three positions to create the target questions. The remaining questions in the survey were a mixture of grammatical and ungrammatical fillers. Participants' demographic information was collected upon completion of the survey.

Results: Relatively few ($n=229$) tokens were found in COCA. Among the tokens, *wh-all* questions were limited to *who/what/where*. The vast majority (89.5%) of tokens were found in the spoken and fiction registers, suggesting that *wh-all* questions are found more often in informal speech. As expected, therefore, the Twitter search found similar results: of 1292 tokens, all had *who/what/where* as the *wh*-word. The responses to the MTurk survey were normalized to z-scores and modeled using linear mixed effects regression, in which participant was a random effect. The language-internal factors of position of *all* and *wh*-word, and language-external factor of region (where speakers grew up, coded based on dialects described in Labov et al. 2006) were fixed effects with a significant effect on grammaticality rating ($p < 0.05$ for all discussed results). Participants preferred *all* to be next to the *wh*-word, as in (2), and disfavored *when*, *how* and *why* as *wh*-words. Post-hoc tests showed a hierarchy of preference for *wh*-words: *who* > *what* > *where* > *when/why/how* ($p < 0.05$). While most regions rated *wh-all* questions as grammatical, participants from the Northeast United States (coded as New York City, Western New England, and Eastern New England) rated them poorly.

Discussion: The MTurk study found evidence for two grammars: one which permits *wh-all* questions and one which does not. The majority of AmE speakers have the former grammar. This differs from the dialect described in McCloskey (2000), as many AmE speakers require *all* to be adjacent to the *wh*-word to be acceptable. This grammar's overall hierarchy in which *wh*-words are preferred suggests that the semantics of the different *wh*-words act as a constraint on grammaticality. The latter grammar, which disallows *wh-all* questions, appears to be limited to the Northeast United States. That *when/how/why* were dispreferred does not mean they are ungrammatical for all speakers: there were 19 participants who accepted at least two of the supposedly ungrammatical *when-all*, *why-all*, and *how-all*. These participants are found in the Inland North, Inland South, and Texas South regions at disproportionately high rates. We speculate that there may be linguistic innovators in these regions who are extending *wh-all* to mark any *wh*-question as plural. Thus, while results from the corpus search and analysis of Twitter data showed that *who-all*, *what-all*, and *where-all* are occasionally used in colloquial speech, the acceptability judgment experiment provided more revealing results, including the effect of position of *all* on grammaticality. At the same time, the MTurk study did not find language-external factors outside of region to condition the feature. The corpus study and Twitter data, by contrast, show that the use of *wh-all* questions is subject to register-based variation. As such, these results show that when examining previously understudied syntactic variation, the most effective approach is to combine corpus analysis with experiments to show who can use the variant and how they use it.

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Retroproductive case and frequency effects

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Assuming a theory where case can be predicted and is inherently associated with theta roles (Woolford 2006), changes in case marking have to be accounted for in the context of acquisition of verb meaning. It is well-established that learning a verb is dependent on its semantic argument structure as well as its syntactic structure, with the syntactic bootstrapping literature offering evidence for the prominent role of argument structure patterns cross-linguistically (Lidz, Gleitman and Gleitman 2002). Despite this, the relationship between case-marking variation and the acquisition of verbs remains largely unexplored. In languages like **Icelandic**, where oblique (non-nominative) subjects exist and only occur as non-agents, the nature of this relationship is crucial to the analysis of variation.

We present results from a large-scale online survey ($N = 4545$) and an in-depth follow-up study ($N = 57$) showing previously unattested variation patterns in the case marking of theme subjects in Icelandic. On previous accounts (Jónsson 2003, Yang 2016), quirky oblique theme subjects were thought to obligatorily pattern with structural nominative case instead of inherent dative case. Contrary to this, we show that instances of datives are indeed attested, and that even though dative subjects do not seem to be productive with new verbs in Modern Icelandic, they are what we call **retroproductive** when non-agent subjects appear with varying case in the input.

Values: *Dative Substitution* (DS), where originally accusative experiencers are substituted with dative, is the best-known example of subject case marking variation in Icelandic. Still, the variation also extends to the less discussed *Nominative Substitution* (NS) of theme subjects. NS comprises a change from an oblique subject case (accusative or dative) of intransitive verbs of motion or change of state, i.e. theme verbs, to nominative (Jónsson and Eythórsson, 2005:225), see (1):

- (1) Bátinn rak á land → Baturinn rak á land
the.boat.ACC drifted to shore → the.boat.NOM drifted to shore - ‘The boat drifted to the shore’

Therefore, just as DS, NS can be viewed as an example of overgeneralization/leveling where productive, unmarked patterns are generalized at the expense of less productive, lexically specific and more marked patterns. Previous ideas (e.g. Jónsson 2003, Jónsson and Eythórsson 2005) about changes in subject case marking in Icelandic are summarized in (2):

- (2) **Nominative Substitution (themes)**
Lexical ACC/DAT (quirky) case → Structural case. Dative is not productive.
 Dative Substitution (experiencers)
Lexical ACC (quirky) case → Inherent case. Dative is productive.

Although the subjects of theme verbs, just like the subjects of experiencer verbs, are originally both accusative and dative, it has been noted (and successfully predicted by the application of the Tolerance Principle in Yang 2016) that dative theme subjects fail to attract the accusative in the same way that dative experiencer subjects do. In fact, it has been maintained that such patterns are impossible, since the dative fails to acquire the status of inherent case with theme verbs (Jónsson 2003, Jónsson and Eythórsson 2005). The results of our study suggest otherwise.

Results and discussion: In an online forced-choice survey on adults ($N = 4545$) which tested four different NS verbs, various unexpected patterns emerged. The general results show an increase in the rate of NS compared to previous results (Jónsson and Eythórsson 2005) and confirm the fact that dative theme verbs preserve their original oblique case better than dative experiencer verbs. Surprisingly, however, significant rates of dative subjects also appear with

theme verbs, a pattern which was thought impossible. Figure 1 shows our results for an originally accusative theme verb, *daga uppi* ('die out/perish'). NS has almost entirely taken over but as can be seen the dative scores are higher than the original accusative ones. The youngest age groups show the most variation in case marking, as the dative consistently gets a higher score than the original accusative case for subjects younger than 25 years old.

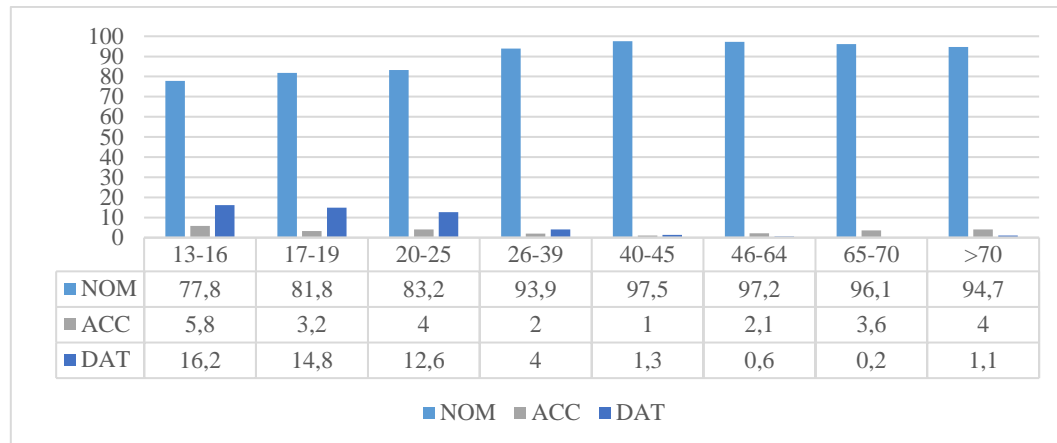


Figure 1. Results (frequency of selected case) for *daga uppi* ('die out/perish') by age, online survey (N = 4545).

Why do these patterns emerge? Have younger speakers deviated from the ongoing direction of the change or do the results reflect emerging case patterns when speakers are faced with unknown verbs? Furthermore, what knowledge do speakers rely on when determining the case-marking of low-frequency verbs? Are subjects which have transparent theme characteristics (–animate, –agent) pulled towards the nominative rather than subjects which are more likely to be experiencers (+animate, –agent) and therefore dative?

To explore this, a follow-up study was administered to 57 students in 6th grade of elementary school (11-12 years old). In this experiment, participants were forced to choose the subject case of 24 theme and experiencer verbs which originally take either nominative, accusative or dative case. Two frequency groups were used for each of the conditions, with a dichotomy between the most and least frequent oblique subject case verbs in Modern Icelandic. Following the forced-choice task, participants were asked to select the verbs they previously knew, evaluating all the verbs of the forced-choice task as well as 22 additional theme verbs with an original oblique subject. We hypothesize that when encountering non-agent verbs, 11-12-year-old speakers rely on morphosyntactic and semantic bootstrapping mechanisms to choose between case-frames, possibly generalizing non-productive and unexpected case patterns.

Our results suggest that this is the case. Better known verbs are more likely to preserve an original oblique subject, with an increased preservation rate for the dative. The DS documented in the larger study (N = 4545) was confirmed, appearing with themes as well as experiencers. In general, the patterns are much less clear than previous research, with NS and even *Accusative Substitution* appearing with themes and experiencers. Experiencers still are more biased towards the dative, consistent with an account which assumes probabilistic rules based on type frequency (Yang 2016).

Jónsson, 2003. Not so Quirky: On Subject Case in Icelandic. *New perspectives on case and Case Theory*, 127-163. · Jónsson and Eythórsson, 2005. Variation in subject case marking in Insular Scandinavian. *Nordic Journal of Linguistics* 28 (2):223-245. · Lidz, Gleitman and Gleitman, 2003. Understanding how input matters: verb learning and the footprint of universal grammar. *Cognition* 87 (3):151-78. · Woolford, 2006. Lexical Case, Inherent Case, and Argument Structure. *Linguistic Inquiry* 37 (1), 111-130. · Yang, 2016. *The Price of Linguistic Productivity. How Children learn to break the Rules of Language*.

Introduction: One of the biggest problems for variationist approaches to syntactic variation is the question of where such variation occurs in the grammar, and what type of variation is allowed. Kroch (1994) suggests that syntactic variables are a result of Competing Grammars, in which grammars that derive differing surface outputs are in competition and selected by the speaker. In this paper, I observe an implicit prediction of the Competing Grammars viewpoint as typically described: material above the variable cannot condition variation. I test this prediction in a variationist study of embedded passives (the ‘needs washed’ construction) in Pittsburghese, and will show that material above the variable does condition variation. This finding suggests that a look-ahead problem arises if a grammar in competition is selected prior to derivation of the variable. To solve this, I propose that both grammars are available during the derivation, and that the derivation transferred to LF and PF is chosen probabilistically in Spell-Out. Grammars still compete; however, the competition selects a variant later than previously thought.

The Prediction: From the Competing Grammars viewpoint, a single derivation yields a single output. Variation thus arises not within the grammar, but from variation in the selection of a grammar that derives a particular variant. For example, variable production of *do*-support in Early Modern English would be due to variation in the selection of a grammar in which *do* is Merged into T versus a grammar in which V raises to T (Kroch 1994). In order to select variants in this manner, there must be some decision point before the derivation of the variable at which a grammar is selected (Wallenberg 2013). This decision point would come at latest immediately before the variable is derived. If we assume a bottom-up Minimalist syntax, this means that operations that apply subsequent to the derivation of the variable are not visible to the derivation because they have not been derived yet. As such, this approach to syntactic variation carries an implicit prediction: subsequent operations to derivation of the variable, and therefore material Merged above the variable, cannot condition variation. In other words, we do not expect the rate of a variant’s occurrence to depend on material above it.

The Variable: Variation in the surface forms of the embedded passive (1) between the standard construction (EP) and one which omits *to be* (AEP) is found throughout the Midwest United States (Murray et al. 1996), and is particularly associated with Pittsburghese (Tenny 1998). These variants have the same meaning, and are subject to intraspeaker variation, as in (2).

1. The car **needs (to be) washed**.
2. I also think Lambo **needs swapped** with Lombardozzi, who then **needs to be given** spots starts here and there to spell people. (online example)

Edelstein (2014) shows that the EP and AEP are syntactically different. For example, unlike in the EP, the AEP disallows adjectival passives (3) and *not* may not appear between *need* and the participle (4). Based on these and other diagnostics, Edelstein suggests that unlike in the biclausal EP, the matrix verb directly selects for an Aspect Phrase in the AEP.

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| 3. a. The door needs to be open . | 4. a. That car needs to not be washed . |
| b. *The door needs open . | b. *That car needs not washed . |

Following Edelstein’s analysis, embedded passives represent the type of syntactic variable that can test the above prediction: material above the decision point of Merging *be* or *need* (modals, negation, etc.) should not condition variation.

Methods: This prediction was tested with variationist methods by using a corpus of examples drawn from fan forums for Pittsburgh sports teams. Because fandom for American sports teams is highly regional (Facebook 2015), fan forums are a useful place to approximate regional variation and maximize the number of AEP tokens obtained online. Two forums for Pittsburgh Pirates (baseball) and Pittsburgh Penguins (ice hockey) fans were manually searched for the terms *need*, *needing*, *needed*, *needs* on February 2-4, 2017, yielding 17,504 hits. Of these, 534 tokens of embedded passives were found. Tokens were coded for four language-internal factors representing material above the variable: MODALS (present vs. absent), NEGATION (present vs. absent), SENTENCE TYPE (interrogative vs. declarative), and CLAUSE TYPE (variable is in a matrix, complement, adjunct, conjunct, or relative clause). Chi square tests were used to determine significant effects of the language-internal factors.

Results: Even in such a targeted corpus, the standard EP was the overwhelmingly favored variant, occurring more than 80% of the time. Overall, 100 of the 534 tokens (18.73%) were of the AEP. As predicted, this rate was not significantly different when the passive was preceded by a modal (21.43%) or occurred in an interrogative context (16.67%). Although there was no significant difference in the rate of AEP occurrence when negation was present, this may be due to low token counts (10.87%). There was a significant difference of clause type. While there was no difference between matrix, complement, adjunct, and conjunct clauses, the AEP is significantly more common in relative clauses compared to these other contexts (27.17%, $p=0.0275$).

Discussion: That any factor has a significant effect on variation suggests that material above the variable can condition variation. If the decision point for selecting a grammar is at or before the first operation that yields the variants, such results should not be possible, as they pose a look-ahead problem. This type of problem is often solved with an appeal to post-syntactic operations, as in Waters' (2013) study of English adverb placement. Because our variants here differ structurally beyond simply differing in word order or morpheme realization, this is not a viable solution. I suggest instead that the decision point is later in the derivation than previously thought. Rather than occur prior to building the variable, the decision point comes after. Functionally, this means that both the EP and AEP derivations are available to the speaker at Spell-Out, where I propose that one variant is selected probabilistically. In this way, only one derivation is transferred to LF and PF, but the full derivation is available to condition variation. This proposal fits the data and represents a way toward reconciling probabilistic and Competing Grammars-style approaches to morphosyntactic variation, which are theoretically quite different yet surface-identical (see Embick 2008).

References: Edelstein, E. 2014. This syntax needs studied. In R. Zanuttini and L. Horn (Eds.) *Micro-Syntactic Variation in North American English*, Oxford: Oxford University Press, 242-267. Embick, D. 2008. Variation and morphosyntactic theory: Competition fractionated. *Language and Linguistics Compass* 2(1): 59-78. Facebook. 2015. *Facebook fandom map: Major League Baseball*. Kroch, A. 1994. Morphosyntactic variation. In K. Beals et al. (Eds.) *Papers from the 30th Regional Meeting of the Chicago Linguistics Society: Parasession on Variation and Linguistic Theory*. Murray, T.E., T.C. Frazer, and B.L. Simon. 1996. Need + past participle in American English. *American Speech* 71(3): 255-271. Tenny, C. 1998. Psych verbs and verbal passives in Pittsburghese. *Linguistics* 36(3): 591-597. Wallenberg, J. 2013. A unified theory of stable variation, syntactic optionality, and syntactic change. Paper presented at DiGS 15, University of Ottawa. Waters, C. 2013. Transatlantic variation in English adverb placement. *Language Variation and Change* 25: 179-200.

Session 3A Abstracts

Nominal case and clitic case: Evidence from Choctaw and Yimas

1. Summary. Yimas (data from Foley 1991) and Choctaw (data from author) display a NOM/ACC case alignment pattern on nominals. The nominals are cross-referenced by *doubled clitics*, which in both languages display a distinct alignment pattern (Yimas: ERG/ABS; Choctaw: split-S). To account for the mismatch between nominal and clitic case, we argue for **two rounds of case computation**, targeting nominals and clitics individually. Assuming that nominal case is computed when TP is built, the order of the two operations is determined by the relative height of clitic-doubling on the clausal spine. Clitic-doubling in Yimas targets C^0 and thus follows nominal case computation, while clitic-doubling in Choctaw targets v^0 and so precedes it. As a result, the NOM/ACC featural distinction is copied onto the argument-doubling clitics in Yimas, but not in Choctaw.

2. NOM/ACC nominal case. Choctaw's NOM/ACC case system is morphologically overt, (1). In Yimas, core arguments are morphologically unmarked; however, its NOM/ACC alignment is nonetheless evident from various subject/object asymmetries. One asymmetry, given in (2), concerns how wh-clitics are exponed—*m-* (subj) vs. \emptyset (obj). Following Baker (2015), we assume for simplicity that NOM/ACC case is assigned configurationally when TP is merged.

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| <p>(1) a. alikchi-t nokshoopa-tok
 doctor-NOM be.scared-PST
 ‘The doctor was scared.’</p> | <p>b. alikchi-t ofi(-yā) habli-tok
 doctor-NOM dog(-ACC) kick-PST
 ‘The doctor kicked the dog.’ (Choctaw)</p> |
| <p>(2) a. nawn m-na-ya-n
 who.SG WH-DEF-come-PRS
 ‘Who is coming?’</p> | <p>b. nawn \emptyset-pu-tpul
 who.SG WH-3PL.ABS-hit
 ‘Who did they hit?’ (Yimas)</p> |

3. Clitic-doubling. The argument-referencing morphemes in both languages are pronominal clitics, not ϕ -agreement (see Tyler 2017, Yuan 2016 for evidence). We assume that clitics are pronominal (D^0) copies of argument DPs, which adjoin to functional heads on the clausal spine (e.g. Arregi & Nevins 2012). Despite their NOM/ACC nominal alignment systems, Choctaw's clitic system displays split-S alignment, (3), while Yimas's clitic system is ERG/ABS, (4).

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| <p>(3) a. ii-baliili-tok
 1PL.ERG-run-PST
 ‘We ran.’</p> | <p>b. chi-nokshoopa-tok
 2SG.ABS-be.scared-PST
 ‘You were scared.’</p> | <p>c. ii-chi-habli-tok
 1PL.ERG-2SG.ABS-kick-PST
 ‘We kicked you.’ (Choctaw)</p> |
| <p>(4) a. pu-wa-t
 3S.ABS-go-PERF
 ‘They went.’</p> | <p>b. pu-n-tay
 3SG.ABS-3PL.ERG-see
 ‘He saw them.’ (Yimas)</p> | |

4. Yimas: Clitic-doubling after nominal case computation. Yimas clitics adjoin at C^0 (Yuan 2016): they are unavailable on non-finite verbs (omitted), and morphologically interact with various complementizers/mood markers, exemplified in (5) (e.g. Phillips 1993, 1995).

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| <p>(5) a. na-kay-cay
 3SG.ABS-1PL.ERG-see
 ‘We saw him.’</p> | <p>b. ta-kay-cay-c-ak
 NEG-1PL.ERG-see-PERF-SG
 ‘We didn’t see him.’</p> |
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Because nominal case is computed at TP, nominal case features are copied along with ϕ -features in clitic-doubling at C^0 . We argue that Yimas's ERG/ABS clitic case system directly references its NOM/ACC nominal case system. To show this, we first establish that ERG clitic case is *dependent*,

calculated internal to the clitic complex. (i) Unaccusative subject clitics are ERG in the presence of an ABS applied argument clitic (6b) and ABS otherwise (6a) (cf. Baker 2014). (ii) Clitic-doubling in Yimas is moreover optional, sensitive to discourse; in (7a-b), the transitive subject clitic is ERG in the presence of the object clitic, but ABS when the object is not clitic-doubled.

- (6) a. impan kantk **na**-kwalcāt
3DL with 3SG.ABS-rise
'He got up with them.'
- b. **impa**-**n**-taŋ-kwalcāt
3DL.ABS-3SG.ERG-APPL-rise
'He got up with them.'
- (7) a. [pay-cumpwi] **pia**-**n**-kacapāl
carry-NFN C.ABS-3SG.ERG-forget
'He forgot to carry (the basket).'
- b. [pay-cumpwi] **na**-kacapāl
carry-NFN 3SG.ABS-forget
'He forgot to carry (the basket).'

The clitic case system is captured by the rules in (8). The [ACC] nominal case feature always corresponds to an ABS clitic, and the [NOM] nominal case feature corresponds to an ABS *or* ERG clitic. When a [NOM]-bearing (subject) clitic co-occurs with another clitic, it receives a [DEP] feature; the [NOM,DEP] feature bundle is spelled out as ERG. Crucially, dependent ERG clitic case requires the presence of a [NOM] feature.

- (8) a. [ACC] → ABS b. [NOM] → ABS c. [NOM,DEP] → ERG

5. Choctaw: clitic-doubling before nominal case computation. Choctaw clitics adjoin at v^0 . This is a reasonable assertion given that they index the thematic role (i.e. base-generation site) of arguments rather than whether or not they end up the subject. Evidence for their low adjunction site comes from the fact that they may show up in participial clauses (9a) and clauses marked with *-cha/-na* switch-reference markers (9b). Both of these clause types must be structurally truncated, since they reject tense and mood morphology.

- (9) a. [**ii**-baliili(*-tok)-t] tahli-tok
1PL.ERG-run(*-PST)-PRT finish-PST
'We finished running.'
- b. ... [**ii**-hopooni(*-tok)-cha]
... 1PL.ERG-cook(*-PST)-SAME.SUBJ
'(We ate the meat) after we cooked it.'

Since nominal case is computed when TP is built, DP arguments lack NOM/ACC case features at the point of clitic-doubling at v^0 . Therefore these features are not copied onto the clitics, and, in contrast to Yimas, we should find *no* evidence of NOM/ACC asymmetries in the clitic system. This is hard to show (we could always say the NOM/ACC features are present on the clitics but have no morphosyntactic consequences), but we *can* show that NOM/ACC case-assignment relies on structure above vP , implying that it is computed after clitic-doubling at v^0 . Firstly, reduced relative clauses, insults and exclamatives, all of which lack tense marking, disallow NOM case (Broadwell 1990). Furthermore, (10) shows that case-marking is optional on both NOM and ACC objects, but it is obligatory on subjects (11a) and arguments in A'-positions (11b). This shows that arguments arguments which do not leave the vP (as in (10)) can be exempted from case computation.

- (10) a. aayĩpa(-t) ā-hikĩyah
table(-NOM) 1SG.DAT-have
'I have a table.'
- b. alikchi(-yā) ish-iyā-tok
doctor(-ACC) 2SG.ERG-go-PST
'You went to the doctor.'
- (11) a. Bill-*(at) ī-hikĩyah
Bill-*(NOM) 3.DAT-have
'Bill has one.'
- b. ish-iyā-tok, alikchi-*(yā)
2SG.ERG-go-PST doctor-*(ACC)
'You went there, to the doctor.'

The dual face of dependent case: On Lithuanian genitive of negation

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1. Background: This paper analyzes genitive of negation (GN) in Lithuanian. GN is a type of case that *prima facie* tracks and overwrites structural accusative case, when the verb is negated as in (2). However, GN does not affect inherent case, e.g., dative (3).

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| (1) Jonas perskaitė laišką.
J.NOM read.PST letter.ACC
'Jonas didn't read a letter.' | (2) Jonas ne-perskaitė laišką/*laišką.
J.NOM NG-read.PST letter.GEN/ACC
'J. didn't read a letter.' (Arkadiev 2016) |
| (3) Jis ne-padėjo tėvui/*tėvo.
he.NOM NG-help.PST father.DAT/GEN
'He didn't help the father.' | |

These data naturally raise important questions regarding where and how case is determined in environments where multiple cases can be realized on a single element. We argue that GN is a realization of dependent case, which, in turn, is a translation of structural case.

2. Previous approaches: Lithuanian GN is a syntactic phenomenon (Arkadiev 2016) in contrast to Russian GN, whose realization can be influenced by semantic factors (Kagan 2013). Syntactic approaches to Russian GN analyze it through covert case stacking (Pesetsky 2013)/replacement (Richards 2013): GN is stacked on the structural nominative and accusative cases, but is eliminated in the context of inherent case. For Richards (2013), GN is assigned syntactically and is a subject to timing: it applies to nominative subjects of passives and unaccusatives suggesting that movement to SpecTP takes place after GN assignment. While Lithuanian GN patterns like Russian in not alternating with inherent case (3), it poses problems to case-stacking approaches. **First**, GN cannot replace a structural nominative DP, e.g., a subject of passives (4). **Second**, GN is not sensitive to timing: the passive subject is never genitive regardless of whether it is in SpecTP (4) or in situ (5).

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| (4) Laiškas/*laiško ne-buvo skaitoma
Letter.NOM/*GEN NG-be.PST read.PRT-F.SG
tėvo.
father.GEN
'A letter was not read by the father.' | (5) Tėvo ne-buvo skaitomas
father.GEN NEG-be.PST read.PRT-M.SG
laiškas/*laiško.
letter.NOM/GEN
'A letter was not read by the father.' |
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3. Proposal: We offer a new account of GN, arguing that it is a reflection of dependent case on a case realization disjunctive hierarchy (Marantz 1991). On such an algorithm (e.g., McFadden 2004, Preminger 2014), dependent case is accusative and unmarked case is nominative (in nom-acc languages). For Lithuanian we argue that unmarked case is realized as nominative whereas dependent case has two realizations: either as accusative or as genitive under c-commanding negation. This proposal accounts for the problematic cases in (4–5).

4. Genitive as a realization of dependent case: Lithuanian GN tracks dependent case which in our account has two realizations. First, it is realized in environments where the structural accusative would otherwise surface. When a DP bearing unmarked case (nominative) is visible to a lower DP, also marked for structural case, its structural case will be translated as dependent case. At Vocabulary Insertion, dependent case is realized as morphologically accusative case; see (1). However, when dependent case is c-commanded by negation, its realization at Vocabulary Insertion is genitive case; see (2). Second, genitive is not realized under negation where unmarked case is found, such as in passives (4–5), unaccusatives (6) and unergatives (7).

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| (6) Traukinys/*traukinio ne-atvažuoja.
train.NOM/GEN NEG-arrive.PRS
‘The train doesn’t arrive.’ | (7) Jonas/*Jono ne-dirba.
Jonas.NOM/GEN NEG-work.PRS
‘Jonas does not work.’ |
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This difference becomes particularly clear in dat-nom (8–9) vs. dat-acc structures (10–11):

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| (8) Man patinka muzika.
me.DAT like.PRS music.NOM
‘I like music.’ | (9) Man ne-patinka muzika/*muzikos.
me.DAT NG-like.PRS music.NOM/*GEN
‘I don’t like music.’ |
| (10) Man skauda galvą.
me.DAT ache.PRS head.ACC
‘I have a headache.’ | (11) Man ne-skauda galvos/*galvą.
me.DAT NG-ache.PRS head.GEN/ACC
‘I don’t have a headache.’ |

In the ‘like’-class (8–9), the argument in direct object position is realized in the nominative in clauses with or without negation. This shows that unmarked case is realized as nominative, even under negation, unlike in Russian. In the ‘ache’-class, the direct object is realized in the accusative when it is not c-commanded by negation. This suggests that the direct object is in dependent case even though there is no unmarked case visible (we do not give an analysis of this structure here). When negation is present, dependent case is realized as genitive.

5. Realizing accusative and genitive: We argue that structural case is assigned in syntax resulting in other arguments than those that bear lexical case to bear structural case, [STR]. At the Morphological Component (on the PF branch), [STR] on subjects and objects is translated to either unmarked case, [UNM], or dependent case, [DEP], according to a disjunctive case hierarchy. These are in turn realized at Vocabulary Insertion according to the elsewhere principle, [UNM] as nominative and [DEP] as genitive (12a) or accusative (12b).

(12) *Realization of dependent case*

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| a. | $DP_{[DEP]} \rightarrow DP_{[GEN]} / \text{Neg } ___$ |
| b. | $DP_{[DEP]} \rightarrow DP_{[ACC]} / \text{elsewhere}$ |

6. Implications: We make a clear distinction between unmarked and dependent case, on the one hand, and their realization, on the other (as nom, acc, etc.). On our approach, GN in Lithuanian is a realization of dependent case. Our analysis predicts that we should find more than one realization of unmarked or dependent case in special environments cross-linguistically. Indeed, Marantz (1991) argues that the genitive case inside a DP is the realization of unmarked case; Baker (2015) argues for an account of Finnish partitive as unmarked case; and Greek dative and genitive case objects have also been argued to qualify as dependent cases (Anagnostopoulou & Sevdali 2017).

References: •Anagnostopoulou&Sevdali 2017.From Lexical to Dependent: the Case of the Greek Dative •Arkadiev 2016: Long-distance genitive of negation in Lithuanian •Kagan 2013: Semantics of Genitive Objects in Russian •Marantz 1991: Case and Licensing •McFadden 2004: The position of morphological case in the derivation •Pesetsky 2013: Russian Case Morphology and the Syntactic Categories •Preminger 2014: Agreement and Its Failures •Richards 2013: Lardil “Case Stacking” and the Timing of Case Assignment

Case syncretism in Russian numeral constructions

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1. Problem: It has been widely noted that in Russian numeral constructions containing lower numerals [2, 3, 4] the adjective appears in genitive plural while the noun appears in genitive singular (1). This number mismatch doesn't occur with higher numerals [5+] (2).

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| 1) tri | krasn-yx | stul-a | 2) pjat' | krasn-yx | stul-ev |
| three-NOM | red-GEN.PL | chair-GEN.SG | five-NOM | red-GEN.PL | chair-GEN.PL |
| 'three red chairs' | | | 'five red chairs' | | |

This apparent number mismatch pattern disappears in lexical case environments (3) and in animate accusative environments (4).

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|--------------------------------|-----------|--------------|--------------------|
| 3) K | tr-jem | malen'k-im | mal'čik-am |
| TODAT | three-DAT | young-DAT.PL | boy-DAT.PL |
| 'to two/three/four young boys' | | | |
| 4) Sasha videl | tr-jox | malčik-ov | /*tri malčik-a |
| Sasha saw | three-ACC | boy-ACC.PL | /*three boy-GEN.SG |
| 'Sasha saw three boys.' | | | |

A common solution regards the pattern, like example 1, to be the realization of *nominative paucal* on both the adjective and noun, and not genitive singular/plural as it is regularly glossed (Bailyn & Nevins 2008, Rakhlin 2003). Such analyses assert that the nominative paucal morpheme is syncretic with the genitive singular for all nouns, due to a suppression of gender features. A well-known counterexample to this account is the segmental stress change pattern, which appear to differentiate between a genitive singular segment (5a) and a paucal segment (5b).

- | | | | | |
|------------------------|-------------|-------|-----------------|-------|
| 5) a. s | perv-ogo | šag-a | b. dva | šag-á |
| since first-GEN.SG | step-GEN.SG | | two step-GEN.PL | |
| 'since the first step' | | | 'two steps' | |

Additionally, the suppression of gender features discounts other idiosyncrasies to the broader problem, as feminine nouns after lower numerals can allow a *nominative plural* **or** *genitive plural* adjective after lower numerals (6, Pesetsky 2013).

- | | | | | |
|-----------------------|-------------------------|-----|-------|---------------|
| 6) dv-e | krasiv | -yx | / -ye | lamp-y |
| two-F | beautiful-GEN.PL/NOM.PL | | | lamp-F-GEN.SG |
| 'two beautiful lamps' | | | | |

Previous analyses have tried to explain the various idiosyncrasies of this complicated problem but cannot completely encapsulate all aspects of it. Pesetsky's (2013) analysis attributes segmental stress changes (5) to an inherent *numberless* feature of nouns after lower numerals. Bailyn and Nevins (2008) do not address the segmental stress change pattern, the animacy effect, or the feminine case patterns, the latter of which is an impossibility given their analysis.

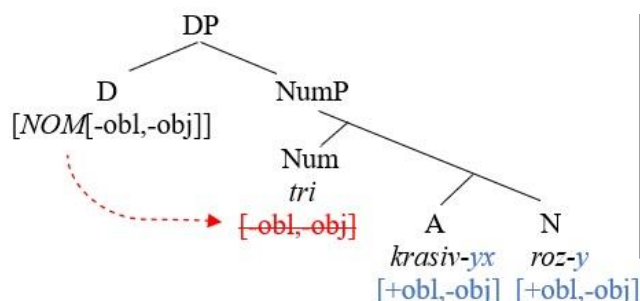
Previous analyses fail to explain:

- Adjective – noun number mismatch only after lower numerals
- Complete homogenous morphosyntax in lexical case environments
- Lower numeral constructions' sensitivity to animacy
- Words that exhibit a stress shift between lower numerals and genitive case environments
- Adjective – noun number *and* case mismatch with feminine nouns

2. Analysis: I base my analysis on 3 main assumptions. Firstly, paucal number co-occurs with the lower numerals in Russian. Secondly, I adopt Pesetsky's analysis (2013) that Russian nouns realize default genitive if they fail to receive case features. Finally, I posit that

a structural feature set of $[\pm\text{oblique}, \pm\text{object}]$ and the lexical feature set of $[\pm f, \pm g]$ percolate through the NP differently (Assmann et. al 2014).ⁱ Namely, I argue that numerals in Russian are unable to value structural case features without a lexical feature set. Within this analysis, a noun would enter the derivation without case and merge with a Num head. When D merges ahead of Num, its structural case features $[-\text{obl}, -\text{obj}]$ cannot be carried by Num, and are prevented from continuing through the phrase, resulting in something like a ‘failure-to-agree’ mechanism (Preminger 2011). With no case being assigned, the noun violates the Case Filter and realizes default genitive case morphology, indicated by $[\text{+obl}, -\text{obj}]$ (7).

7)



Selected References: Assman et.al. 2014 *Case stacking below the surface* • Bailyn & Nevins 2008. *Russian genitive plurals are imposters* • Pesetsky 2013, *Russian case morphology and syntactic categories* • Preminger 2011, *Agreement as a fallible operation* • Rakhlin 2003, *Genitive of quantification in Russian* •

I posit that the default genitive case after lower numerals is a result of structural case blocking. The numeral blocks percolation of nominative case, so that the lower adjectives and the noun appear in default genitive, as per the complement domain restriction on case feature percolation. To explain the blocking effect, I adopt a condition on feature percolation, which restricts percolation only to elements that can carry the relevant features. Numerals allow percolation of lexical case and show overt morphology for lexical case, as they can carry a semantic feature set of $[\pm f, \pm g]$. Since these features are valued on Num, they continue to percolate through the rest of the phrase, allowing for homogenous morphosyntax.

3. Morphology: I present evidence to show that there is a morphophonological difference between default genitive case (N_{GEN}) and lexical genitive case. These case patterns only appear to differ in lower numeral constructions. From a morphological perspective, the existence of a default genitive and a lexical genitive is more viable with regard to insertion rules, than a nominative case morpheme being remarkably syncretic to genitive case morphemes (cf. Bailyn & Nevins 2008). I contrast these morphemes with paucal number realization in lexical and animate accusative case environments.

I propose that paucal number in default N_{GEN} is largely syncretic with genitive singular, which shares the feature of $[-\text{augmented}]$. To explain the various patterns, I posit that the feature of $[\text{singular}]$ on nouns is deleted by Impoverishment after lower numerals. To demonstrate this effect, for the stress change patterns in 5, an unstressed *-a* would differ from the stressed morpheme in its $[\text{singular}]$ feature (8).

8) *-a* → $[-\text{fem}, +\text{masc}, +\text{obl}, -\text{obj}, +\text{sing}, -\text{aug}]$

-á → $[-\text{fem}, +\text{masc}, +\text{obl}, -\text{obj}, -\text{sing}, -\text{aug}]$

However, if the noun carries $[\pm f, \pm g]$, $[\text{augmented}]$ is deleted, resulting in the homogenous realization of lexical case seen in (3). Since adjectives do not appear to realize paucal number, I posit that Russian adjectives can't carry $[\text{augmented}]$. This results in plural morphology on adjectives after lower numerals. I demonstrate that the various patterns, notably segmental stress change patterns in feminine nouns and monosyllabic masculine nouns, are evidence in favor of default genitive case and paucal number in lower numeral constructions.

ⁱ The features $[\pm f, \pm g]$ are simply representative values for lexical case features.

Session 3B Abstracts

Turkic Nasal Harmony as Surface Correspondence

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This paper presents an analysis of a nasal harmony process attested in nearly a dozen Turkic languages using Surface Correspondence Theory (Bennett 2015). The process nasalizes onset stops between two nasal codas in adjacent syllables, e.g., /CVN.CVN/ → [CVN.NVN], even when the resulting cluster is otherwise avoided. Nasal harmony varies by language in its scope and how it interacts with syllable contact phenomena. For example, in Kazakh, nasal harmony overrides restrictions on heterosyllabic clusters, while in Teleüt, the opposite holds. Nasal harmony is not found in Kyrgyz, but the language exhibits a nearly identical process targeting liquids.

Nasal codas in adjacent syllables are analyzed as corresponding, with the intervening onset surfacing as nasal to avoid a gapped configuration. This analysis models the attested range of patterns, and extends to Kyrgyz liquid harmony. We derive the harmony patterns using an existing framework, which is advantageous over previous analyses which encode the generalizations directly as markedness constraints. This work contributes to Surface Correspondence Theory by demonstrating the need for CORR constraints specified for syllable position.

In Kazakh, when harmony does not apply, suffix-initial sonorants exhibit alternations at morphological boundaries (Baertsch & Davis 2001, 2004; Davis 1998; Eulenberg 1996; Gouskova 2004; Washington 2010). Examples are shown in (1); capital letters represent vowels that can be analyzed as unspecified for certain features. /n/ surfaces as [d] in all clusters (1b), and other underlying sonorants surface as obstruents after consonants of equal or lower sonority (1c-d). Data is drawn from various printed sources and has been verified by one of the authors' fieldwork.

(1)		a. /-dA/ 'LOC'	b. /-nI/ 'ACC'	c. /mA/ 'INT'	d. /-II/ 'ADJ'
	/alma/ 'apple'	[aɫma-da]	[aɫma-nə]	[aɫma ma]	[aɫma-ɫə]
	/qar/ 'snow'	[qar-da]	[qar-də]	[qar ma]	[qar-ɫə]
	/qan/ 'blood'	[qan-da]	[qan-də]	[qan ba]	[qan-də]

While these alternations apply without exception to the CV suffixes in (1), the CVN suffixes in (2b-c) resist desonorization with nasal-final stems; the relevant segments are underlined. CVN suffixes surface with initial nasals when attached to nasal-final stems like /qan/ 'blood' (2a-c), overriding any syllable contact pressures (cf. 1a-c) (Anderson 2005; Davis 1998; Eulenberg 1996; Washington 2010). These data show nasal harmony applying at root-suffix boundaries; it also applies between suffixes, e.g., with the nasal-final first person possessive /-Im/: /qaz-Im-nI/ → [qaz-əm-nən] 'goose-POSS.1SG-GEN', cf. /qaz-Im-nI/ → [qaz-əm-də] 'goose-POSS.1SG-ACC'.

(2)		a. /-dAn/ 'ABL'	b. /-nIŋ/ 'GEN'	c. /-miən/ 'INS'	d. /-IAr/ 'PL'
	/alma/ 'apple'	[aɫma-dan]	[aɫma-nən]	[aɫma-miən]	[aɫma-ɫar]
	/qar/ 'snow'	[qar-dan]	[qar-dən]	[qar-miən]	[qar-ɫar]
	/qan/ 'blood'	[qan-nan]	[qan-nən]	[qan-miən]	[qan-dar]
	/qaz/ 'goose'	[qaz-dan]	[qaz-dən]	[qaz-biən]	[qaz-dar]

Nasal harmony only holds between codas in adjacent syllables. Stems with nasal codas further away and stems with nasal onsets take the obstruent-initial allomorphs of the CVN suffixes in (2) in environments conditioning desonorization. For example, /dambal/ 'pantalettes' has a nasal coda in the penult, and surfaces as [dambaɫ-dan] 'ABL' and [dambaɫ-dən] 'GEN'. Likewise, /mal/ 'livestock' has a nasal onset, and surfaces as [maɫ-dan] 'ABL' and [maɫ-dən] 'GEN'. In these words, nasal harmony does not apply, and the surface forms obey the syllable contact preferences.

Tableau (3) illustrates the basic interaction using /qan-dan/ → [qan-nan] 'blood-ABL'; for each candidate, corresponding segments are underlined. The constraint CORR-WORD-CODA[+NASAL] requires nasal codas in the word to correspond with each other; this rules out candidates (a) and (d), in which no segments correspond. When two segments are linked to the same feature, NO-GAP penalizes intervening segments that can bear that feature (Itô et al. 1995). In Kazakh, only

(3)	/qan-dan/ 'blood-ABL'	NoGAP	CC-IDENT- [NASAL]	CORR-WORD- CODA[+NASAL]	CC- SROLE	SYLL CONTACT	IDENT (SON)
a.	qan-dan			W1	L	L	L
b.	qan-dan	W1			L	L	L
c.	qan-dan		W2		2	L	L
d.	qan-nan			W1		1	1
e.	qan-nan	W1			L	1	1
→ f.	qan-nan				2	1	1

[+continuant] segments can be [+nasal]; fricatives do not undergo nasal harmony: /siən-sA-ŋ/ → [siən-siə-ŋ] *[siən-niə-ŋ] 'believe-COND-2.SG'. We interpret NoGAP as requiring intervening segments to correspond; this rules out candidates (b) and (e). CC-IDENT-[NASAL] compels correspondents to bear the same [nasal] feature, ruling out candidate (c). Candidate (f) wins despite violating the low-ranked markedness constraint SYLLCONTACT, a cover constraint that encapsulates the restrictions on heterosyllabic clusters. Without the conflicting demands of nasal harmony, this constraint motivates the alternations in (1), e.g. /qan-nI/ → [qan-də] 'blood-ACC'.

CC-SROLE requires correspondents to have the same syllable role, prohibiting harmony in words like [maɫ-dən] 'livestock-GEN', where one nasal is an onset and one is a coda. In [qan-nan] 'blood-ABL', CC-SROLE is overridden by the conflicting demands of NoGAP. Though not shown in the tableau, nasal harmony in words like [dambaɫ-dən] 'pantalettes-GEN' is ruled out by CC-SYLLADJ, which requires correspondents to belong to adjacent syllables.

The CORR constraint in (3) specifies that [+nasal] segments in coda position correspond. Building syllable roles directly into CORR constraints has been proposed before (Hansson 2001, §4.3.3), but was later rejected (Hansson 2010, p. 283). The data presented here provide strong empirical motivation for syllable-role-specific CORR constraints. Using only the general CORR constraint CORR-WORD[+NASAL], correspondence cannot be limited to codas, and words like /maɫ/ 'livestock' would be predicted to trigger nasal harmony, resulting in ranking paradoxes.

Our analysis successfully models the Kazakh data and is straightforwardly adapted to model variations in other Turkic languages. For example, in the parallel Kyrgyz liquid harmony, suffix-initial laterals surface as [d] after rhotics and consonants of equal or lower sonority, e.g., /qar-lU:/ → [qar-du:] ~ [qar-ɬu:] 'snow-ADJ', cf. /alma-lU:/ → [alma-ɬu:] 'apple-ADJ', unless syllable-adjacent rhotic codas induce correspondence, blocking desonorization, e.g., /qar-lAr/ 'snow-PL' → [qar-ɬar], cf. /alma-lAr/ → [alma-ɬar] 'apple-PL', /qan-lAr/ → [qan-dar] 'blood-PL'. Kyrgyz requires replacing the constraints specified for nasality with CC-IDENT-[LIQUID] and CORR-WORD-CODA[+RHOTIC] in its analysis, but otherwise maintains the same relative rankings as Kazakh.

Previous analyses of Turkic nasal harmony have relied on idiosyncratic markedness constraints that state the generalizations directly (Davis 1998; Eulenberg 1996; Washington 2010); for example, Davis (1998) proposes the constraint NASHARM defined as "C is nasalized in the environment of NCVN." Our analysis has the advantage of deriving the generalizations using an existing framework, thus maintaining a formal link between Turkic nasal harmony and other long-distance phenomena. Our analysis also provides evidence for syllable-role-specific CORR constraints, contributing to the theoretical understanding of long-distance phonological processes.

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Variable Word-Final Schwa in French: An OT Analysis

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Introduction: Variable word-final schwa in French is an interesting phenomenon whose patterns of variation have not yet been fully described. It can occur in all otherwise consonant-final French words, even where there is no word-final orthographic *e*. For example, *page* (‘page’) is [paʒ] or [paʒə], and *lac* (‘lake’) is [lak] or [lakə]. In addition, stop-liquid-final words (e.g. *table* [tabl(ə)] ‘table’) also exhibit variation, despite the infelicitous syllable structure – a sharp increase in sonority within the coda – without schwa. Where several separate processes have been proposed to account for this phenomenon in the past (Hansen, 1997; 2003), the present study provides a unified Stochastic OT account of variable word-final schwa in contemporary Parisian French.

Methods: 2,667 tokens from 8 native speakers of Parisian French were coded for speaker, word, and phonological environment of the potential schwa site. The data come from 2 corpora, ETAPE (Gravier *et al.* 2012) and BREF80 (Lamel *et al.*, 1991), from a TV debate and readings of passages from *Le Monde* respectively. Each token is a consonant-final word – when it appears without schwa – and is coded for speaker, word, and the phonetic environment of the potential schwa site. Words ending in orthographic *e* appear with schwa more than twice as frequently (18%) as words without orthographic *e* (7%).

Analysis: In this analysis, schwa is characterized as a featureless vowel slot, so schwa epenthesis does not violate the constraint DEPF, while the insertion of any features does violate it. The locus of variation is the relative ranking of ALIGNSTRESSR, which constrains against a word-final schwa, and various constraints with lower values that can be perturbed to overtake it in ranking. A full list of relevant constraints used in the analysis is found in (1–9).

- | | | |
|-----|-------------------|---|
| (1) | *STRESS(ə) | Schwa is not stressed |
| (2) | DEPF | Do not insert features |
| (3) | MAXC | Do not delete consonants |
| (4) | ALIGNSTRESSR | The rightmost syllable is stressed |
| (5) | MAXV | Do not delete vowels |
| (6) | NOCODA | Syllables do not have codas |
| (7) | C] _{Phr} | No consonant at a phrase boundary (pause) |
| (8) | SONSEQ | Sonority increases to the nucleus, then decreases |
| (9) | ANCHORL(PWd) | Anchor the leftmost segment to the left edge of PWd |

The basic pattern exhibited between words with and without orthographic *e* is elegantly captured if we assume that words ending in orthographic *e* have an underlying word-final schwa, whereas words without *e* do not. Thus, word-final schwa occurs in all cases when NOCODA overtakes ALIGNSTRESSR (10), and additionally in words with orthographic *e* when MAXV overtakes ALIGNSTRESSR (11). Additionally, *C]_{Phr} ensures that variable schwa occurs most frequently prepausally, so that word-final schwa mediates between consonants and pauses when it ranks above ALIGNSTRESSR, while ANCHORL(PWd) prevents repairs by word-initial epenthesis.

(10)

<i>Lac</i> /lak/	*STRESS(ə)	DEPF	MAXC	ALIGNSTRESSR	NOCODA
☞ 'lak					*
☞ 'la.kə				*	
la'kə	*!				
'la			*!		
la'ki		*!		*	

(11)

<i>Page</i> /paʒə/	*STRESS(ə)	DEPF	MAXC	ALIGNSTRESSR	MAXV	NOCODA
paʒ					*	*
pa.ʒə				*		
paʒə	*!					
pa			*!			
pa.ʒə'ta		*!				
pa'ʒi		*!		*		

Complicating the picture, schwa appears much less frequently when a word-final coda can be resyllabified as the onset of a following word (5%) than when this is not possible (17%). The rates of schwa appearance are summarised in (12), with stop-liquid-final words separated out from other *e*-final words, and prepausal contexts separated out from other contexts where resyllabification across a word boundary is impossible.

(12)

	Possible Resyllabification	Impossible Resyllabification	Prepausal	Totals
Stop-liquid	9/42 (21%)	99/141 (70%)	12/33 (36%)	120/216 (56%)
Other <i>e</i>	24/384 (6%)	105/855 (12%)	84/372 (23%)	213/1611 (13%)
No orthographic <i>e</i>	0/177 (0%)	12/504 (2%)	45/159 (28%)	57/840 (7%)
Totals	33/603 (5%)	216/1500 (14%)	141/564 (25%)	390/2667 (15%)

Stop-liquid-final words exhibit particularly high rates of schwa, which can be attributed to a dispreference for infelicitous codas, captured in a constraint like SONSEQ. Ranking this above ALIGNSTRESSR uniquely targets infelicitous stop-liquid codas for schwa epenthesis. Further, stop-liquid-final words show a huge rate of schwa presence when resyllabification is impossible, compared to other categories that most frequently have schwa prepausally. This necessitates an additional constraint against the kind of cluster that appears across word boundaries in specifically this scenario.

Conclusions: This analysis of variable word-final schwa in Parisian French is a striking example of the Richness of the Base phenomenon. All word types have schwa-ful and – more commonly – schwa-less variants, but underlying schwa is only likely for some word types and not for others. In addition, the viability of the analysis presented here is reinforced by the fact that it is learned, producing near-identical distributions of 100,000 tokens as in natural data, after training a Stochastic OT grammar with the same constraint set on 1,000,000 tokens with the observed distribution.

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Phonological constituents in Armenian: When cyclicity misaligns

Keywords: Armenian, morpho-phonology, stress, strata, cyclicity, misalignment

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The morphology-phonology interface is rife with interaction [4]. To handle this, multiple competing theories have been proposed, including lexical phonology [6] and prosodic phonology [8]. But the question is: *Which theory is correct and needed?* Using Armenian, I show that the same morpho-phonological processes are simultaneously accessing lexical and prosodic mechanisms. Armenian thus requires that lexical and prosodic phonology be combined into one interface system [3].

Armenian is a primarily-suffixing agglutinative language with two main dialects, Western (WA) and Eastern Armenian (EA) [9]. I analyze two prosodic phenomena: **stress assignment** and **destressed high vowel reduction**. I show that in order to explain the behavior of these processes, we need one model that incorporates (unbounded) cyclicity, stem-level vs. word-level domains (from lexical phonology), and misalignment (from prosodic phonology).

In both dialects, stress falls on the word's rightmost full vowel (1). This vowel can be part of the root (1a), a derivational suffix (1b), or an inflectional suffix (1c) as long as it's a full vowel (1d).

- | | | | |
|-----|----|------------------|----------------|
| (1) | a. | kórdz | ‘work’ |
| | b. | kórdz-avór | ‘worker’ |
| | c. | kórdz-avor-nér | ‘workers’ |
| | d. | kórdz-avor-nér-ə | ‘with workers’ |

In both dialects, stress is assigned and reassigned cyclically as each suffix is added. Evidence is the reduction of destressed high vowels [2, 5, 9]. Only a high vowel that **was** stressed in a previous cycle can be reduced (2, 3, not 1). This vowel is deleted (2) unless deletion would create a complex onset; in that case, the vowel instead reduces to a schwa (3).

- | | | | | | | | |
|-----|----|------------|---------------------|-----|----|---------|----------|
| (2) | a. | irigún | ‘evening’ | (3) | a. | kír | ‘letter’ |
| | b. | irign-anál | ‘to become evening’ | | b. | *kr-ítʃ | ‘writer’ |
| | | | | | c. | kər-ítʃ | ‘writer’ |

Like stress assignment, reduction applies cyclically as shown by sequences of multiple destressed high vowels (4). This is a case of unbounded cyclicity.

- | | | | |
|-----|----|---------------|---------------------------|
| (4) | a. | dzín | ‘birth (esp. of animals)’ |
| | b. | dzən-únt | ‘birth’ |
| | c. | dzən-ənt-agán | ‘generative’ |

However not all suffixes trigger both stress shift and vowel reduction. In both dialects, derivational suffixes trigger stress shift and reduction (5a). However inflectional suffixes

behave differently in the two dialects. In WA, inflectional suffixes trigger stress shift but *not* reduction (5b,5c). In EA, inflectional suffixes trigger stress shift. But vowel reduction is triggered by vowel-initial inflectional suffixes (5d) and not by consonant-initial inflectional suffixes (5b).

- (5) a. amúsin → amusn-agán ‘husband’ → ‘marital’ (WA & EA: reduction)
 b. amúsin → amusin-nér ‘husband’ → ‘husband-PL’ (WA & EA: no reduction)
 c. amúsin → amusin-í ‘husband’ → ‘husband-DAT’ (WA: no reduction)
 d. amúsin → amusn-í ‘husband’ → ‘husband-DAT’ (EA: reduction)

In WA, there is a derivation-vs-inflectional split: derivation triggers stress shift and reduction (5a), inflection triggers only stress shift (5b,5c). This can be modeled as lexical strata: stems vs words. Together with the root, derivational suffixes form a morphological stem (MStem) that gets mapped to a phonological stem (PStem). Stress assignment and reduction apply cyclically in this domain (6). In contrast, inflectional suffixes form a morphological word (MWord) with the MStem. The MWord maps to a phonological word (PWord) where only stress shift is active (7).

$$(6) \quad /amusin-agan/ \rightarrow (amúsin)_{PS} /-agan/ \rightarrow (amusn-agán)_{PS} \rightarrow ((amusn-agán)_{PS})_{PW}$$

$$(7) \quad /amusin-i/ \rightarrow (amúsin)_{PS} /-i/ \rightarrow ((amusin)_{PS} -i)_{PW}$$

In EA however, cyclicity isn’t enough. The word-level (WLevel) vowel-inflectional suffixes exceptionally trigger stem-level (SLevel) reduction as if they were part of the PStem (5d) [1]. This is because EA’s PStem and MStem to misalign by incorporating vowel-initial inflectional suffixes into the PStem as in (8). This misalignment can be modeled using different rankings of alignment constraints [7]: ALIGN(MStem,R,PStem,R) and ALIGN(PStem,R, σ ,R). The former outranks the latter in WA (thus isomorphism) while the reverse ranking is in EA (thus non-isomorphism).

$$(8) \quad /amusin-i/ \rightarrow (amúsin)_{PS} /-i/ \rightarrow misalign \rightarrow ((amusn-i)_{PS})_{PW}$$

The Armenian data thus provide evidence for combining lexical phonology (cyclicity & strata) and prosodic phonology (misalignment) into one interface module.

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MATCH WORD does not discriminate between functional and lexical categories

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Summary. In work on the syntax-prosody interface, there is a prevalent idea that while lexical categories are preferentially mapped to prosodic words (ω), no such pressure exists for functional categories (Selkirk 1984, 1995, 2011, Selkirk & Shen 1990, Truckenbrodt 1999, Elfner 2012). Under Match Theory (Selkirk 2011), where syntax-prosody isomorphism is enforced by a series of violable constraints, this pressure is built into the system with the claim that MATCH WORD ‘ignores’ functional categories. I argue that this is misguided, and that MATCH WORD does not discriminate between lexical and functional heads. The pervasive phonological reduction of function words, rather than being a consequence of Match Theory, is instead a fact about the lexical entries of those function words, implemented using prosodic subcategorization frames (Inkelas 1990, Zec 2005). This approach explains particular interactions that would be unexpected if MATCH WORD were genuinely indifferent to functional categories, and fits in with a large body of evidence suggesting that functional elements can behave in prosodically idiosyncratic ways (Nespor & Vogel 1986, Zec 2005, Bennett et al. to appear). The evidence comes from several classes of English function words: prepositions, auxiliaries, oblique (object) pronouns and clitic negation *-n’t*.

Prepositions and auxiliaries. These function words are typically reduced (Selkirk 1996):

- (1) a. Súe tálked [tə] Máry
b. Jóhn [kən] wálk

Ito & Mester (2009), following Selkirk’s similar proposal, argue that they form a prosodic word (ω) with the phonological material to their right (I ignore higher-level prosodic phrasing for now):


- (2) a. (ω Sue) (ω talked) (ω to (ω Mary))
b. (ω John) (ω can (ω walk))

This behavior can be accounted for by assuming that *to* and *can* have the prosodic subcategorization frame in (3). It states that the element (Fnc) must combine with something to its right, and be dominated by a category ω .

- (3) (3) [ω Fnc [...]]

Adherence to this frame is enforced by a high-ranked constraint SUBCAT (Bennett et al. to appear):

(4)


[PP to Andy]	SUBCAT	MATCH WORD	MATCH PHRASE
 (ω to (ω Andy))		**	*
(ϕ (ω to)(ω Andy))	*!		

In contrast, prepositions and auxiliaries in phrase-final position are stressed and unreduced:

- (5) a. Who was Mary talking [tu]/*[tə]?
b. I won’t help you, but John [kən]/*[kən].


The ranking in (4) derives this behavior: SUBCAT is *necessarily* violated, as there is no (phase-mate) phonological material to the right of the function word, so Match constraints break the tie:

(6)

Who was Mary [_{VP} talking [_{PP} to]]	SUBCAT	MATCH WORD	MATCH PHRASE
 (ϕ (ω talking)(ω to))	*		
(ω (ω talking) to)	*	*!*	*

We can also account for the behavior of certain high-register English prepositions which do form ω s: they simply lack a subcategorization frame (another candidate is determiner/pronoun *that*):

(7)


[PP via Andy’s]	SUBCAT	MATCH WORD	MATCH PHRASE
 (ϕ (ω via)(ω Andy’s))			
(ω via (ω Andy’s))		*!*	*

Note that the presence of intrusive r after *via* in non-rhotic dialects is, according to Ito & Mester

(2009), evidence that its complement forms a maximal ω (compare with *[tə ɪ]Andy's).

Finally, the prosodic subcategorization account explains the behavior of function words when they take ϕ complements. According to Ito & Mester's diagnostic, we should assume that function words form a recursive ω with adjacent material, rather than a recursive ϕ . Yet the recursive- ω candidate gets more MATCH WORD violations than the recursive- ϕ candidate, and so we require some higher-ranked constraint to rule out the recursive- ϕ candidate. SUBCAT does just this:

(8)

[PP to [DP Andy's house]]	SUBCAT	MATCH WORD	MATCH PHRASE
 (ϕ (ω to (ω Andy's)) (ω house))		*	(*?)
(ϕ to (ϕ (ω [ɪ]Andy's) (ω house)))	*!		

Note that if we assumed that MATCH WORD ignored functional categories, we would still require some lexical information to tell us that the recursive- ω candidate is preferred to the recursive- ϕ candidate. It is therefore unclear how much work a lexical-only MATCH WORD constraint would do in explaining the prosodic behavior even just of auxiliaries and prepositions. Next, I present evidence for the importance of lexically-specified prosodic subcategorization frames in explaining the behavior of a second type of English functional element—those that cliticize to their *left*.

Oblique pronouns and clitic negation -n't. A corollary of the idea that MATCH WORD ignores function words is the idea that function words should all behave alike—functional categories should be integrated into prosodic structure in whatever way is *least marked* for the language. However, this is not the case, as different function words within one language display idiosyncratic prosodic behavior (Zec 2005). Within English, Selkirk (1996) shows that oblique pronouns, unlike auxiliaries and prepositions, encliticize onto material to their left:

- (9) a. Sarah wants [əm]. (= them)
b. I need [ə]. (=her)

This behavior can be simply captured by assuming they have the subcategorization frame in (10):

- (10) [ω [...] Pro]

This derives a previously-unnoticed symmetry: just as prepositions and auxiliaries stranded at a right edge become full ω s, and may not be reduced, so too do oblique pronouns 'stranded' at a left edge become non-reducible, as in (11). Satisfying SUBCAT isn't possible, so they map to ω s.

- (11) a. [hɜː]/*[ə] showing up at all was a surprise to me.
b. It's nice, [ðɛm]/*[əm] all together at last

Furthermore, if we assign the same frame to clitic negation -n't (*pace* Zwicky & Pullum 1983), we can derive the interaction between auxiliaries and -n't in (12a-b), where the addition of -n't forces the use of the non-reduced auxiliary.

- (12) a. Émily [əd] léft.
b. Émily ['hædnt]/*[ədnt]/ left.

In (12b), hadn't forms its own ω , satisfying the prosodic subcategorization frames of had ([ω had [...]]) and -n't ([ω [...] -n't]). In summary, reduced function words do not behave uniformly, even within one language, and their behavior can be explained with prosodic subcategorization frames.

Conclusions. Function words map to prosodic words some of the time (e.g. phrase-final prepositions), and some function words map to prosodic words all of the time (e.g. *via*, determiner *that*). The model here assumes that these cases are the rule, rather than the exception. The underlying reasoning is that all cases where function words do not map to prosodic words can be accounted for with a fairly restricted view of how prosodic information projects from the lexicon – prosodic subcategorization – leaving essentially no work for a lexical-only formulation of MATCH WORD to do. Consequently, we end up in the happy position of being able to maximally simplify our formulation of MATCH WORD, to one which treats lexical and functional categories equally.

Session 4A Abstracts

Prosody and Semantics in Disjunctive Questions: The Open List Case

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ISSUE While Polar questions (PolQs-(1b)) and alternative questions (AltQs-(1a)) have gathered considerable attention in the field, less is known about *Class Questions* (ClQs): disjunctive questions with an rise on, and lengthening of each disjunct (1c).

- (1) a. Did you eat MEAT↑ or FISH ↓? [**AltQ**]
 b. Did you eat meat or FISH ↑? [**PolQ**]
 c. Did you eat MEAT...↑ or FISH...↑? [**ClQ**]

GOAL This paper is concerned with the semantics and pragmatics of ClQs. Based on a comparison with PolQs, I propose that the prosodic structure of ClQs introduces a class of alternatives, rather than a specific set of alternatives.

CLQS ARE SIMILAR TO POLQS ClQs pattern with PolQs with respect to three properties: (i) exhaustivity, (ii) felicity in different contexts, and (iii) their composition crosslinguistically. Concerning (i), a crucial difference between PolQs and AltQs is that the latter denotes an exhaustive set of alternatives, whereas the former does not (B & R 2012). ClQs behave like PolQs, and do not exhaust the set of alternatives.

- (2) a. **A:** Did you make STEW ↑ or SOUP ↓? [**AltQ**] **B:** # I made pasta.
 b. **A:** Did you make stew or SOUP ↑? [**PolQ**] **B:** ✓No, I made pasta.
 c. **A:** Did you make STEW ↑ or SOUP ↑? [**ClQ**] **B:** ✓I made pasta.

Concerning (ii), it is known that AltQs are banned under (i) preposed negation (H & R 2004), multiple questions with a *wh*-phrase (B & K 2002), and *what about*. These embedding contexts do allow for PolQs, and, as shown in (3), also for ClQs.

- (3) a. Didn't Ramona teach syntax or semantics? [✓PolQ/ # AltQ / ✓ClQ]
 b. Who taught syntax or semantics? [✓PolQ / # AltQ / ✓ClQ]
 c. What about meeting on friday or saturday? [✓PolQ / # AltQ / ✓ClQ]

Concerning (iii), consider Turkish, in which AltQs and PolQs differ morpho-syntactically (usage of the particle *mi*), and are composed with a different lexical item for disjunction.

- (4) a. Ali iskambil **mi** (oyradi) yoksa futbol **mu** oynadi?
 Ali cards **Q** play.past or football **Q** play.past?
 'Which of the following things did Ali play: cards or football?' [**AltQ**]
 b. Ali iskambil veya futbol oynadi **mu**?
 Ali cards or football play.past **Q**?
 'Is it true that Ali played cards or football?' [**PolQ**]

In Turkish, ClQs are composed by the same prosodic pattern as English ClQs, but with PolQ morphosyntax (one Q-particle) and the disjunctive item used in PolQs (*veya*).

- (5) a. Ali iskambil...↑ **mi** (oyradi) yoksa futbol...↑ **mu** oynadi?
 Ali cards **Q** play.past or football **Q** play.past? [**#ClQ/✓AltQ**]
 b. Ali iskambil...↑ veya futbol...↑ oynadi **mu**↑?
 Ali cards or football play.past **Q**? [**✓ClQ**]

DIFFERENCES WITH POLQS In light of these observations, a tempting route would be to analyze ClQs as PolQs. Yet, this is not a viable proposal, as suggested by several crucial differences between ClQs and PolQs. Firstly, in contrast to PolQs, ClQs require the

presence of at least one unpronounced alternative that is not the negation of the proposition.

(6) **context:** A party where the host only serves beer and wine.

a. Do you want wine or BEER ↑? [PolQ]

b. # Do you want WINE...↑ or BEER...↑? [ClQ]

Such an unpronounced alternative is a felicitous answer to an ClQ, but not to a PolQ.

(7) a. A: Do you want a muffin or a croissant ↑? B: No, ✓a doughnut / ✓a burger

b. A: Do you want a MUFFIN...↑ or a croissant...↑? B: ✓a doughnut / # a burger

Secondly, it is known that the possible answers to AltQs, PolQs and ClQs differ. So far, the following paradigm is considered in the literature (Roelofsen & G).

(8)	a. AltQ (1a)	b. PolQ (1b)	c. ClQ (1c)
	✓meat/fish	✓yes (meat/fish/both)	✓yes (meat/fish/both)
	# both/neither	# no	# No
	# yes/no		

I want to add two points to this paradigm. First of all, the infelicity for the *yes* answer to ClQs as observed by R&R (2013) is not straightforward. A pilot study by Arendt (2017) suggests that there are contexts in which the *yes* answer is a felicitous answer to an ClQ.

(9) A: I have to make notes later, will you bring a pen or a pencil? B: ✓Yes

Further, there is a difference between PolQs and ClQs concerning answering with a salient alternative. For PolQs, the alternative is preceded by a *no*, for ClQ, by a *yes*.

(10) a. A: Do you want a muffin or a croissant ↑?

B: ✓No, a doughnut / # Yes, a doughnut

b. B: Do you want a muffin...↑ or a croissant...↑?

B: ?No, a doughnut / ✓Yes, a doughnut

Finally, it has been argued that AltQs presuppose minimality, exclusivity and exhaustivity (B & R 2012). PolQs however, do not presuppose any of these things. This is different for ClQs, that presuppose minimality (at least one of the (silent) alternatives must be true).

(11) a. I am not sure whether you ate something. ✓Did you eat meat or FISH ↑?

b. I am not sure whether you ate something. #Did you eat MEAT...↑ or FISH...↑?

(12) Did you eat FISH...↑ or STEAK...↑?

a. B: ✓Well/✓Actually/✓Hey, wait a minute, I didn't eat anything.

ANALYSIS I follow B& R (2012) and take exhaustivity as the result of a closure operator, signalled by the final fall. This correctly predicts non-exhaustivity for PolQs and ClQs.

(13) **Closure operator** (Biezma and Rawlins 2012)

$[[[Q]\alpha] H *L-L\%]]^c = \text{def } [[[Q]\alpha]]^c$

defined only if $\text{SalientAlts}(c) = [[[Q]\alpha]]^c$

I propose the mandatory presence of an unpronounced alternative results from the focus values in ClQs, that differ from PolQs.

The negation as a salient alternative is ruled out for ClQs, following from the focus values. For (14a), {you don't want coffee or tea} is a salient alternative, whereas for (14b), it is not. This analysis correctly predicts the differences between ClQs and PolQs.

REFERENCES Biezma & Rawlins (2012). Responding to alternative and polar questions. ♦ Han & Romero (2004) The syntax of *whether/Q...or* questions: ellipsis combined with movement. ♦ Roelofsen & Van Gool (2010). Disjunctive questions, intonation, and highlighting.

An Experimental Investigation of Anti-presuppositions

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Summary The aim of this paper is to assess whether inferences resulting from violating the principle *Maximize Presupposition* behave differently from presuppositions and implicatures, thus testing predictions of theories which separate those inferences out from these more well-studied aspects of meaning (Sauerland 2008, Percus 2006). We present data from a picture selection task on the English indefinite/definite determiner. Based on the findings we argue that 1) the epistemic status of anti-uniqueness inferences is much weaker than the uniqueness presupposition of the definite or implicature raised by the indefinite, and 2) drawing these inferences requires more effort than not drawing it or calculating presuppositions or implicatures.

Theory It has been observed that presupposition triggers have to be used if their presupposition (PSP) is fulfilled in the context. Heim (1991) proposed an account based on the principle *Maximize Presupposition* (MP). According to theories working with MP, PSP triggers are ordered on a scale of a presuppositional strength with their non-presuppositional counterparts (Percus 2006, Chemla 2008). One of these scales orders the definite and indefinite determiner. The indefinite yields the inference that the PSP of the definite is false (“anti-uniqueness”) due to this competition, which is why it is infelicitous in (1).

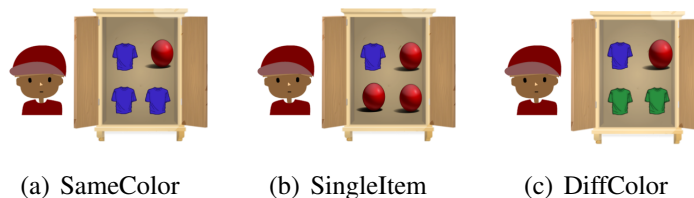
(1) {The / # A} father of the victim came.

Anti-presuppositions have been argued to be distinct from both PSPs and implicatures since they are epistemically weak and project out of negation (Sauerland 2008). The weak status of anti-uniqueness is reflected by the fact that while the use of an indefinite in (1) allows for the inference that it is not certain that there is exactly one father, this cannot be strengthened to mean that it is certain there is not exactly one father. Alternative views on the competition between the definite and indefinite are that they both come with their own context restrictions, i.e. that the indefinite comes with a novelty condition (Heim 1982) or its own PSP of anti-uniqueness (Kratzer 2004). These make different predictions for the processing profiles associated with anti-uniqueness.

Experiment The first factor manipulated for the study was the type of DETERMINER used in the sentences and had four levels, see (2): In addition to indefinites and definites, numerals were included in both focused and unfocused versions, both to provide another point of comparison and for future cross-linguistic extensions.

(2) {A/ The/ One/ ONE } shirt in Benjamin’s closet is blue.

Determiner-type was a between subjects factor to avoid intra-experimental competition effects. Sentences were presented auditorily along with one of three display conditions. Each display contained two of the three critical pictures below (SAMECOLOR, SINGLEITEM, DIFFCOLOR), as well as a distractor. Critical pictures varied in whether they satisfied a uniqueness presupposition (b vs. a,c), an implicature that there be at most one relevant item of the mentioned color (b,c vs. a), and an anti-uniqueness inference that there is more than one relevant item (a,c vs. b).



Condition A paired SAMECOLOR and SINGLEITEM, picture condition B had SINGLEITEM and DIFFCOLOR and condition C had SAMECOLOR and DIFFCOLOR. The distractor showed 4 other identical items. The participants' task was to choose the picture that best fit the sentence they heard. In addition to responses and reaction times, eye movements were recorded for a more detailed perspective on the unfolding of various components of interpretation. 120 students of the University of Pennsylvania participated in the experiment for credit.

The results were analysed with linear mixed effect models using the lmer function in R. We first looked at rates of picture choices and reaction times. For condition A, participants chose picture SINGLEITEM over SAMECOLOR at ceiling level across determiners (with no significant RT differences), in line with the definite's uniqueness presupposition and the indefinites' implicature that there be only one blue shirt.

Det	SAMECOLOR	SINGLEITEM	RT
the	6%	94%	3230
A	2%	98%	3180
one	5%	95%	3288
ONE	3%	97%	3290

Condition A

Det	DIFFCOLOR	SINGLEITEM	RT
the	5%	95%	3470
A	25.4%	74.6%	3950
one	42.6%	57.4%	3870
ONE	45.5%	54.5%	3228

Condition B

In condition B, SINGLEITEM was chosen at ceiling levels for the definite, in line with its uniqueness presuppositions. The percentage of DIFFCOLOR choices over SINGLEITEM choices in condition B differed significantly from definites for all indefinites ($p < .01$). Moreover, compared to condition A the percentage of SINGLEITEM choices for indefinites went down significantly in condition B where the competitor was DIFFCOLOR. This effect was more pronounced for "one" than for "a". Choosing DIFFCOLOR over SINGLEITEM is, of course, in line with anti-uniqueness. An additional relevant effect emerged in RTs, such that the choice of picture DIFFCOLOR took significantly longer than the choice of SINGLEITEM for all indefinites. Choosing SINGLEITEM with indefinites also took significantly longer in condition B than it did in condition A. Together, these points suggest that choosing the picture verifying anti-uniqueness involved additional effort. This is also supported by preliminary analysis of the eye-tracking data, which suggest that looks to the target stabilized faster in condition A than in condition B. For condition C, DIFFCOLOR was chosen over SINGLEITEM at ceiling levels for all determiners, with no differences in RT.

Conclusion: We found first experimental evidence for anti-presuppositions ("anti-uniqueness"). Our data support views that theoretically separate these inferences from PSPs and implicatures. First, the picture choices suggest that the epistemic status of anti-presuppositions is much weaker than that of implicatures or PSPs. Participants relatively rarely based their picture selection on anti-uniqueness being fulfilled, compared to implicatures and PSPs, which were quite consistently considered. Second, both the RT and preliminary eye-tracking data suggest that drawing this inference is cognitively more demanding than calculating PSPs or implicatures. We also found that anti-uniqueness effects are stronger for numerals than indefinites, raising the question of what additional factors, beyond the competition with the definite, play a role in deriving these inferences.

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Simultaneous Present-under-Past in Relative Clauses: Evidence from Fronted VPs

Intro. It is standardly believed that, in English, Present tense morphology embedded under Past in a relative clause (RC) can only have an *indexical* interpretation, i.e. overlap the utterance time (UT) (Abusch, 1994; Stechow, 1995, a.o.). I show that fronted VP constructions reveal previously unobserved and currently unpredicted *simultaneous* readings of Present-under-Past in RCs, according to which the embedded eventuality overlaps the time indicated by the matrix Past but not the UT. I propose an account in which RCs can be *tenseless*, the default morphology on the embedded verb in that case is Present and the embedded verb's temporal interpretation is dependent on the matrix tense.

Data. It is a well-known fact that (1) cannot have a simultaneous reading, whereas (2) can. In (1), being hungry has to overlap the UT. So, (1) and (2) cannot be synonymous.

- (1) John met a boy who **is** hungry. (2) John met a boy who **was** hungry.

But, the relation between an embedded Present and a matrix Past is unexpectedly different in fronted VP constructions. Native speakers report that the embedded Present in (3b) need not overlap the UT and, thus, (3b) and (2) can be synonymous. *Novel data:*

- (3) a. At this time last Friday, John was looking for a hungry person, and, finally,...
b. Meet a boy who is hungry, John did.

In appropriate contexts, simultaneous readings can also be obtained for sentences like *Meet a boy who is a participant, John did* and *Meet a boy who lives in Paris, John did*. So, simultaneity does not arise only with predicates like *be hungry*. Still, Present-under-Past in fronted constructions does not always result in a simultaneous reading. Consider:

- (4) Meet the boy who is hungry, John did. (5) A boy who is hungry, John met.

In both (4) and (5), the state of being hungry must overlap the UT.

Discussion. Standard tense semantics that requires that Present in an RC overlap the UT cannot predict the simultaneous reading in (3b). (Alxatib & Sharvit, 2017) who recently suggested the existence of a bound zero-tense in RCs cannot account for (3b) either, because they also require Present-under-Past to overlap the UT.

There are three other related problems. *Problem 1.* The contrast between (3b) and (1): how come VP-fronting licenses a simultaneous reading unavailable in (1)? Under the assumption that fronted VPs reconstruct at LF, the LF of (3b) should be identical with that of (1). Yet, (3b) has a reading that makes it equivalent to (2) and (1) does not. *Problem 2.* The contrast between (3b) and (4): why does the presence of the definite determiner block the simultaneous reading? (See (Anand & Hacquard, 2007) for a similar observation in a different environment.) *Problem 3.* The contrast between (3b) and (5): why does DP-fronting not allow for a simultaneous reading?

Proposal. In my account, I make four main assumptions.

Assumption 1: English RCs do not have a local temporal anchor and tenses in RCs are always indexical (in accordance with most of the literature on tense).

Assumption 2: There is feature transmission (FT) in English at a pre-PF level of syntactic representation (Kratzer, 1998) that I call 'PF' here, for short.

Assumption 3: Indefinites can have a predicative interpretation with a later existential closure (EC) (Heim, 1982). In object position, an indefinite with a predicative interpretation combines with a verb by *Predicate Restriction* (Chung & Ladusaw, 2007).

Assumption 4: RCs can be tensed (of type $\langle e, t \rangle$) or tenseless expressions (of type $\langle e, it \rangle$). In a tenseless clause, the default morphology on the verb is Present.

Accounting for Problem 1. By Ass.4, the embedded clause in (3b) can be either tensed or tenseless. When it is tensed, the state of being hungry overlaps the UT (but not necessarily the meeting time). When it is tenseless, the state of being hungry overlaps the meeting time (but not necessarily the UT). The “tenseless” LF for (3b) is given in (6):

(6) $[\exists [\lambda 0 \text{ } [_{TP} \text{ Past}^0_1 [_{VP} \text{ John } [_{VP} \text{ meet } [_{DP} [\text{a boy}]_{\langle e, it \rangle} [_{RC} \text{ who } [\lambda 3 [t_3 \text{ be hungry}]]]]]]]]]]]$

In (6), because RC is tenseless, the temporal argument slot on *be hungry* is not saturated within the embedded clause and is allowed to percolate up. RC is, thus, of type $\langle e, it \rangle$. Under a predicative interpretation, *a boy* is also of type $\langle e, it \rangle$. They combine by Predicate Modification (Heim & Kratzer, 1998) to yield DP (of type $\langle e, it \rangle$). DP combines with *meet* by a version of Predicate Restriction to yield a complex predicate *meet a boy who is hungry* of type $\langle e, \langle e, it \rangle \rangle$ (the temporal arguments of *meet* and *a boy who is hungry* are identified). Its three arguments are then saturated by “John”, “Past” and the EC.

If a tenseless RC occurs in a non-fronted VP, FT applies and the embedded VP surfaces with Past tense morphology. This is why (3b) and (2) can be synonymous (they can share the LF in (6)). The difference between (3b) and (2) is at PF: FT does not apply in (3b) but it does in (2). This is why the embedded tense morphology in (3b) and (2) is different.

As for the contrast between (3b) and (1), observe that, in (1), VP is c-commanded by the matrix Past at PF but FT has not applied. This can only happen if RC is tensed because, in that case, the embedded Present is independent of the matrix Past and is indexical.

Accounting for Problem 2. Unlike indefinites, definite DPs cannot have a predicative interpretation in argument position and, therefore, the mechanism that applied to (3b) cannot apply to (4). The RC must be tensed and the Present tense can only be indexical.

Interestingly, if a definite embedded in a VP-fronted structure contains a bound variable in a fronted construction, then a simultaneous reading suddenly becomes available:

(7) Meet the man who loves her mother, every girl did five years ago.

Native speakers say that, unlike (5), (7) does allow for loving not to overlap the UT. According to the present proposal, this would mean that the presence of a bound variable inside the RC in (7) allows the definite DP to have a predicative interpretation.

Accounting for Problem 3. Fronted DPs leave a copy of type e interpreted as a definite description (Fox, 1999). Under this assumption, a simultaneous reading is not predicted for (5) because the lower copy of the definite will not have a predicative interpretation.

Further issues: the Progressive. There is another case of Present inside a RC in a fronted VP construction, for which I could not get clear judgments. For most speakers I consulted, (8) does not have a simultaneous reading: the smoking must overlap the UT.

(8) Meet a man who is smoking a cigar, John did.

However, if preceded by the context in (9), the simultaneous reading of (8) becomes available for some speakers.

(9) In our club, we smoke cigars on Fridays. So, everyone in our smoking room last Friday had a cigar in his mouth. This was when John, who wanted to meet someone smoking a cigar and take a picture of him, entered the room. And, yes... (8).

The availability of a simultaneous reading for at least some speakers suggests that it is not impossible. Evidence from VP-Ellipsis explored in (Alxatib & Sharvit, 2017) also suggests such a possibility. Finally, it seems that the more easily a progressive construction can be seen as expressing a property than an ongoing action, the easier it is to interpret it as tenseless: compare (8) with (10). Here, I am leaving this issue unresolved.

(10) Meet a man who is living with his mother, Mary did.

Quantifier raising derives factivity and its prosody

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Introduction. In Turkish, the prosodic structure of factive attitude reports (ARs) differs from that of non-factives. I derive the factive inference in the syntax-semantics by Quantifier Raising (QR) the embedded clause. A structural difference ensues, which the phonology is sensitive to.

(1) Non-factives:

[Att.-Holder [_{VP} CP Att.-Verb]]

[(1)] = *believes'*(*p*)(*a*)

(2) Factives:

[Att.-Holder [[Q CP] [λ₈ [_{VP} φ₈ Att.-Verb]]]]

[(2)] = *p* ∧ *believes'*(*p*)(*a*)

Independent evidence suggests that QR does affect prosodic structure, even when string vacuous.

Empirical contribution I. In out of the blue, broad focus utterances of non-factive ARs the prosodic nucleus—indicated by caps—falls on a default position within the embedded clause; For factives, it falls on the matrix verb. Pre-nuclear syntactic constituents are parsed as phonological phrases (Φ), post-nuclear material appears deaccented and dephrased (Kamali 2011, a.o.).

(3) a. (alara)_Φ (LIMONLUYA yurudugunu düşünuyor)_Φ [non-factive, broad focus]

Alara Limonlu.DAT walk.NMZ think

Alara thinks that she's walking to Limonlu.

b. (alara)_Φ (limonluya yurudugunu)_Φ (BILİYOR)_Φ [factive, broad focus]

Alara Limonlu.DAT walk.NMZ know

Alara knows that she's walking to Limonlu.

The evidence as to whether this is expected is mixed. Kallulli (2006, 2010) suggests the positive: Presupposition makes clauses discourse-given. This shifts the nucleus away, explaining (3). But others argue that presupposition and givenness are independent dimensions of meaning (Wagner 2012, Rochemont 2016, Büring 2016). I side with the latter, and propose an alternative explanation.

Empirical contribution II. Some ARs alternate between factive and non-factive readings. Then, prosody disambiguates: (4) is string identical to (3b), the difference is that the nucleus is embedded.

(4) (alara)_Φ (LIMONLUYA yurudugunu biliyor)_Φ [non-factive, broad]

Alara believes that she's walking to Limonlu.

The difference in nucleus position makes an interpretive difference: (3b) is factive, (4) is not. To my knowledge, contrasts like (3b) and (4) have not been observed in the literature. Though prosody is known to affect presupposition projection (indirectly), it is not thought relate to triggering (Beaver 2010, Simons et al. 2017). On the other hand, growing evidence suggests that the factive inference must be encoded in the composition, which the contrast between (3b) and (4) supports, but no link yet exists with prosody (Kratzer 2006, recently: Bochnak and Hanink 2017).

Analysis. The difference in prosodic structure is caused by the availability of the factive inference, rather than the other way around. And ARs like (3b) have a factive semantic representation ('LF') in addition to a non-factive one, rather than simply being *compatible* with contexts where the embedded proposition is true. Ex. (5a) not factive, even though the matrix verb is the nucleus.

(5) a. (alara)_Φ (limonluya yurudugunu)_Φ (DUSUNUYOR)_Φ [non-factive, narrow or verum]

Alara thinks that she's walking to Limonlu.

b. Alara's walking to Limonlu and ... [ok before (3b); # before (5a)]

c. ... but she isn't walking to Limonlu. [ok after (3a), (4) and (5a); # after (3b)]

The anti-presupposition test in (5b) (Percus 2006) and the non-deniability of entailments test in (5c) suggests that ARs introduced by *düşün-* are non-factive regardless of prosody, but that ARs *bil-* are non-factive when the nucleus is embedded and factive when the nucleus is the matrix verb.

Proposal I: Deriving factivity. Attitude verbs uniformly have non-factive Hintikkan entries, like (6a). To derive the factive inference embedded clauses in factive ARs compose with Q, defined in (6b). Q takes a proposition and a predicate of propositions. It asserts the existence of an evaluation-world situation that satisfies the proposition, and feeds the proposition into the predicate. If natural language propositions are assumed to be persistent, this lexical entry is equivalent to asserting the truth of p at w . Nominalized complement clauses denote regular propositions, as in (6c).

- (6) a. $\llbracket bil \rrbracket \approx \llbracket dusun \rrbracket \approx \lambda w_s. \lambda p_{st}. \lambda x_e. \forall w' [w' \in DOX_{x,w} \rightarrow p(w')]$
 b. $\llbracket Q \rrbracket = \lambda w_s. \lambda p_{st}. \lambda B_{st,t}. \exists s [s \leq w \wedge p(s) \wedge B(p)] \equiv p(w) \wedge B(p)$
 c. $\llbracket Limonluya \text{ yurudugu} \rrbracket = \lambda w_s. walk\text{-}to(w)(limonlu)(alara)$

Q composes with an evaluation world and a nominalized clause to yield a quantifier phrase:

- (7) $\llbracket Q \rrbracket(w)(\llbracket CP \rrbracket) = \lambda B_{st,t}. \exists s [s \leq w \wedge \llbracket CP \rrbracket(s) \wedge B(\llbracket CP \rrbracket)]$

As standardly assumed for the interpretation of quantifier phrases in object position (without type-shifting), the quantifier phrase (of type $\langle\langle st, t \rangle, t \rangle$) creates a type mismatch, and cannot compose with the attitude verb (looking for type st). It raises, leaving a trace of type st . Ex. (8) gives the structure and truth conditions of (3b): The embedded proposition is asserted, and believed. The factive entailment can be turned into a presupposition using familiar means (Abrusán 2011).

- (8) $[\lambda w_0 [\text{Dilara} [\lambda 3 [[Q\text{-}w_0 \text{ CP}] [\lambda 2 [_{vP} x_3 \phi_2 bil\text{-}w_0]]]]]]$
 $\llbracket (8) \rrbracket(w_0) = 1 \text{ iff } \exists s [s \leq w_0 \wedge walk\text{-}to(w_0)(limonlu)(dilara)$
 $\wedge \forall w' [w' \in DOX_{dilara, w_0} \rightarrow walk\text{-}to(w')(limonlu)(dilara)]$

For word order, the matrix subject raises above the embedded clause. In this configuration, the hierarchical relation between the subject and the embedded clause remains unchanged. Nothing special is required for deriving the truth conditions of non-factive attitude reports. Q is not used, so it does not trigger QR. The embedded clause in remains within the vP and is interpreted in situ.

Proposal II: Interface with phonology. Sentential stress is assigned to the highest item in v's spell out domain (Kahnemuyipour 2009, a.o.). In SOV languages, this means that in simple transitives like (9), the direct object is the nucleus. Pre-nuclear syntactic constituents are parsed into phonological phrases. In **non-factive ARs**, the embedded clause does not vacate the spell out domain of the vP phase: Sentential stress is correctly predicted to fall within the embedded clause. In **factive ARs**, QR makes the embedded clause vacate the vP phase. Sentential stress is assigned regularly within the the spell out domain. It falls on the sole non-null item there—the matrix verb.

Supporting evidence. Does QR affect the prosodic structure of Turkish sentences other than in factive ARs? Yes. When the direct object of a transitive is, e.g., a distributive universal quantifier phrase, the nucleus is no longer the direct object, but the verb. Such examples are straightforwardly analyzed by assuming that the QP raises, vacating the sentential stress assignment domain.

- (9)a. $(alara)_{\Phi} (\text{LIMONLUYA } yuruyor)_{\Phi}$ (10)a. $\#(alara)_{\Phi} (\text{her LIMONLUYA } yuruyor)_{\Phi}$
 b. $\#(alara)_{\Phi} (\text{limonluya } YURUYOR)_{\Phi}$ b. $(alara)_{\Phi} (\text{her limonluya})_{\Phi} (YURUYOR)_{\Phi}$
 Alara w/.lemon.DAT walks Alara \forall w/.lemon.DAT walks
 A. flirts with the man with a lemon. A. flirts with every man with a lemon.

Remaining issues. I. For QR to feed into phonology, it must happen in the syntax. This is not an issue, if it is assumed that syntax outputs all possible structures, which are filtered at the interfaces—in particular, ones with mismatching types are ruled out. II. If where the factive inference is encoded is the embedded clause, why are verbs like *düşün-* not observed with factive complements? I must assume that this is due to syntactic selection, which all competing theories must assume.

Session 4B Abstracts

The Neuter Agreement Constraint in Lithuanian

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Introduction: This study analyzes gender and agreement properties in Lithuanian, with a focus on the neuter. Lithuanian has three genders: masculine, feminine, and neuter; however, no nouns are inherently neuter. The only nominal neuter arguments are pronouns and quantifier-like elements (e.g., *viskas* ‘everything,’ *tai* ‘this, it’). Gender is expressed on agreeing adjectives, participles, and other elements.

Proposal: We demonstrate that in Lithuanian, there exists what we call the Neuter Agreement Constraint (NAC), whereby neuter arguments fail to control agreement on adjectives, yielding ungrammaticality. The existence of the NAC is particularly striking given that neuter forms exist in various positions and cases, suggesting the NAC is not a result of the language lacking certain agreement forms. We propose instead that the NAC is due to the lack of gender features on neuter arguments. When agreement is obligatory between a nominal argument (‘controller’) and an agreeing expression (‘target’), the target must receive gender features. As we show, neuter arguments in Lithuanian lack gender features altogether (cf. Kramer 2015), and are therefore ineligible to confer targets with the requisite features.

Motivation for NAC: We demonstrate that both neuter pronouns and adjectives occur in different case positions and configurations, but agreement between neuter nominals and adjectives yields ungrammaticality. **First**, the neuter pronouns *viskas* and *tai* appear in various constructions: in structural accusative object position (1), and as an object under negation, which in Lithuanian takes genitive (2). **Second**, substantivized neuter adjectives can also appear in the same environments: accusative object (3) and genitive-of-negation object (4).

(1) Jis valgė viską/tai.

He ate everything.ACC.NEUT/this.ACC.NEUT
‘He ate everything/this.’

(2) Jis ne-valgė visko/to

He NEG-ate everything.GEN.NEUT/this.GEN.NEUT
‘He didn’t eat everything/this.’

(3) Jis valgė kepta ir virta.

He ate fried.NEUT and boiled.NEUT
‘He ate fried and boiled.’

(4) Jis ne-valgė nei kepta nei virta

He NEG-ate neither fried.NEUT nor boiled.NEUT
‘He ate neither fried nor boiled.’

Third, while masculine (as well as feminine) arguments show agreement with adjectives, neuter arguments cannot control agreement on adjectives. E.g., **I** secondary depictive predicates that agree in GNC with an accusative masculine object (5) are ungrammatical with neuter objects (6). **II** Adjectives in the complement of *make*-causatives show agreement in number and gender with a masculine causee (7), whereas neuter causees fail to agree with such adjectives (8).

(5) Jis valgė daržoves

He ate vegetables.ACC.M raw.ACC.M
‘He ate the vegetables raw.’

(6) Jis valgė viską

(*žalia/*žalia/*žalia)
He ate everything.ACC.NEUT(raw.ACC.NEUT/ACC.M/ACC.F)
‘He ate everything raw.’

(7) Karas padarė miestą

War made city.ACC.M.SG unrecognizable.ACC.M.SG/INST.M.SG

neatpažįstamą/neatpažįstamą.

‘War made the city unrecognizable.’

- (8) *Karas padarė viską/tai neatpažįstama/neatpažįstamu/neatpažįstama.
War made everything.ACC.NEUT/this.ACC.NEUT unrecognizable.ACC.M.SG/INST.M.SG/NEUT.ACC
‘War made everything/this unrecognizable.’

Analysis: We analyze the NAC as GNC “agreement failure.” We propose that agreement with adjectives requires gender to be transmitted from the controller to the target. Crucial to this account is the idea that neuter is the absence of gender in Lithuanian; thus neuter arguments, lacking gender, fail to transmit gender features to their agreement targets. The absence of gender can be illustrated by neuter-form adjectives occurring in the presence of non-nominal genderless subjects, such as to-infinitives (9) and substantivized adjectives (10).

- (9) Pavargti už tėvynę - gražu/*gražus/*graži. (10) Saldu gradu/*gradu/*gardi.
to.Suffer for homeland beautiful.NEUT/NOM.SG.M/NOM.SG.F Sweet delicious.NEUT/NOM.M.SG/NOM.F.SG
‘To suffer for one’s homeland is beautiful.’ ‘Sweet is delicious.’

We further distinguish between the absence of gender in Lithuanian (neuter) and default gender (masculine), which surfaces in coordination resolution (Corbett 1991) even for inanimates (11).

- (11) Kėdė ir stalas yra purvini/*purvinos/*purvina.
Chair.NOM.F.SG and table.NOM.M.SG are dirty.NOM.M.PL/NOM.F.PL/NOM.NEUT
‘The chair and the table are dirty.’

That the NAC is due to failure to transmit gender features to an agreement target (cf. 5-8) is further evidenced by nominal predication, which is grammatical with neuter arguments (12). Unlike agreeing adjectives, whose gender is valued by a controller, predicative nominals have inherent gender (FEM in 12), thus they do not need to receive gender features from a controller.

- (12) Karas padarė viską/tai tikra betvarke.
War made everything.ACC.NEUT/that.ACC.NEUT real chaos.INST.F.SG
‘War made everything/that into real chaos.’

Non-copular nominative neuters are also subject to the NAC e.g., the derived passive subject in (13), suggesting non-nominative cases are not responsible for agreement failures.

- (13) *Viskas buvo serviruojama šalta.
Everything.NEUT.NOM was served.NEUT cold.NEUT
‘Everything was served cold.’

This study has broader implications for the representation of gender (e.g., default vs. its absence) and its role in the nature of agreement ‘failures,’ which in NAC crashes rather than yielding default.

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The power of syncretisms: how syncretisms can serve double duty

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Under specific syntactic circumstances, syncretic forms are able to satisfy multiple grammatical requirements: they can serve double duty. This presents a difficulty for late insertion theories like DM. In this paper, I show that the phenomenon follows naturally from an approach that combines having one syntactic node per feature (as in nanosyntax, Starke 2009) with remerging embedded features in a different structure (grafting, Van Riemsdijk 2006b).

In (1), *was* ‘what’ serves double duty in a free relative construction in German. *Gegeben hast* ‘have given’ requires accusative case and *ist prächtig* ‘is wonderful’ requires nominative case. Despite these different case requirements, the sentence is grammatical. The form *was* ‘what’ is syncretic between the neuter nominative and the accusative, and is, therefore, able to satisfy both case requirements.

- (1) Was du mir gegeben hast, ist prächtig.
 what.NOM/ACC.NEUT you me given(ACC) have is(NOM) wonderful
 ‘What you have given to me is wonderful.’ (Groos and Van Riemsdijk 1981, p. 212)

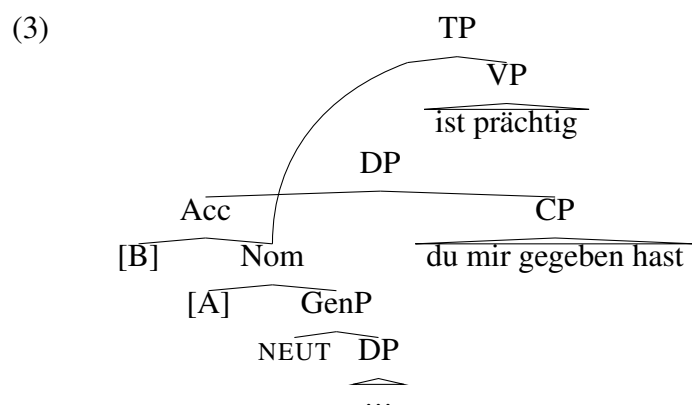
The sentence in (1) is unacceptable when a non-syncretic form is used as in (2), in this case the masculine free relative.

- (2) *Wen Gott schwach geschaffen hat, muss klug sein.
 who.ACC.MASC God weak shaped has(ACC) must(NOM) smart be
 ‘Who God has created weak must be clever.’ (Groos and Van Riemsdijk 1981, p. 177)

As there is no syncretic form for the nominative and the accusative masculine free relative (*wer* is nominative and *wen* is accusative) the sentence is ungrammatical. This indicates that the syncretic property of *was* ‘saves’ the construction, and an analysis in which *ist prächtig* ‘is wonderful’ takes the whole embedded clause as a subject does not hold.

For a form to serve double duty, it is required that there is (i) a specific syntactic structure in which part of the syntax is shared, and (ii) a single form that corresponds to multiple case features.

For (i), I follow Van Riemsdijk’s grafting approach, in which he argues that “a single string of terminal elements can be associated with more than one tree structure” (Van Riemsdijk 2006a, p. 364). I combine the concept of grafting with a nanosyntactic approach, that assumes that each feature corresponds to its own terminal node (Starke 2009), and I adopt Caha’s (2009) universal case hierarchy. In (3), I show a simplified representation of the syntactic structure of (1), leaving for now irrelevant details such as operators aside. As can be seen, particular features are merged into two different structures, and some features are structurally shared.



To be more precise, the pronoun with functional structure up to the accusative (Acc) is merged with the verb *geben* ‘to give’. The structure up to the nominative (Nom), which is

contained in the accusative, is merged with the predicate *ist prächtig* ‘is wonderful’. The two clauses share the structure up to the nominative.

As for (ii), as is illustrated in (3), each feature corresponds to its own terminal node, and the more complex case is structurally built from the less complex case (i.e. the accusative contains the nominative) (Caha 2009). There is a single form that corresponds to both the syntactic structure up to the nominative (Nom) and the structure up to the accusative (Acc) in (3). This follows from the Superset Principle and the Elsewhere Condition in nanosyntax. The lexical entry for */-as/* (from *was*) is given in (4).

(4) [Acc [Nom [Neut]]] \Leftrightarrow */-as/*

The features of the lexical entry in (4) exactly match the features of the syntactic structure up to the accusative (Acc) in (3). The features in the structure up to the nominative (Nom) are contained in the lexical entry in (4) (Superset Principle) and there is no more specific lexical entry (Elsewhere principle). In both cases *-as* is inserted.

In sum, *was* ‘what’ can serve double duty because it has been merged twice (once at the level of its accusative node and once at the nominative level), and the spellout for both these merged structures is identical.

An earlier account of how syncretism can serve double duty is provided by Asarina (2011). She assumes that when an item is assigned two cases, two feature structures are created. If both feature structures are spelled out by the same morphological insertion rule, the result is grammatical. Asarina’s (2011) approach is empirically problematic, given that accusative and genitive cannot be shared according to her assumed case feature hierarchies.

(5) Kogo ja iskal, ne bylo doma.
 who.ACC/GEN I sought(ACC) not was(GEN) home
 ‘Who I was looking for wasn’t at home.’ (German, Levy and Pollard 2002, p. 222)

Whereas Asarina’s account fails to account for the grammaticality of (5), this follows directly from case containment as described in Caha (2009), as genitive contains accusative.

Leaving gender and verbal syncretisms (Pullum and Zwicky 1986) aside, the analysis makes two predictions. First, the satisfaction of multiple case requirements is caused by structural containment rather than solely by an identical phonological form. Therefore, accidental homophones (i.e. forms that accidentally share the same spellout, without being truly syncretic) should not satisfy multiple case requirements even though they share the same surface form. This sheds light on whether the ‘right’ syncretisms are predicted by the case hierarchy.

Second, in agglutinating languages where case containment is morphologically overt (Radkevich 2010), multiple case requirements should be satisfied even without syncretism. Since the containing (e.g. accusative) form morphologically contains the contained (e.g. nominative) form, there is no spellout conflict for the shared element in these languages. This prediction is immediately compatible with Caha’s case containment, but does not follow from the analysis of Asarina (2011). In her analysis, there is not a single morphological insertion rule, and the derivation would crash.

I discuss data from free relatives in different languages and other similar constructions, such as Across-the-Board phenomena and Right Node Raising constructions.

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Morphological priming of Dutch prefixed verbs in auditory word processing

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This paper provides novel psycholinguistic data which suggest that morphological structure is explicitly represented in memory (cf., Stockall and Marantz 2006; Taft 2004), contra previous claims that morphology should be attributed to mere interactions between form and meaning (e.g., Baayen et al. 2011; Gonnerman et al. 2007). The extent to which morphemes are semantically compositional has been shown to influence morphological decomposition in French and English in overt (i.e., not masked) priming paradigms (Feldman et al. 2004; Longtin et al. 2003; Marslen-Wilson et al. 1994; Rastle et al. 2000), but not in German (Smolka et al. 2014) and Semitic languages (Hebrew: Frost et al. 1997; 2000; Arabic: Boudelaa and Marslen-Wilson 2004; 2015). This paper investigates the role of semantic transparency in the lexical representation of morphologically complex verbs in Dutch. These verbs are real morphological derivations of their stem (as shown by shared irregular allomorphy), while they may differ in meaning relatedness between the stem and the complex verb from fully transparent to fully opaque—therefore, they can be used to tease apart semantic, phonological, and morphological effects. We show that morphological priming is independent of semantic and phonological overlap in Dutch complex verbs, akin to the German results.

Methods We conducted two auditory priming experiments with lexical decision for Dutch prefixed verbs. Participants were native speakers of Dutch (32 in Experiment 1, 40 in Experiment 2). In Experiment 1, prime–target pairs are manipulated with respect to their morphological, semantic, and phonological relatedness (see Table 1). Simplex stems (e.g. *bieden*, ‘offer’) function as targets, and are primed by prefixed and particle verbs that are either both morphologically and semantically (MS) related (*aan-bieden*, ‘offer’), only morphologically (M) related (*ver-bieden*, ‘forbid’), only phonologically (Ph) related (*be-spieden*, ‘spy’), or unrelated (C; *op-jagen*, ‘hurry, rush’). Critical items were distributed over four lists according to a Latin Square Design, so that participants saw each target word only once. Experiment 2, in addition to the MS, M, and unrelated pairs, also includes purely semantically (S) related primes (e.g., *ver-lenen*, ‘offer, grant’). In addition, we manipulate the number of intervening items between prime and target (0-lag and 5-lag) to further tease apart semantic and morphological effects, as it has been shown that semantic effects decay more quickly over time (Kouider and Dupoux 2009; Marslen-Wilson and Tyler 1998).

Results Linear mixed-effects models were used to analyze log-transformed correct response times (RTs) to targets. Following Baayen and Milin (2015), we performed minimal a-priori data trimming. Random effect optimization (Bates et al. 2015) resulted in inclusion of random intercepts for subjects, primes, and targets (Exp.1), as well as by-subject and by-target slopes for the MS condition (Exp.2). As fixed effects, we entered Condition, Distance (Exp.2), Trial, ISI, Prime/Target Frequency, and Target Duration into the model.

For Experiment 1, we find that both MS and M complex verbs significantly facilitate lexical decision of their stem compared to the C condition (MS: $\beta=-0.12$, $p<0.001$; M: $\beta=-0.10$, $p<0.001$), while the Ph condition did not ($p=0.102$). A separate model shows no significant difference in the magnitude of priming between the MS and M conditions ($p=0.111$); while Ph did show significantly longer RTs compared to the M condition ($\beta=0.08$, $p<0.001$), indicating that the morphological effect is distinct from a mere phonological effect.

Table 1: Conditions and example critical items for the target (the stem + infinitival suffix) and the primes in the Morphologically and Semantically related (MS), purely Morphologically related (M), Phonologically (Ph) related (Exp.1), Semantically (S) related (Exp. 2) and Control (C) condition.

Target	MS prime	M prime	Ph prime	S prime	C prime
<i>bieden</i> 'offer'	<i>aanbieden</i> 'offer'	<i>verbieden</i> 'forbid'	<i>bespieden</i> 'spy'	<i>verlenen</i> 'give, grant'	<i>opjagen</i> 'hurry, rush'
<i>werpen</i> 'throw'	<i>afwerpen</i> 'throw off'	<i>ontwerpen</i> 'design'	<i>aanscherpen</i> 'sharpen'	<i>weggooien</i> 'throw away'	<i>uitdraaien</i> 'print out'

For Experiment 2, the data at a 0-lag show a significant effect for the MS and M conditions (MS: $\beta=-0.06$, $p<0.001$; M: $\beta=-0.06$, $p<0.001$), compared to C. No significant effect was found for the S condition ($p=0.365$). A separate model shows no difference between M and MS ($p=0.709$), and a significant difference between S and MS ($\beta=0.05$, $p<0.001$). This shows that the priming effects in the MS condition are significantly bigger than the purely semantic effects. While we expected to find a gradual drop-off in the effects, analysis of the results at a 5-lag shows that none of the effects for prime condition are significant (MS: $p=0.536$; M: $p=0.616$; S: $p=0.334$). We suspect that a 1- or 2-lag might have shown the drop-off, while at a 5-lag all effects had already disappeared.

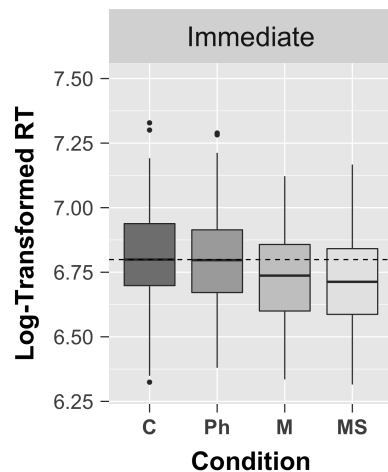


Figure 1: Results Exp. 1

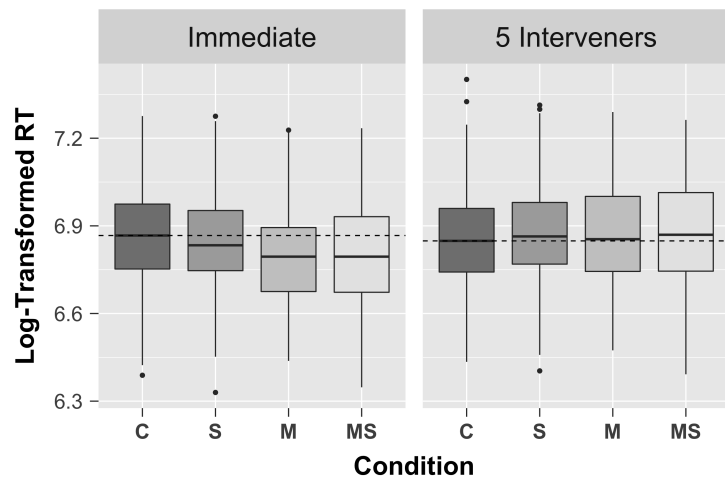


Figure 2: Results Exp. 2

Conclusions In line with the aforementioned German results, our results show that in Dutch complex verbs, morphological priming effects are independent of semantic transparency. We also show that M effects are distinct from Ph effects, and that MS effects are distinct from S effects. That semantic relatedness is not a precondition for the occurrence of morphological processing suggests that morphological identity is distinct from mere semantic and phonological similarity.

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Session 5A Abstracts

The A-/A'-distinction in scrambling revisited

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Synopsis: The standard assumption regarding the A-/A'-distinction in Japanese scrambling (SCR) is that only SCR that crosses CP must be A'-movement. We provide new data which show that this standard position is incorrect. In particular, we show that SCR out of noun phrases and a coordinate structure also necessarily exhibits A'-properties. We then argue that the A-/A'-distinction of SCR correlates with whether it takes place within a transfer domain.

Clause-internal vs. long-distance SCR: As Saito (1992), Tada (1993), a.o. argue, clause-internal and long-distance SCRs show different properties. The contrast between (1b) and (2) indicates that clause-internal SCR may create a new scope relation, whereas long-distance SCR cannot:

- (1)a. Dareka-ga minna-e tegami-o kaita. b. Minna-e₁ dareka-ga t₁ tegami-o kaita.
someone-NOM everyone-to letter-ACC wrote everyone-to someone-NOM letter-ACC wrote
'Someone wrote a letter to everyone.' '[To everyone]₁ someone wrote a letter t₁.'
 $\exists > \forall$; $*\forall > \exists$ $\exists > \forall$; $\forall > \exists$
- (2) Minna-e₁ dareka-ga [John-ga t₁ tegami-o okutta to] itta.
everyone-to someone-NOM John-NOM letter-ACC sent that said
'[To everyone]₁ someone said that John sent a letter t₁.' $\exists > \forall$; $*\forall > \exists$

This contrast has been taken as indicating that long-distance SCR is necessarily A'-SCR, with A'-SCR taken not to affect scope, while clause-internal SCR can be A-SCR, which affects scope. That is, whether SCR crosses the clause-boundary or not has been considered to be crucial in determining the A-/A'-properties of scrambled elements. Against this background, this paper shows there are two cases of SCR which are clause-internal but necessarily exhibit A'-properties as in (2b), arguing that the clause-boundary is not the only factor relevant to the A-/A'-distinction.

SCR out of noun phrases: Though Japanese has been regarded as a language which disallows Left-Branch Extraction (LBE), Takahashi and Funakoshi (2013) and Shiobara (2017) show that there are acceptable cases of LBE in Japanese. Thus, they show that LBE is possible when an extracted element is PP. Given this, consider (3b), where PP-LBE takes place:

- (3)a. Dareka-ga [minna-e-no tegami]-o kaita.
someone-NOM everyone-to-GEN letter-ACC wrote
'Someone wrote [a letter to everyone].' $\exists > \forall$; $*\forall > \exists$
- b. ?Minna-e-no₁ dareka-ga [t₁ tegami]-o kaita.
everyone-to-GEN someone-NOM letter-ACC wrote
'lit. [To everyone]₁ someone wrote [a letter t₁].' $\exists > \forall$; $*\forall > \exists$

What is important here is that (3b) is unambiguous, just like (3a). This means LBE does not affect scope. Note that movement of the PP in general can in principle affect scope. In fact, NP-internal movement of the PP can affect scope, as shown in (4), in contrast to movement out of noun phrases.

- (4)a. [Dareka-kara-no minna-e-no tegami]-o John-ga uketotta.
someone-from-GEN everyone-to-GEN letter-ACC John-NOM received
'John received [a letter from someone to everyone].' $\exists > \forall$; $*\forall > \exists$
- b. [Minna-e-no₁ dareka-kara-no t₁ tegami]-o John-ga uketotta.
everyone-to-GEN someone-from-GEN letter-ACC John-NOM received
'lit. John received [a letter [to everyone]₁ from someone t₁].' $\exists > \forall$; $\forall > \exists$

This means whether SCR affects scope depends on whether it occurs out of or within noun phrases.

SCR out of coordinate structure: Although it has been widely assumed since Ross (1967) that extraction out of a coordinate structure is banned (the Coordinate Structure Constraint: CSC), Oda (2017) shows extraction of a conjunct out of a coordinate structure is allowed in Japanese. Thus, (5b), where a first conjunct undergoes SCR out of the coordinate structure, is acceptable.

- (5)a. Dareka-ga [san-bon-izyoo-no ronbun-to hon]-o yonda.
someone-NOM three-CL-more.than-GEN paper-and book-ACC read
'Someone read [[more than three papers] and books].' $\exists > \text{more than } 3$; $*\text{more than } 3 > \exists$
- b. ?[San-bon-izyoo-no ronbun-to]₁ dareka-ga [t₁ hon]-o yonda.
three-CL-more.than-GEN paper-and someone-NOM book-ACC read
'[More than three papers and]₁ someone read [t₁ books].' $\exists > \text{more than } 3$; $*\text{more than } 3 > \exists$

Crucially, (5b) is unambiguous, just like (5a), even though the first conjunct is scrambled clause-internally; in other words, SCR out of a coordinate structure is necessarily A'-SCR like LBE.

Given that the whole coordinate structure coordinating the noun phrases is also a noun phrase, (5b) provides another piece of evidence that SCR out of noun phrases does not affect scope.

To summarize so far, we have provided the data which lead us to the new generalization that not only SCR out of clauses but also SCR out of noun phrases is necessarily A'-SCR.

Proposal: We argue that the generalization established above can be deduced based on the notion of phases (Chomsky 2000, 2001). Specifically, we propose that SCR shows A-properties when it takes place within a transfer domain, while SCR shows A'-properties when it crosses a transfer domain (see Miyagawa 2010:115-116 for a similar idea and its rationale). This is illustrated in (6), where H is a phase head and its sister (shaded) is a transfer domain:

- (6)a. $[\text{HP } H \text{ } \overbrace{[\dots \text{XP } \dots \text{t}_{\text{XP}} \dots]}^{\text{A}}]$ b. $[\text{HP } \text{XP } H \text{ } \overbrace{[\dots \text{t}_{\text{XP}} \dots]}^{\text{A}}]$

Following Bošković (2014) we adopt a contextual approach to phasehood, and assume that within the extended projection of lexical categories, the highest phrase constitutes a phase.

Consider first the case of LBE. Following Takahashi (2011), we assume that noun phrases in Japanese have the structure in (7), where K(=Case)P is a phase. Separate projections for NP and KP in Japanese are motivated by Particle-Stranding Ellipsis, where noun parts are deleted with a Case-particle surviving the ellipsis, as shown in (8) (Sato and Ginsburg 2007, Goto 2012).

- (7) $[\text{KP } [\text{NP } (\text{PP}) \text{N}] \text{K}]$

- (8)A. John-o doo sita no?

John-ACC how did Q

'What did you do to John?'

- B. $[e]\text{-o}$ kubinisita-yo.

-ACC fired-SFP

'I fired him.' (adapted from Goto 2012)

LBE then necessarily involves SCR out of a transfer domain (i.e. NP), as shown in (9b). Therefore, LBE shows A'-properties, and scope does not change in (3b). On the other hand, SCR within noun phrases in (4b) involves SCR within NP, as shown in (9b), and it does affect scope.

- (9)a. $[\text{CP } \dots \text{PP Subj } \dots [\text{KP } \text{t}_{\text{PP}} [\text{NP } \text{t}_{\text{PP}} \text{N}] \text{K}] \dots \text{C}] [= (3b)]$ b. $[\text{KP } [\text{NP } \text{PP}_2 \text{PP}_1 \text{t}_{\text{PP}_2} \text{N}] \text{K}] [= (4b)]$

Consider next SCR out of a coordinate structure. We assume the coordinated NPs (ConjP) to be the complement of a phase head K, as in (10a). We also assume, following Oda (2017), that the Conj head *to* 'and' encliticizes to the first conjunct NP₁ as in (10b). SCR first moves NP₁-*to* to the edge of KP out of ConjP and then to the clause initial position as in (10c) (see Oda 2017 for an analysis of circumvention of the CSC). SCR out of the coordinate structure thus has to cross a transfer domain (ConjP) and hence is necessarily A'-SCR, which does not affect scope.

- (10)a. $[\text{KP } [\text{ConjP } \text{NP}_1 [\text{to } \text{NP}_2]] \text{K}]$ b. $[\text{KP } [\text{ConjP } \text{NP}_1\text{-to} [\text{t}_{\text{to}} \text{NP}_2]] \text{K}]$

- c. $[\text{CP } \dots [\text{NP}_1\text{-to}] \text{Subj } \dots [\text{KP } \text{t}_{\text{NP}_1} [\text{ConjP } \text{t}_{\text{NP}_1} [\text{t}_{\text{to}} \text{NP}_2]] \text{K}] \dots \text{C}] [= (5b)]$ \uparrow_{encl}

Finally, consider (1b), the fact that clause-internal SCR affects scope. We assume there is an extended projection of the verb above vP (e.g. VoiceP or AspectP), and this phrase constitutes a phase since it is the highest in the extended domain. We suggest clause-internal SCR can affect scope, being A-SCR, since a scrambled phrase can move to the edge of the highest extended projection through the edge of vP, as in (11b). When PP moves to the edge of vP, PP is scrambled within a transfer domain (vP) and c-commands Ext(ernal argument), being able to scope over it:

- (11)a. $[\text{XP } [\text{vP } \text{Ext } [\text{vP } \text{PP } \text{V}] \text{v}] \text{X}]$ b. $[\text{XP } \text{PP } [\text{vP } \text{t}_{\text{PP}} \text{Ext } [\text{vP } \text{t}_{\text{PP}} \text{V}] \text{v}] \text{X}] [= (1b)]$

Note that the current analysis also allows SCR of an internal argument to directly target the edge of XP. It is then predicted that clause-internal SCR can be A'-SCR since it crosses a transfer domain in one step. This prediction is borne out (Saito 1992, Tada 1993). (12) would be incorrectly ruled out as a violation of Condition C if clause-internal SCR were necessarily A-SCR.

- (12) $[\text{Zibun}_i \text{zisin}_i]\text{-o}_1 \text{ John}_i\text{-ga}$ $\text{t}_1 \text{ hihansita.}$

self-ACC John-NOM criticized

'Himself_i, John_i criticized.'

In sum, we have argued for a new characterization of A'-SCR: not just SCR out of a CP but also out of noun phrases (including a coordinate structure) is necessarily A'-SCR. To explain the new data as well as the traditional distinction between clause-internal and long-distance SCR, we have proposed the phase-based characterization of the A-/A'-distinction with scrambling.

Selected ref: Bošković, Ž. 2014. Now I'm a phase, now I'm not a phase. *LI*. Miyagawa, S. 2010. *Why Agree? Why Move?* Oda, H. 2017. Two types of the Coordinate Structure Constraint and rescue by PF-deletion. *NELS*. Takahashi, M. 2011. Some theoretical consequences of Case-marking in Japanese. UConn diss. Takahashi, M. and Funakoshi, K. 2013. On PP Left-branch Extraction in Japanese. *PLC*. Saito, M. 1992. Long distance scrambling in Japanese. *JEAL*.

Two types of preverbal movement and duration/frequency phrases in Mandarin Chinese

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Introduction: In Mandarin (Chinese), there are (at least) two ways of object displacement to the preverbal position (i.e. immediately preceding the aspectually marked main verb): (i) *bare* object-preposing, (1a), and (ii) verb-copying, (1b), which can both be found in the presence of a duration/frequency phrase (DFP):

- (1) a. Lisi **zhe-ben shu** nian-le *san tian* b. Lisi nian **zhe-ben shu** nian-le *san tian*
Lisi this-CL book read-ASP 3 day Lisi read this-CL book read-ASP 3 day
'Lisi read this book for 3 days.' 'Lisi read this book for 3 days.'

For convenience, I will term (i) as Type I, and (ii) as Type II. Traditionally, the two types are considered independent constructions with no derivational relationship. Type I is usually analyzed as focus movement to a sentence-internal functional projection (Ernst and Wang, 1995; Shyu, 1995; Tsai, 1994; Zhang, 1997; a.o.), whereas Type II is deemed to be a rescue mechanism (Huang, 1988; Cheng, 2007; Tieu, 2008; a.o.) for satisfying both the theta-requirement of verbs and a phrase structural constraint in Mandarin that limits VPs to having only one syntactic complement (Huang, 1982), provided that the internal argument and the DFP compete for the complement position. By showing that Type I & II exhibit a tremendous distributional overlap, in addition to Paul (2002, 2005) and Badan's (2008) observation that the preposed object in Type I patterns the same with sentence-initial topics, but not with foci, I will argue for a unified analysis that Type I & II involving DFPs be categorized as one general movement type, i.e. IP-internal topicalization, moving different items (nominals in Type I & *copied* verbal constituents in Type II). **The distributions of Type I & II:** In addition to (1), Type I & II are also found in post-verbal manner adverbial/resultative constructions, (2), as well as in the case of 'argument split topics' (Liu, 2000), (3). Moreover, the displaced constituents (the DP in Type I & VP in Type II) can alternate between the preverbal and sentence-initial topic position:

- (2) ([(Nian) **zhe-ben shu**]), Lisi ([(nian) **zhe-ben shu**]) nian-de *hen kuai/lei*
read this-CL book Lisi read this-CL book read-DE very fast/tired
'Lisi read this book very fast.'/'Lisi got tired from reading this book.'

- (3) ([(Mai) **lan chenshan**]), wo ([(mai) **lan chenshan**]) mai-le *san-jian*
buy blue shirt I buy blue shirt buy-ASP 3-CL
'I bought three blue shirts.'

(Adapted from Liu (2000))

- (4) ([(Nian) **zhe-ben shu**]), Lisi ([(nian) **zhe-ben shu**]) nian-le *san tian/ci* (cf. (1))
read this-CL book Lisi read this-CL book read-ASP 3 day/time
'Lisi read this book for three days/three times.'

The topical properties: Paul (2002, 2005) and Badan (2008) refute the traditional focus analysis for Type I by showing that the preverbal object exhibits similar properties to those of sentence-initial topics, as opposed to those of (sentence-initial or preverbal) foci: **I. Questionability of the verb:** The main verb can be questioned in Type I and sentence-initial topicalization, but not in focus-constructions. **II. No indefiniteness:** Indefinite DPs cannot be sentence-initial topics, nor can they be preverbal in Type I, but they can be sentence-initial and preverbal foci. **III. Same hierarchical restriction:** The preverbal object in Type I can co-occur with a preverbal focus, and when it does, it must occur higher than the focus; whereas a focus cannot co-occur with another focus. The same pattern is found between sentence-initial topics and sentence-initial foci. This observation leads Paul (2002, 2005) and Badan (2008) to propose for Mandarin an IP-internal functional domain that parallels the IP-external (sentence-initial) functional domain: CP > TopP* > FocP > IP > **inner TopP** > FocP > vP. Type II also distributionally overlaps with Type I in being subject to the same hierarchy, i.e. the preverbal [V + Obj] constituent can co-occur with and must be higher than a focus. **Analysis:** Given their overlap-

ping distributions, we will hypothesize that Type I & II with DFPs involve topicalization of DPs and VPs respectively to the inner TopP. In the process of Type II, we will hold the *heterogeneous* view that treats Type II as involving different derivations in the DFP- and the post-verbal adverbial/resultative constructions due to their different underlying structures (Bartos, 2003), as opposed to the *homogenous* view, which gives the same underlying structure to both constructions, from which Type II is derived. Under the *homogenous* view, both the DFP and the adverbial/resultative phrase (AdvP/RsltP) occupy the complement position to the verb (Comp.V) (Huang, 1988; Cheng, 2007; Tieu, 2008): [_{VP} read [_{AdvP/RsltP} very fast/tired]/[_{DFP} 3 days/times]]. Given the phrase structural constraint in (10), and assuming that direct objects also occupy Comp.V, the object and the DFP/AdvP/RsltP cannot co-occur post-verbally.

(10) Phrase Structure Constraint (PSC) (Huang, 1982):

Within a given sentence in Chinese, the head (the verb or VP) may branch to the right only once, and only on the lowest level of expansion.

Cheng (2007) then proposes that the verb undergoes Sideward Movement (Nunes, 2004), where it copies and merges with the object, as a *last resort* to satisfy the theta-requirement of the verb: [_{VP₃} [_{VP₂} read₂ this book] [_{VP₁} read₁ [_{AdvP/RsltP} very fast/tired]/[_{DFP} 3 days/times]]], hence the verb-copying effect. However, unlike with the AdvP/RsltP, the object *can* co-occur with the DFP post-verbally. If we maintain the PSC, DFPs should be treated as syntactic adjuncts for not competing with the object for Comp.V. Moreover, the functional morpheme *de* (see (2)) only occurs with the AdvP/RsltP, but never with the DFP, also suggesting some structural differences between the two constructions. Based on these facts, Type II in the DFP-case should not be derived via Sideward Movement. Therefore, taking the *heterogeneous* view, we will propose a different derivation mechanism for Type II in the DFP-case. Since preverbal displacement shows the distribution of topicalization, we will assume that the *trigger* for Type II in the DFP-case is information-driven, i.e. the VP, as a conversational topic, copy-and-moves to the inner TopP. Following Gouguet (2006), we will also hypothesize that Type II involves head-movement of the verb to Asp⁰ (hence the aspectual marking on the main verb):

(12) [_{IP} Lisi_j [_{TopP} ____ [_{FocP} [_{AspP} -le [_{VP} t_j [_{VP} [_{DFP} 3 days/times] [_{VP} read [_{DP} this book]]]]]]]]].

Both heads of the movement chains are pronounced due to their non-c-command relation, giving rise to the verb-copying effect (Gouguet, 2006). As for the process of Type I, in the DFP-case, Type I involves the same operation that moves simply the object to the inner TopP from Comp.V:

(13) [_{IP} Lisi_j [_{TopP} ____ [_{FocP} [_{AspP} -le [_{VP} t_j [_{VP} [_{DFP} 3 days/times] [_{VP} read [_{DP} this book]]]]]]]]].

However, in the AdvP/RsltP-case, since the object can only merge via the verb's Sideward Movement, Type I is viewed as a derived case from Type II: The object topicalizes to the inner TopP from the *sideward moved* VP. And then one of the verb copies is deleted at PF due to some distinctness condition that disfavors two adjacent identical verbs (Tieu, 2008):

(14) [... [_{TopP} ____ ... [_{VP₃} [_{VP₂} read₂ [_{DP} this book]]] [_{VP₁} read₁ [_{AdvP/RsltP} very fast/tired]]]]].

Word order predictions: The *heterogeneous* treatment of Type II accounts for the ditransitive word order differences between the DFP- and AdvP/RsltP-cases. The VP-copying analysis in the former case allows for copy-and-moving different verbal constituents, leading to various attested word orders where both objects move forward with the verb ([... [_{TopP} [_{VP} V IO DO] ... [_{AspP} V-Asp⁰ ... [_{VP} DFP]]]), or only the DO does so, stranding the IO behind ([... [_{TopP} [_{VP} V DO] ... [_{AspP} V-Asp⁰ ... [_{VP} IO DFP]]]). The latter order is not possible in the AdvP/RsltP-case due to the PSC, i.e. the IO has to merge in the *sideward moved* VP: ✓[... [_{VP₃} [_{VP₂} V₂ IO DO] [_{VP₁} V₁ AdvP/RsltP]]]/*[... [_{VP₃} [_{VP₂} V₂ DO] [_{VP₁} V₁ (IO) AdvP/RsltP (IO)]]]. Our analysis also rules out in the DFP-case the ungrammatical ditransitive word order of a stranded DO (*[... [_{TopP} [_{VP} V IO] ... [_{AspP} V_i-Asp⁰ ... [_{VP} DFP [_{VP} t_i DO]]]]], since the moved [V IO] is not a constituent.

P-Stranding When a CP Has Shifted Rightward is Not Ungrammatical

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It has long been claimed that shifting a CP complement rightward across a PP makes stranding the P head of that PP impossible (Kuno 1973, 382, Wexler and Culicover 1980, Stowell 1981:

- (1) a. * Who did you say to that I would buy the guitar?
b. * Who will Andrews disclose to that he is married? (Stowell 1981, 208, (177))

Moulton (2015) has recently proposed an account of this effect. Importantly, no one has ever questioned this judgment. I show here, however, that this judgment is actually only shared by 20% of the population, while an equal number find such examples fully grammatical. The rest of the population finds them marginal. This speaker variability leads me to propose that the judgments are about acceptability, not grammaticality.

First, my own judgment as a native speaker of English is that the sentences in (1) are indeed unacceptable, but simply adding material in between the stranded P and the CP improves them considerably:

- (2) a. Who did she say to on Tuesday that she would leave on Thursday?
b. Who did she hint to in a very subtle way that she wanted to dance?

I checked this and the original judgment in a small survey, following the guidelines in Mahowald *et al.* (2016). I was surprised to find that the original judgments in (1) were not shared by all speakers of English. Two of six respondents actually found such sentences entirely well-formed (4 or 5 on a scale of 1 to 5). The others ranged all over the scale of acceptability. I therefore decided to do a large-scale acceptability survey using Amazon Mechanical Turk.

I made use of the free tools described in Gibson *et al.* (2011) and available at <http://tedlab.mit.edu/software/>, modified for the purposes of this experiment. The experiment used a 2x2 design with factors *Preposition Stranding (Strand)* versus *Pied-Piping (PPipe)* (the literature universally judges pied-piping to be completely acceptable), and *Extra Material (Extra)* versus *No Extra Material (None)*. Sentences were constructed in sets of four, on the following paradigm:

- (3) a. Strand-Extra: I don't know who she said to on Tuesday that she would leave on Thursday.
b. Strand-None: I don't know who she said to that she would leave on Thursday.
c. PPipe-Extra: I don't know to whom she said on Tuesday that she would leave on Thursday.
d. PPipe-None: I don't know to whom she said that she would leave on Thursday.

Twelve sets of sentences were constructed. Each subject saw only one member of each set. Subjects answered a comprehension question about every sentence and also rated every sentence on a scale of one to five, as follows: 1: Extremely unnatural, 2: Somewhat unnatural; 3: Possible, 4: Somewhat natural, 5: Extremely natural. The survey also included 24 filler or control sentences, half of which were grammatical and half of which were not, for reasons of word order.

100 subjects were recruited from within the USA. Three subjects were discarded from the analysis for getting less than 75% of the comprehension questions correct. Mean ratings and standard deviations are shown below for the remaining 97:

(4)		PPipe-Extra	PPipe-None	Strand-Extra	Strand-None	ctrl-gramm	ctrl-ungramm
	mean	2.947368	3.225352	2.670175	2.915789	4.340650	2.184211
	SD	1.1721692	1.1272053	1.1336661	1.1808015	0.9382648	1.2135161

Statistical analysis was run using R (R Core Team 2012). Responses were analyzed by means of linear mixed-effect modeling using the R-package lme4 (using lmer). The two fixed effects in the analysis were

Table 1: Summary of fixed effects in the mixed-effects model for the experiment

	Estimate	Std. Error	t value
(Intercept)	2.95399	0.11807	25.018
Strand	-0.28878	0.08042	-3.591
None	0.27082	0.08048	3.365
Strand:None	-0.02096	0.11379	-0.184

stranding vs. pied-piping (Strand) and extra material vs. none (None). The analysis included random intercepts for both subjects and items. Table 1 shows the results.

An exact p-value cannot be calculated, but we can take a t-value whose absolute value is greater than 2 to be statistically significant (Baayen 2008, 248). Both main effects are significant, but there is no interaction. Basically, pied-piping increases mean acceptability by 0.3 points over P-stranding, while adding extra material decreases it by 0.3. The effect of extra material is probably just an effect of length: longer sentences are generally rated lower.

Further analysis reveals no clear item differences. However, analysis of the participants reveals that there are subjects like me who rate Strand-Extra better than Strand-None: 29 out of 97, or 30%, patterned in this way. There are also subjects who rate Strand-None very high: 21 rated Strand-None 3.667 or higher, and 14 of those rated it 4 or higher. This means that 22% of the population does not find P-stranding unacceptable in the presence of a rightward-shifted CP, as the literature has unanimously claimed. That is, 22% of the population finds examples like those in (1) fully acceptable. Almost the same number (22) rated Strand-None 2 or lower. That is, the number of people who find such sentences fully acceptable is approximately equal to the number of people who find them fully unacceptable. The majority of speakers are somewhere in the middle, rating them just below 3 on a 5-point scale. There is only a small (but significant) difference between P-stranding and pied-piping, contrary to the stark contrast reported in the literature.

I therefore propose that the judgments here are about processing, complexity, familiarity, and tolerance for deviation from base and canonical ordering, all of which differ from speaker to speaker. I propose that the grammar permits extraction from all phrases within the VP. However, acceptability of extraction will depend on several factors. The two that are important for the case at hand are (i) whether all phrases are in their base positions within VP, and (ii) whether all phrases within VP are in their canonical order with respect to each other. I assume that CPs start to the left of PPs, so in (1) the CP has moved to the right. However, the order PP-CP, while derived, is also the most frequent and therefore the canonical order of the two in English. Speakers who find (1) unacceptable rank factor (i) over factor (ii). A phrase within VP is not in its base position, and so extraction (even extraction from a different phrase) is degraded. Speakers who find (1) acceptable instead rank factor (ii) over factor (i). The two phrases are in their canonical order in VP, and so extraction is acceptable. The majority of speakers who find (1) marginal rank the two factors approximately equally: they conflict, and marginal acceptability is the result. As for speakers like me who find that extra material improves acceptability in (2), the extra material comes before the dislocated CP, so the parser sees that the stranded P is in its canonical position with respect to the following material before it ever encounters the CP. The filler-gap dependency can be successfully resolved before the parser ever gets to a dislocated CP, and so factor (i) becomes irrelevant. For other speakers, it does not, either because they are slower to close off the dependency, or because they have already started another dependency, that of the missing CP object of the verb and the CP that must be coming later.

Note that this account predicts that P-stranding in the presence of heavy NP shift, as in *Who will he disclose to his marriage with Jane?* (from Stowell), will be degraded for all speakers, since the word order deviates from both base order and canonical order. Informal polling indicates that this is correct.

An important implication of this work is that the judgments in (1) cannot be used to support Moulton's leftward remnant movement analysis of apparent rightward displacement of CPs.

A passive analysis of morphological causatives in Korean

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Introduction: Morphological causatives in Korean show some intimate correlations with the passive across different domains of the grammar. Morphologically, the passive allomorphs, often represented as *-Ci* (i.e., *-i*, *-hi*, *-li*, *-ki*), constitute a subset of the set of the causative allomorphs, which include *-Cwu* (i.e., *-wu*, *-kwu*, *-chwu*) in addition to *-Ci*. Syntactically, the Agent argument of the stem verb is assigned dative Case in both the causative and the passive (in the causative, it may be assigned accusative Case alternatively; see below). This is shown in (1a) and (1b).

- (1) a. Swuni-ka kangaci-eykey son-ul mwul-li-ess-ta. (Causative)
Swuni-NOM puppy-DAT hand-ACC bite-CI-PST-DECL
'Swuni had the puppy bite the hand.'
b. Son-i kangaci-eykey mwul-li-ess-ta. (Passive)
hand-NOM puppy-DAT bite-CI-PST-DECL
'The hand was bitten by the puppy.'

And semantically, an apparent causative construction like (1a) may also have a passive interpretation if there is a close (mostly inalienable) possession relation between the surface subject and the surface object. That is, sentence (1a) is in fact ambiguous between (2a) and (2b).

- (2) a. Swuni had the puppy bite {her/someone's} hand.
b. Swuni was affected by the puppy's biting {her/*someone's} hand.

This paper explores the causative and its correlations with the passive in Korean illustrated above.

Proposal: I propose that the correlations arise because the causative may contain the passive as part of its structure; more specifically, I suggest that (i) the passive involves a variant of agentive Voice (Kratzer 1996) called 'passive Voice' whose function is to demote the Agent argument (Bruening and Tran 2015); and that (ii) the head responsible for causativization, Caus (Pylkkänen 2008), c-selects VoiceP in Korean (Jo and Vu, to appear) including passive VoiceP.

Analysis: First, I assume that the *-Ci* allomorphs are morphological realizations of Voice heads (Kim 2009, 2011), based on the observation that they appear not only in the passive (or in the causative for that matter) but also in the inchoative (3) or in the transitive (4). Example (3) must not be the passive since Agent cannot be realized; example (4) must not be a case of causativization, at least from a synchronic perspective, since the verb does not have an intransitive counterpart.

- (3) Menci-ka (*Cheli-eykey) nal-li-ess-ta.
dust-NOM (*Cheli-DAT) float-CI-PST-DECL 'Dust floated in the air (*by Cheli).'
(4) Swuni-ney-ka canchi-lul pel-i-ess-ta.
Swuni-family-NOM party-ACC set-CI-PST-DECL 'Swuni's family threw a party.'

If so, then the subset-superset relation of the allomorphs can easily be accounted for: the passive contains only VoiceP headed by passive Voice realized as *-Ci*, but the causative contains CausP in addition to VoiceP, and Caus is immediately adjacent to Voice since Caus c-selects VoiceP; therefore, the form of Voice in the causative but not in the passive may undergo additional rules of contextual allomorphy (cf. Embick 2012) resulting in Voice having the form of either *-Ci* or *-Cwu*.

As for Case marking, the alternation between accusative and dative Case in the causative follows from the fact that Caus may take *any* type of VoiceP as its complement. On the one hand, if Caus takes active VoiceP, the Agent argument of the stem verb is not demoted and thus must be assigned structural Case; accordingly, it is assigned accusative Case by a higher Case-assigning head (presumably Voice above CausP; see Pylkkänen 2008). On the other hand, if Caus takes passive VoiceP, the Agent argument is demoted by passive Voice and thus should be realized as an adjunct marked with (oblique) dative Case, just as the Agent argument in the passive.

Finally, the ambiguity of example (1a) disappears if the Agent argument is marked with accusative Case instead of dative Case: the sentence is unambiguously causative. The ambiguity also disappears if the surface object is marked with nominative Case instead of accusative Case: now the sentence is unambiguously passive. What the pattern suggests is that the ambiguity in (1a) is structural in nature. Specifically, the passive interpretation of (1a) in (2b) arises because the surface order can be generated from the structure of the passive derived from a double accusative construction like the following (cf. Tomioka and Sim 2005).

(5) Kangaci-ka Swuni-lul son-ul mwul-ess-ta.

puppy-NOM Swuni-ACC hand-ACC bite-PST-DECL 'The puppy bit Swuni's hand.'

If example (5) is passivized, demoting 'puppy' and promoting 'Swuni', then the resulting structure produces the same linear order with example (1a). That is, although the two interpretations in (2a–b) share the same surface order (1a), they are read off from two different structures: (2a) from the structure involving CausP and passive VoiceP, and (2b) from the structure involving only passive VoiceP. Under this view, example (1a) is unambiguously causative if the Agent argument is marked with accusative Case, because only in the causative the argument can be not demoted (by Caus selecting active VoiceP) and so receives structural Case. And the example is unambiguously passive if its surface object is marked with nominative Case, because object promotion takes place only in the passive. The current view may also be supported by the fact that the close possession relation required between the surface subject and object in (1a) in order to be interpreted as the passive as in (2b) holds between the two accusative objects in (5) as well. Also, there are cases where the ambiguous sentence describes two distinct events in the causative and passive interpretations.

(6) Swuni-ka Pwuni-eykey cec-ul mwul-li-ess-ta.

Swuni-NOM Pwuni-DAT breast-ACC bite-CI-PST-DECL

When example (6) is interpreted causatively, it may describe a feeding event and mean that Swuni breastfed Pwuni. In contrast, when it is interpreted passively, it can never describe a feeding event, i.e., *'Swuni was breastfed by Pwuni'; instead, it can only mean that there was a biting event and it affected Swuni, i.e., 'Swuni was bitten in her breast by Pwuni'. The contrast again suggests that the two interpretations involve two distinct structures contra Kim (2011) or Kim and Pires (2003).

Consequences and implications: It is a well-known crosslinguistic tendency that when an intransitive verb, such as an unergative or unaccusative verb, is causativized, the argument of the stem verb can only receive structural Case (in the case of Korean, it can only receive accusative Case, not dative Case). The tendency follows from the current analysis: neither unergative nor unaccusative verbs are compatible with passive Voice (Bruening 2016; Bruening and Tran 2015), and accordingly in these environments, Caus can only take active or nonactive VoiceP where there is no argument demotion. In addition, there are many languages other than Korean which also show some correlations between the causative and the passive, often involving shared morphology: Manchu, Evenki (Nedjalkov 1993), French, Mongolian (Washio 1993), Mandarin (Xu 1994), Cantonese (Yap and Iwasaki 2009), Hungarian (Haspelmath 1990), etc. I believe the current analysis may apply to those languages as well with some modifications for the language-specific factors. The comparative study of Korean and the other languages regarding the causative-passive correlation is left for future research.

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Session 5B Abstracts

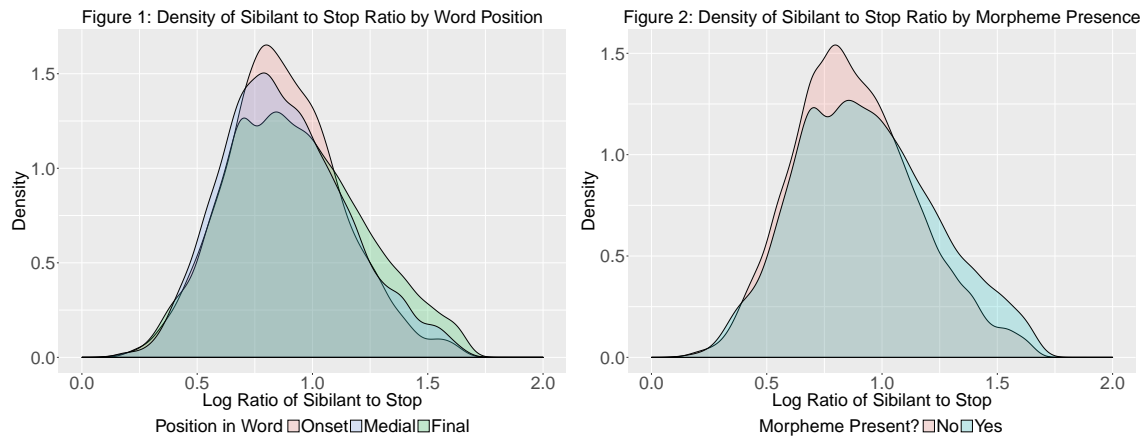
Introduction: This study explores the gestural timing of stop-sibilant (TS) and sibilant-stop (ST) sequences in the Buckeye Corpus (Pitt et al., 2007), corroborating previous studies suggesting that gestural variability and perceptual optimization play a role in the incipience of metathesis.

Background: ST/TS sequences are well-known to metathesize. Stops have weak internal place cues and are best perceived when adjacent to (preferably preceding) a vowel (Fujimura et al., 1978). Furthermore, an adjacent sibilant may mask the acoustics of a stop (Mielke, 2001) and can trigger segmental order confusion through auditory stream decoupling (Bregman and Campbell, 1971). Perceptual explanations argue that metathesis occurs to bring phonemes into more salient positions, as mirrored diachronically (Steriade, 2001; Hume, 2004) and experiments have shown that VTSTV sequences are biased to be heard as VSTV (Graff and Scontras, 2012; Jones, 2016).

Yanagawa (2003) explores the role of production in metathesis. She demonstrates that in Hebrew, consonant clusters show greater variability of gestural timing in word-medial vs. word-onset position and across morphemes vs. within the same morpheme. Yanagawa hypothesizes that weaker gestural cohesion can lead to metathesis, particularly for TS/ST clusters, as has happened in Hebrew. We attempt to replicate this finding in a much larger sample size using English.

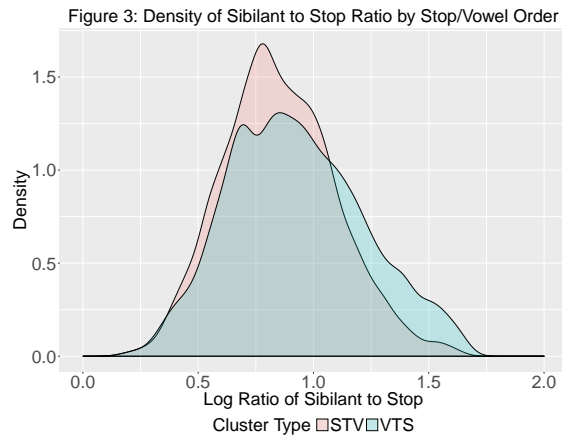
Methodology: We extracted 17,686 ST/TS sequences from the Buckeye Corpus of 40 English speakers in Columbus, Ohio. The independent variable was the *log ratio of sibilant to stop duration* to normalize for speech rate. The dependent variables were *position in the word*, *morpheme boundary presence*, and *cluster type* (whether the stop precedes (STV) or follows (VTS) a vowel). Greater gestural variability (reflected in variability of the ratio) is expected in non-initial position and heteromorphemically. If gestural variability is a source of metathesis, VTS sequences should also be expected to be more variable as they are perceptually dispreferred to STV sequences.

Results:



A linear mixed effects analysis was carried out with random intercepts for speaker and by-speaker random slopes for the effects of position in the word and morpheme presence. The analysis revealed cluster type and position in the word to be significant (all p 's < .0001). Postvocalic stop clusters (VTS) have greater sibilant-to-stop ratios than prevocalic ones (STV) (Fig. 4). Medial and final clusters have lower ratios than onset clusters, an unexpected finding. Morpheme presence was not significant ($p = 0.97$). A Levene's Test reveals that the variances of the distributions by word position ($F(2,17673) = 91.94$), morpheme presence ($F(1,17674) = 112.88$), and cluster type

($F(1,13728) = 222.05$) are significantly different (all p 's < .0001). Clusters show greatest variance in final position, followed by medial, then onset (Fig. 1). Presence of a morpheme boundary also yields greater variance (Fig. 2) and VTS clusters have greater variance than STV ones (Fig. 3).



The results corroborate Yanagawa's findings of greater variance in both non-onset and heteromorphemic clusters and also show that word-final clusters have even greater variance than medial ones. Yanagawa's theory of greater variance in unstable clusters is also supported by the greater variance in VTS vs. STV clusters. Furthermore, the model reveals a significantly larger sibilant-to-stop ratio in VTS vs. STV clusters. While the relatively weaker perceptualness of stops in VTS clusters has been attributed to preference for VC over CV transitions, this result also suggests that the longer sibilant may also be more likely to mask the stop and to contribute to segmental order confusion in VTS clusters. These findings offer a view that the common metathesis of VTSV to VSTV may be driven both by segmental order confusion due to longer sibilant noise and gestural variability as well as by perceptual optimization to bring the stop to a position in which it is less masked.

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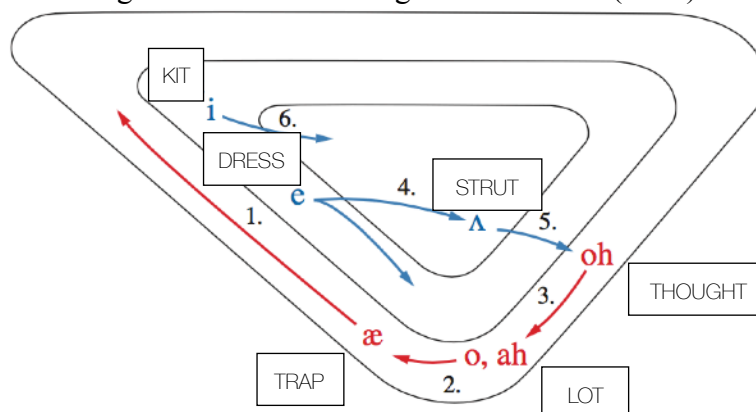
The Northern Cities Shift and Low Back Merger in 3 Cities in Northeastern Pennsylvania

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In this study I examine the Northern Cities Shift (NCS) and low back merger in the three largest cities in Northeastern Pennsylvania: Scranton, Wilkes-Barre, and Hazleton. I find that these cities exhibit non-participation in the NCS and merger still in progress.

Background : Labov et al. (2006) categorize Northeastern Pennsylvania with the Inland North. Following this categorization, I expect the region to demonstrate the two defining features of the Inland North: the NCS (Figure 1, using Wells Lexical Sets, 1982) and related resistance to the low back merger (LOT-class and THOUGHT-class merger). However, Dinkin (2009) calls into question the region's participation in the NCS, and Herold (1990) reports low back merger in progress in the region. Further, several recent accounts (e.g., Wagner et al. 2016, Dinkin and Thiel 2017) indicate retraction of the NCS across in Inland North, warranting the collection of new NCS data. To address these competing accounts, I examine, in apparent time, the NCS and low back merger in Northeastern Pennsylvania.

Figure 1: NCS according to Labov et al. (2006)



Hypothesis : Given Labov et al.'s (2006) findings, I predict inconsistent NCS participation, suggesting diffusion of the shift rather than incrementation (Labov 2007). Additionally, given Herzog's Principle (Labov 1994), which states that "mergers expand at the expense of distinctions," I expect further expansion of the low back merger.

Methods : Thirty sociolinguistic interviews (Labov 1984) were conducted, each including a period of spontaneous speech and a period of formal speech (minimal pair judgements and a word list reading). Half of the 30 interviewees were men, and half women. Twelve grew up in Scranton, eleven in Wilkes-Barre, and seven in Hazleton. The interviewees were a wide range of ages: the oldest born in 1930 and the youngest in 1996. The recorded speech samples were force aligned and extracted using the FAVE-suite (Rosenfelder et al. 2014). Formant frequency output from FAVE was normalized in NORM (Kendall and Thomas 2007) using the modified Neary normalization method used by ANAE (Labov et al. 2006). Only primarily and secondarily stressed tokens were included for analysis. Following Herold's (1990) parameters, pre-rhotic tokens were excluded for analysis of low back merger.

Results (Northern Cities Shift) : None of the speakers met any of Labov's (2007) criteria for inclusion in the Inland North. Further, EQ1 index measurements (Dinkin 2009) were consistent with communities outside the Inland North (Figure 2). In apparent-time, I find DRESS class lowering and backing (consistent with NCS), but TRAP class also lowering and backing

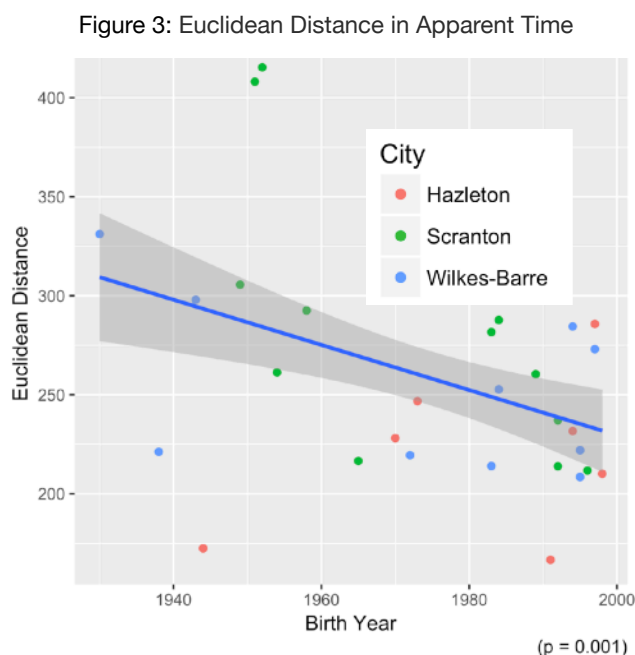
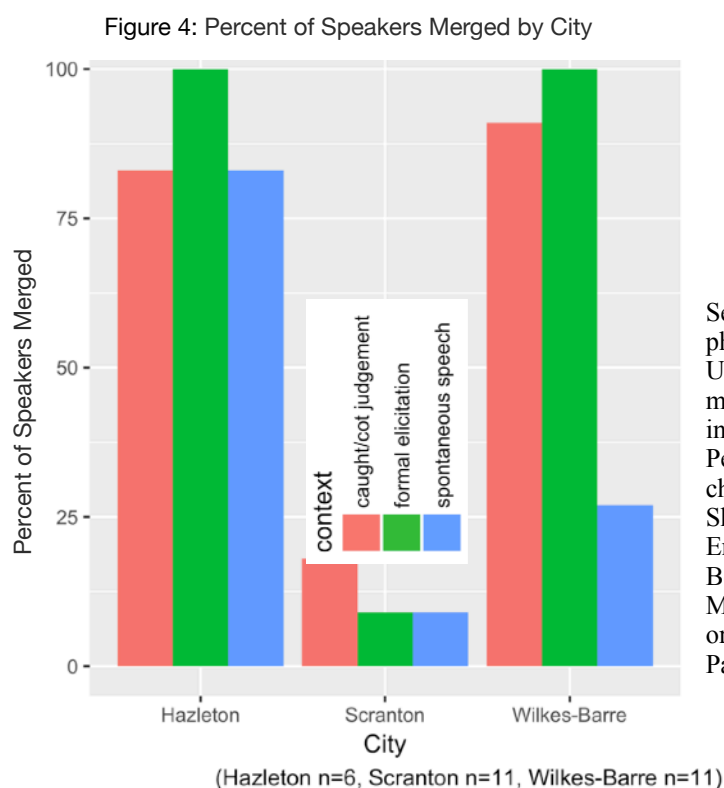
(inconsistent with NCS). For the other three possible NCS features (LOT class, STRUT class, THOUGHT class), I do not find strong apparent-time trends.

Results (Low Back Merger) : Euclidean distance in apparent time (Figure 3) suggests progression of merger throughout the region. However, speakers of all ages in Scranton continue to make low back production distinctions according to t-tests and Pillai scores. The Scranton judgment data matches the production data. In Wilkes-Barre and Hazleton, I use t-tests to find that speakers continue to make F2 distinctions in spontaneous speech, but are merged in formally elicited speech. Further, I find that their judgment data suggests perceptual merger. The Wilkes-Barre/Hazleton pattern is suggestive of near-merger, with several cases of a Bill Peter's Effect (Labov 1994) (i.e., merger in perception and formally elicited speech, but not spontaneous speech). My t-test findings by city are summarized in Figure 4.

Discussion : I find that none of the cities surveyed in Northeastern Pennsylvania participates in the NCS according to the criteria used by Labov et al. 2006. From this, I conclude that the NCS was either never fully present or was present but has retracted. I find a state of near-merger in Wilkes-Barre and Hazleton, with evidence of a community-wide Bill Peter's effect; in Scranton, speakers continue to make distinctions. These results support the following conclusions: near-merger is a legitimate path to the low back merger that can occur across a community; and, the low back merger is not necessarily expanding rapidly, even in a region where there's no evident reason for it not to spread.

Figure 2: EQ1 Index

Community	Mean EQ1	Standard Deviation	n
Scranton	-91	15	12
Wilkes-Barre	-93	30	11
Hazleton	-100	13	7
Telsur Inland North	+22	72	61
Telsur non-IN	-111	55	385



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Production and perception of word-initial Korean stops undergoing sound change

Andrew Cheng (UC Berkeley)

Korean exhibits a three-way “laryngeal” contrast in manner of stop and affricate articulation [1] that has been undergoing a tonogenetic change in production and perception in the Seoul metropolitan area. In this sound change, lenis stops’ VOT increases in word-initial position, nearly merging with the VOT of aspirated stops, and at the same time, f_0 of the following vowel of aspirated stops rises, making f_0 the primary cue for contrast [2,3]. Thus, average *aspirated-lenis* VOT is decreasing, while mean *aspirated-lenis* f_0 is increasing. This change is manifested in both production and perception. As a change in progress, not only do younger speakers advance the change, female speakers also have been shown to lead over males [5], and speakers with L2 English experience lead over those without [6]. While the bulk of this research focuses on the sound change in peninsular Korean, only one study has examined its progress in the Korean diaspora and found evidence in Korean Canadian speakers of “VOT drift” toward the phonological patterns of English [7]. Determining the extent to which members of a diasporic language community participate in a sound change may shed light on how factors such as migration and unstable L1 input inhibit generational transmission of changes in progress (the “transition problem” [8]).

This study focuses on Korean L1, English L2 (heritage Korean) speakers’ changing use of VOT and f_0 to distinguish lenis and aspirated stops in both production and perception, as well as the social valuations of these acoustic variables. Thirty-six Korean sentences were designed to elicit the lenis and aspirated stops and affricates in prosodically unmarked position. They were read aloud by thirty-two speakers of Korean who had come to the United States at varying ages: adolescence (first generation immigrants), from birth to 2 years old (second generation), or at any point in between (1.5 generation). Their speech was then played back to Korean American listeners recruited through Mechanical Turk, who judged the utterances on speaker attributes such as native-like proficiency and perceived generational group.

Production results show that second generation Korean Americans do not participate in the sound change of their native South Korean same-age counterparts. A significant effect of age of immigration was found for use of f_0 contrast in females ($p=0.02$); second generation speakers did not demonstrate the increased mean *aspirated-lenis* f_0 (Fig. 1a). A significant effect of generation was found for VOT of aspirated stops for both genders ($p=0.007$), but not for lenis stops; however, most speakers maintained a similar, near-zero amount of VOT contrast between both stops, as no significant effects of generation were found for mean *aspirated-lenis* VOT (Fig. 1b). Thus, while second generation speakers may demonstrate the VOT merger, it is not occurring in tandem with the rise in f_0 contrast.

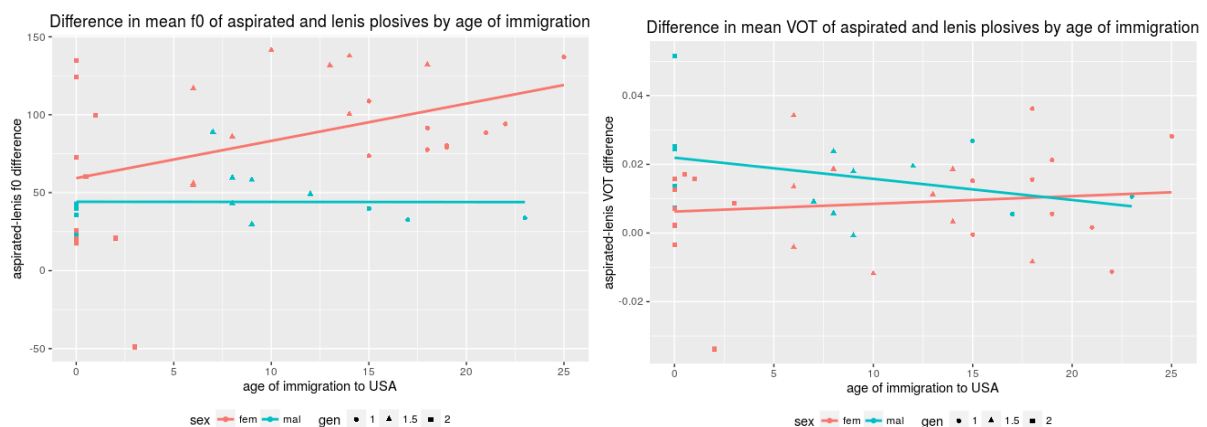


Figure 1a. f_0 difference of word-initial aspirated and lenis stops and affricates by age of immigration. Figure 1b. VOT difference by age of immigration.

In the perception task, a speaker's generational group was very easily identifiable by listeners (Pearson's $R=0.681$, $p<0.001$ (Fig. 2a)). However, the correlation between a speaker's perceived age of immigration and their use of VOT and f0 to contrast lenis and aspirated stops was mild (for VOT: $R=-0.439$, $p=0.025$ (Fig. 2b); for f0: $R=0.422$, $p=0.025$).

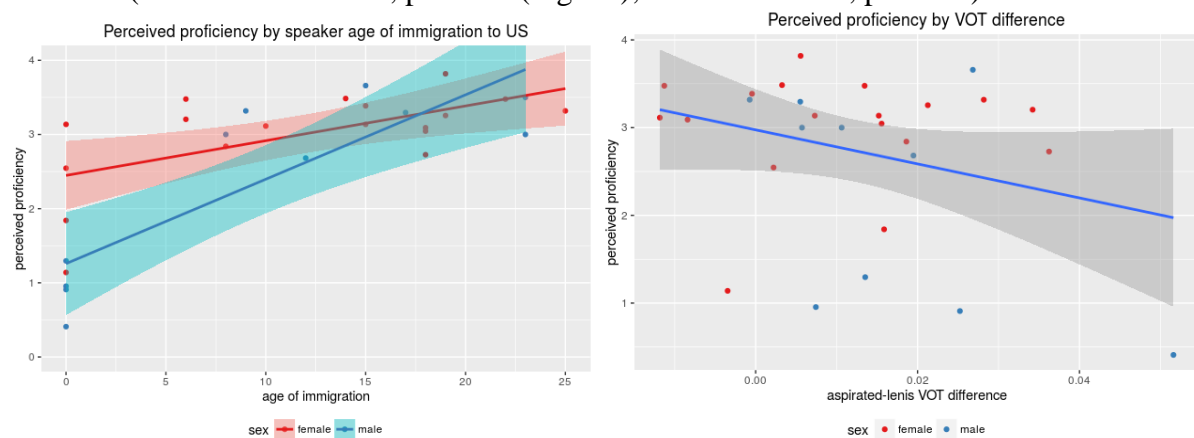


Figure 2a. Speakers' perceived proficiency in Korean is positively correlated with their age of immigration.
Figure 2b. Correlation between perceived proficiency and aspirated-lenis VOT difference (greater difference indicates less merged) is mildly negative.

A closer look at the individual differences among speakers reveals that those with the highest proficiency rankings demonstrate the tonogenetic sound change and closely resemble first generation speakers, but the lowest-ranked speakers diverge from the norm in varying ways: some speakers ranked low in proficiency still demonstrated progressive use of VOT and f0, indicating that their proficiency evaluation may depend on other speech factors.

It is concluded that while the tonogenetic sound change is robust in Seoul Korean, its progress has been impeded in the diasporic second generation community, and that these acoustic cues are not used as sociophonetic markers for native Korean identity. These findings add to the recent literature that focuses on heritage speakers [9, 10] and promotes further study of immigrant language contact situations such as this in order to elucidate how the heritage speaker acquires and maintains a bilingual phonological system.

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Korean vowel mergers: contrastive hierarchies and distinctive features

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The present paper provides phonological representations accounting for Korean vowel changes. Especially, I suggest phonological representations employing contrastive hierarchy of distinctive features (Ko 2009; Oxford 2015). Data from Middle Korean (MK), Early Modern Korean (EModK), and Modern Korean (ModK) substantiate how phonological models can provide systematic explanations for diachronic/synchronic changes.

The representations are built upon two theoretical frameworks: the model of distinctive features (MDF) (Avery & Idsardi 2001) and the contrastive hierarchy derived from the Successive Division Algorithm (SDA) (Dresher 2009). The former model provides building blocks while the latter sketches a skeleton of segmental representations. A building block is called “dimension” in accordance with Avery & Idsardi’s term. Each dimension node is marked/unmarked with a specific dimension having its terminal dependent gestures. These dependent gestures are what we know as features (e.g., [high], [round], [spread]). The realization of a dimension into a specific gesture is referred to as a completion rule. Moving on to the contrastive hierarchy, a Dresherian analysis generates tree-like structures for phonemes. Just like syntactic trees, branches are binary so a mother node bears two daughter nodes (hence, sisters). The order of the feature ranking is determined by SDA.

Based on the idea of features and hierarchy, Oxford (2015) proposes four hypotheses for a sound change model. Among those four, I introduce two relevant hypotheses in this paper: 1) sisterhood merger hypothesis (SMH), meaning structural mergers apply to contrastive sisters, and 2) contrast shift hypothesis (CSH), meaning contrastive hierarchies can change over time (p. 317).

To test Oxford’s model, four cases of Korean vowel mergers are examined. Firstly, I reanalyze an example of /ʌ/ sound change in MK (to /i/) and EModK (to /a/) presented in Ko (2009). He argues that /ʌ/ in MK take two distinct paths of merger. The first merger, /ʌ/→/i/, happens in the 16th century (MK). Ko suggests a feature hierarchy of [coronal] > [low] > [labial] > [RTR] which I reanalyze it as Tongue Thrust (TT, completed with [front]) > Tongue Height (TH, completed with [low]) > Labial (Lab, completed with [round]) > Tongue Root (TR, completed with [RTR]). According to this representation, /ʌ/→/i/ in MK are sisters sharing the same mother node. Thus, the first step of /ʌ/→/i/ merger satisfies the sisterhood merger hypothesis (SMH). The second merger, /ʌ/→/a/, takes place in the mid-18th century (EModK). Evolving from MK to EModK, the order of features alters (i.e., CSH) and /ʌ/ and /a/ forms a new sisterhood under the following hierarchy: [coronal] > [low] > [high] > [lab], which I restate it as TT > TH > TR > Lab with the same completion rules (Fig. 1 & Fig. 2). The examples below illustrates the /ʌ/→/i/ and /ʌ/→/a/ merger.

- 1st merger: /hanʌ/ > /hani/ ‘sky’ /tarʌ-/ > /tari-/ ‘different’
- 2nd merger: /pʌram/ > /param/ ‘wind’ /tʌ/ > /tal/ ‘moon’ (from Ko, 2009, p. 9)

In terms of synchronic change, two instances of ModK vowel mergers corroborates Oxford’s model. First example is the loss of Labial dimension (completed with [round]) of front vowels. ModK consists of 10 vowels including two high front rounded vowels /y/ and /ø/. Overtime, they have been diphthongized to [wi] and [we]. For example, /ky/ ‘ear’ becomes [kwi] and /nø/ ‘brain’ realizes as [new] in ModK. Originally /y/ and /i/ are sisters and /ø/ and /e/ are sisters (Fig.

3); therefore, SHM explains why those two sound merged to /i/ and /e/. The other example is the most recent merger, the /e/~/æ/ merger (Fig. 4). /e/ and /æ/ are sisters governed by the unmarked Labial dimension (Oral Place). Although the orthography of /e/ and /æ/ remains distinctive (note that Korean graphemes are phonemic), the non-high front vowels are allophonic, i.e., [e]~[æ] and some linguists now transcribe the sound as /ɛ/. For example, /ke/ ‘crab’ and /kæ/ ‘dog’ are minimal pairs but phonetically they are pronounced as [ke]~[kæ]~[kɛ]. Again, SHM supports the merger of these two vowels.

In short, Oxford’s model of sound change (2015) is applied to data from MK to ModK based on contrastive hierarchy of distinctive features. The results strongly support that Oxford’s model can provide systematic accounts for the diachronic and synchronic vowel mergers of Korean vowels as well. Therefore, the present study strengthens the argument that the contrastive illustration posited on distinctive features can provide a coherent and systematic tool for analyzing sound changes.

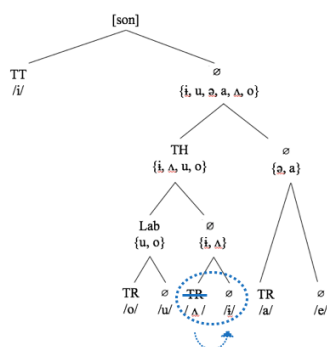


Fig. 1 MK /ʌ/→/i/ merger

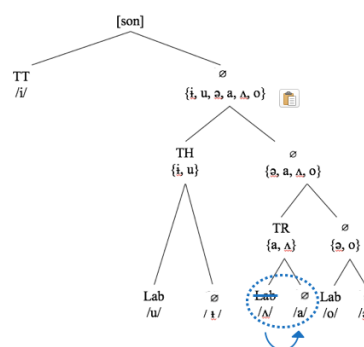


Fig. 2 EModK /ʌ/→/a/ merger

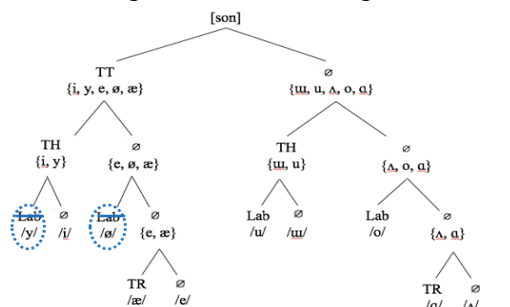


Fig. 3 ModK /y/→[wi] and /ø/→[we] mergers

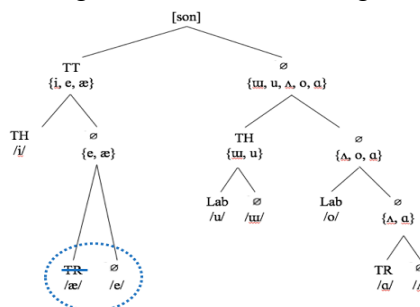


Fig. 4 ModK /e/~/æ/ merger

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Poster Abstracts

Tonal Cues to Contrastive Phonation in Macuiltianguis Zapotec

Maya Barzilai (Georgetown University) & Kate Riestenberg (Smithsonian Institution)

Languages often employ multiple acoustic cues to convey a single phonological contrast (e.g., Denes, 1955; Lisker, 1986). Tone and phonation, two laryngeal cues, can exist in this redundant relationship: contrastive tone is often additionally cued by non-contrastive creaky phonation; conversely, contrastive phonation type can be additionally cued by non-contrastive tonal movement (Gordon & Ladefoged, 2001). This study examines Macuiltianguis Zapotec (MacZ), a Northern Zapotec language in the Otomanguean family, analyzing a previously undocumented F0 cue to contrastive phonation. MacZ is “laryngeally complex” (Silverman, 1997), containing both contrastive phonation and lexical tone (Riestenberg, 2017). Therefore, the F0 cue to phonation, a spiking pattern in the F0 that appears on modal vowels but not on checked ([V[?]]) vowels, surfaces in MacZ in addition to and independently of phonemic tonal contrasts.

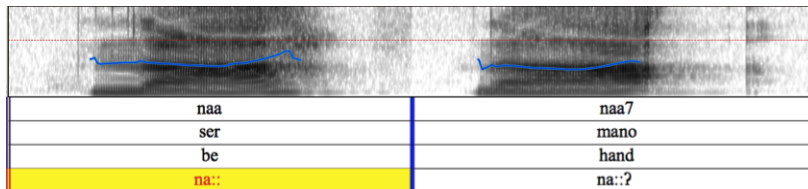


Figure 1: Minimal pair [ná:] / [ná:ʔ] with contrastive phonation; F0 spike on modal token

This study examines MacZ tokens produced by three native speakers, elicited from a word list. Of the data elicited, the study examines only word-final vowels that are phonologically either modally voiced or checked. The tonal spike analyzed is operationalized as a visible rise followed by a fall in F0, occurring during the last third of the vowel duration, with a difference of about 20Hz and lasting about 5-10 ms. Presence or absence of F0 spike was coded by acoustic profiling of the pitch track.

	Modal	Checked	
Spike	196	61	
Steady	127	214	598

Table 1: Number of phonetically spiking and steady tones by phonation type

A test of equal proportions on the data as reported in Table 1 revealed that the proportion of tokens with pitch spikes on modal vowels was significantly higher than that on checked vowels ($\chi^2(1, N=88.273, p<0.001)$). Figure 1 illustrates that given the minimal pair [ná:] / [ná:ʔ], the F0 spike surfaces only on the vowel with underlying modal voicing. Therefore, the F0 rise across the syllable that is present in both examples is the principle cue to lexical tone, while the spike in F0 at the end of [ná:] is a cue to modal phonation.

The F0 spike examined here appears to be a tonal cue to contrastive phonation, supplementary to the phonation cue itself and distinct from the F0 cue to lexical tone. Unlike in other Otomanguean languages, in which contrastive phonation occurs throughout the vowel and especially in the early portions thereof (Garellek & Keating, 2011), the glottalization

characteristic of a checked vowel in MacZ occurs only at the end of the vowel. As vowel-final phonation differences are difficult to perceive, the need for an additional perceptual cue to phonation contrasts in MacZ is not surprising.

Another possible explanation is that the spiking pattern in F0 is the surfacing of an intonational boundary tone, appearing here as an aspect of list intonation, which is prevented from surfacing by some property of the checked phonation type. Specifically, checked vowels may have an underlying or historical low tone, as glottalization and low F0 require similar articulatory configurations (e.g., Gordon & Ladefoged, 2001). Though this postulated low tone does not surface itself, it may block an intonational tone from surfacing. Alternatively, it may be the relatively short duration of checked vowels compared to modal vowels that simply does not provide enough sonority on which the proposed boundary tone may surface. In either case, if the phenomenon examined here is a cue to an intonational tone, its absence on checked vowels nonetheless provides an additional cue to contrastive phonation type.

In order to further understand the role of the F0 spike observed in the present study, it would be necessary to analyze the speech of more MacZ speakers, including speech that is not elicited from a word list. This would provide further insight into any intonational properties of this spike and other aspects of its distribution and, perhaps, variability. In addition, perception studies would illuminate the extent to which the spiking pattern observed here is necessary for or aids in the correct perception of contrastive phonation types in MacZ. Research of this nature would allow for further analysis of the phenomenon observed in the present study, in which one acoustic cue, F0, is responsible for independently encoding two different phonological contrasts.

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Gender-Region Interactions in Perceptual Dialectology Evaluations of Southern Speech
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This paper is grounded in Dennis Preston’s finding that “a much higher proportion of respondents... identified a ‘Southern’ speech area than any other.” (1993). He argues that the unusual regional distinctiveness of the American South can be attributed to judgments about language correctness. In this paper, I examine how perceptual dialectology judgments about the South’s areal distinctiveness relate to judgments about speaker gender. In what ways does perceived speaker gender affect the intensity of regional dialect judgments?

The survey is framed as a measure of general dialect sensitivity to elicit candid judgments from participants. It utilizes twelve audio speech samples from the GMU Speech Accent Archive; in each clip, individuals from a variety of US geographic regions read an identical, content-neutral script. Participants were asked to respond to each audio prompt by reporting language judgments in five-item Likert scales for six attitudinal labels: intelligent, educated, wealthy, likable, formal, and correct. Participants were also asked to record perceived speaker gender. Then, participants were prompted to record geographic origin perceptions on a clickable map of the US. Lastly, participants were presented with the actual origin of the speech sample after submitting the clickable map. This measure shifted participant focus away from the attitudinal judgments and towards geographic accuracy, allowing for more candid judgments to emerge in the Likert tasks. The clickable maps were then compiled with heat mapping technology in Qualtrics to produce composite visual representations of clicking data for each of the twelve speech samples.

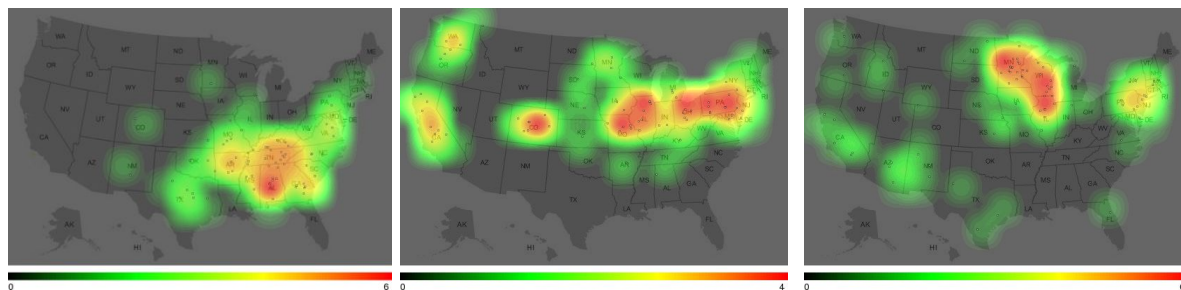


Figure 1: Orange Beach, AL (L), Seattle, WA (C), and Wisconsin Rapids, WI (R)

Single sample t-tests were performed on each attitudinal category for each audio sample, and these results were compared to composite heat maps to draw combined conclusions. The results of this study reproduce Dennis Preston’s finding that the South is regionally distinctive. Specifically, this data suggests that perceptions of the South are relatively geographically compact, while geographic perceptions of non-southern speech are very spread out and ambiguous. Two sample t-tests suggest that reactions to speech perceived to originate from the American South are starkly divided based on the perceived speaker gender. Speakers perceived to be women are assigned significantly more positive attitude ratings than speakers perceived to be men across five attitudinal categories (intelligent, educated, wealthy, likeable, and formal).

Category	Women Mean	Men Mean	P-value
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Intelligent	2.65	2.27	.000***
Educated	2.57	2.28	.001**
Wealthy	2.63	2.44	.022*
Likeable	3.60	3.41	.024*
Formal	2.53	2.30	.014*
Correct	2.86	2.80	.528

Table 1: Likert judgments for South-perceived speech

For speech samples perceived to originate from outside the compact southern region, speakers perceived to be women receive *less* positive attitude ratings than speakers perceived to be men across five categories, four of which were also significant for perceived southern speech.

Category	Women Mean	Men Mean	P-value
Intelligent	3.30	3.53	.000***
Educated	3.40	3.59	.002**
Wealthy	3.16	3.25	.116
Likeable	3.21	3.38	.009**
Formal	3.01	3.21	.004**
Correct	3.33	3.53	.002**

Table 2: Likert judgments for Non-South-perceived speech

I argue that linguistic representations in popular media selectively construct narratives about these speakers, and explore how exposure to linguistic stereotyping motivates unique gender-region interactions in perceptions of southern speech.

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QP-intervention Condition as a Constraint in Focus Environments

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Intro Cable (2007, 2010) proposes a QP-intervention Condition stated in (1). This constraint precludes a QP-projection headed by a Q-particle intervening between a functional head and its arguments.

In (2), the Tlingit Q-particle *sá* intervenes between a postposition and its complement, leading to ungrammaticality. In contrast, (3) has *sá* coming after the postpositional phrase and is grammatical.

- (1) The QP-intervention Condition : A QP cannot intervene between a functional head and a phrase selected by that functional head. Such an intervening QP blocks the selectional relation between the functional head and the lower phrase.
- (2) Aadoo teen *sá* yigoot? (3) *Aadoo *sá* teen yigoot?
 who with Q you.went who Q with you.went
 Who did you go with? Who did you go with?

The QP-intervention Condition, however, faces several challenges. First, according to Cable’s classification criteria, Japanese *mo* is a Q-particle. However, *mo* in plain quantificational sentence does not exhibit QP-intervention effect, shown in (4). *mo* only exhibits the QP-intervention effect in NPI uses as in (5). Since Japanese is a QP-adjunction language in Cable’s theory, it is difficult for him to account for the fact *mo* has to obey QP-intervention Condition in its NPI use. Second, Sinhala as a QP-projection language in Cable’s typology is expected to always exhibit the QP-intervention effect. However, data from Sinhala show that the Q-particle *da* in Sinhala, when attached to a wh-phrase to form an indefinite, does not obey QP-intervention condition. It only obeys it in question use and NPI use, shown in (6) and (7).

- (4) hito-ga doko-mo-kara kitta (6) Chitra [kauru *da* ekka] kataa kala
 people-Nom where-from-mo came Chitra who Q with talk did-A
 People came from everywhere. Chitra talked with someone.
- (5) hito-ga doko-(*mo)-from-mo ko-nakatta (7) Chitra [kauru (**da*) ekka] *da* kataa kalee?
 people-Nom where-(*mo)-from-mo come-didn’t Chitra who (*Q) with Q talk did-E
 People didn’t come from anywhere. Who did Chitra talk with?

Given this puzzle, a natural question to ask is, should we keep QP-intervention Condition or abandon it? If we can find a parameter that groups the obeying examples as a natural class and the defying examples as a natural class, we may well abandon it. Can we find such a parameter? It turns out that the answer is positive. It is the presence/absence of focus that tells these two groups of examples apart.

Argument The correlation between the possibility of violating QP-intervention Condition and the presence/absence of focus is given in table 1. Take Sinhala for example. In Sinhala, a verb always ends with -E in focus environments and ends with -A in non-focus environments (Hagstrom 1998, Slade 2011). The data in (6) and (7) show that when QP-intervention Condition can be violated, the verb ends with -A and when it has to be obeyed, the verb ends with -E. The remaining question is, why does the presence of focus preclude the possibility of violating QP-intervention Condition? We argue that the QP-intervention Condition can be reanalyzed as a constraint on the Q-particle in focus environment, stated in (8).

Table 1: The Correlation between focus and QP-intervention Condition

	Focus	Evidence from verb-ending
QP-intervention violated	Absent	-E
QP-intervention obeyed	Present	-A

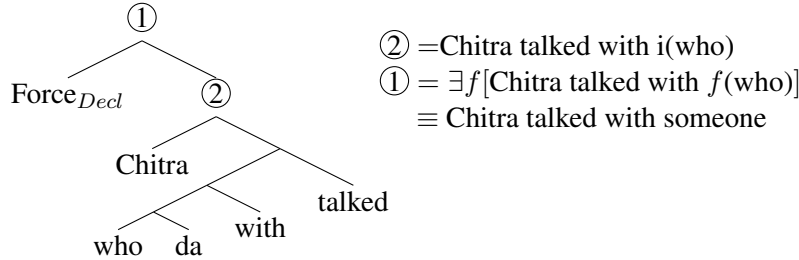
- (8) Constraint on Q-particles in focus-environments:
 A Q-particle comes into an LF structure as late as possible in focus environments.

Composition We adopt a Hamblin-style semantics for wh-words. A generalized version of Pointwise Functional Application (Hagstrom 1998, Yatsushiro 2009) is used. Here we use the Sinhala example to demonstrate the composition. The Q-particle *da* in Sinhala is analyzed as a variable over choice function which

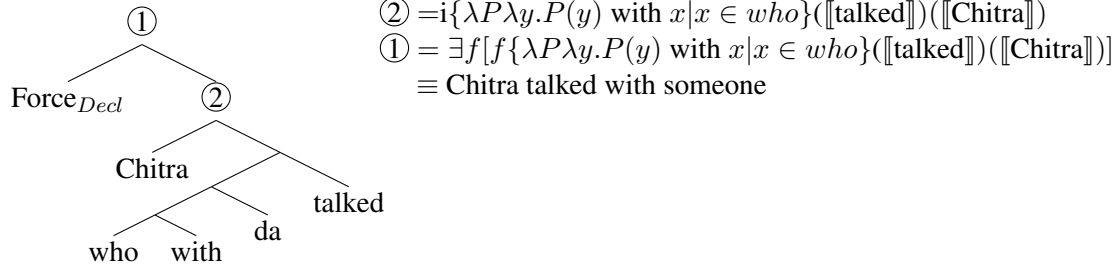
will be closed by the Force head. In declarative sentence, the syncategorematic entry for the Force head is as in (9) and in interrogative sentence, its entry is in (10). In simple declarative sentence like (6), we end with the same truth condition regardless of the position of *da*, shown in (11) and (12). In interrogative sentence, the LF structure in (13) is licit but the one in (14) is ruled out by the constraint in (8).

$$(9) \llbracket Force_{Decl} \alpha \rrbracket = \exists f. \llbracket \alpha \rrbracket^{i \rightarrow f} \quad (10) \llbracket Force_Q \alpha \rrbracket = \lambda p \exists f. p = \llbracket \alpha \rrbracket^{i \rightarrow f}$$

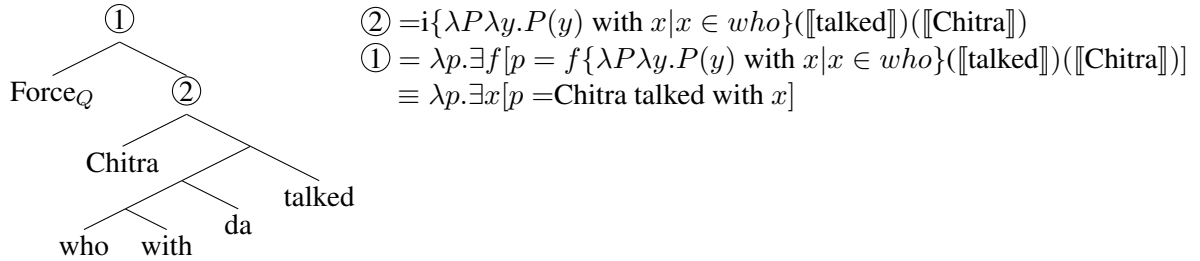
(11)



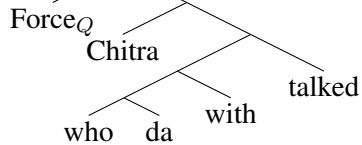
(12)



(13)



(14)



RULED OUT by (8)!!!

Predictions Japanese lacks focus verb ending, but we can rely on the position of the Q-particle to tell whether the sentence constitutes a focus environment. Based on our theory, (15) should be a neutral context and (16) is a focus context. While (15) has plain quantificational use of wh-MO which participates in scope interaction, (16) only allows focus NPI usage of wh-MO, a fact predicted by our theory.

- (15) hito-ga doko-mo-kara ko-nakatta
 people-Nom where-mo-from come-didn't
 People didn't come from everywhere. ($\forall > \neg, \neg > \forall$)
- (16) hito-ga doko-kara-mo ko-nakatta
 people-Nom where-from-mo come-didn't
 People didn't come from anywhere. ($\forall > \neg$ only)

The effect of Spanish immersion schooling on the English comprehension of null subjects in child heritage speakers

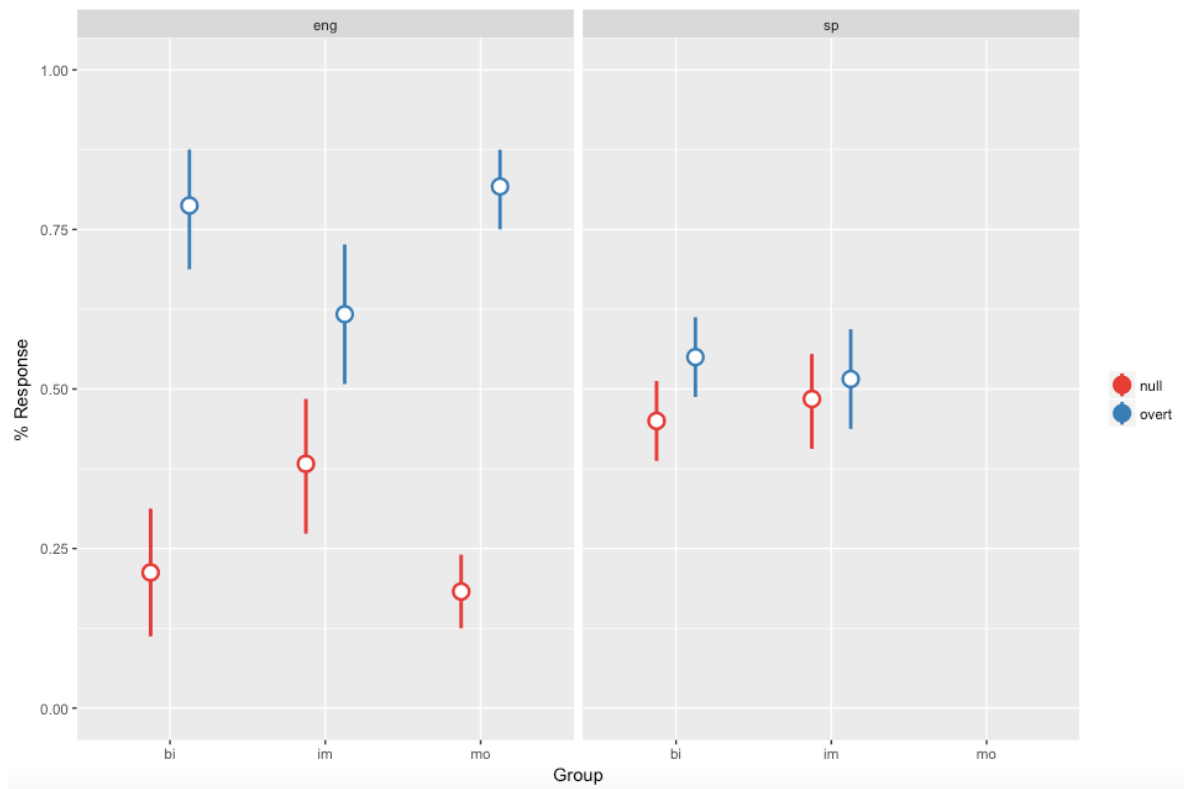
Michele Goldin
Rutgers University

Heritage language bilingual children display differential outcomes to monolingual children and to dominant bilinguals in non-heritage contexts. Evidence that quantity of input influences the progress of bilingual development is robust, but less is known about input quality (e.g. Kupisch & Rothman, 2017). Though there is general consensus that bilingual first language acquisition entails the development of independent and parallel syntactic systems (Meisel, 1989), studies have found that some particular aspects of grammar, those that lie at the syntax-pragmatics interface such as the pro-drop parameter, are more likely to experience cross-linguistic influence in language contact situations (e.g. Muller & Hulk, 2000; Rothman, 2009). While researchers in monolingual child language have long noted the existence of a period of omitted subjects in the acquisition of languages which require overt subjects, like English, this null subject stage generally converges with adult-like patterns by age 4 (Orfitelli & Hyams, 2012). In languages such as Spanish that allow both null and overt subjects, children acquire the pragmatic conditions for their distribution by age 5 (Austin et al., 2017). This study aims to contribute to the understanding of the role of Spanish-English bilingual academic instruction on the comprehension of null subjects in English dominant heritage children living in the United States.

In this study, heritage speakers aged 4 to 7 attending a Spanish immersion (IM) school (n=16) and heritage speakers of the same ages attending an English monolingual (BI) school (n=15) completed an acceptability judgement task in both English and Spanish. The children were matched for proficiency and amount of exposure to Spanish in the home. English monolingual (MO) children (n=13) of the same ages completed only the English task. Following Sorace et al. (2009), the children watched video clips of Disney characters who acted out scenarios and then made statements involving null and overt subjects that were pragmatically felicitous or infelicitous in Spanish, and grammatical or ungrammatical in English. They were then asked to decide which of the characters spoke the target language 'better' in each statement.

The findings revealed differences between children in the IM school (39% acceptance of null subjects in English) and monolingual English children (19% acceptance of null subjects in English), but no significant difference in null subject acceptance in Spanish between the IM and BI bilingual groups. The BI group also performed similarly to the MO group in English. The differences between the IM and MO groups were statistically significant ($p < 0.02$). These results suggest that immersion schooling does indeed play a role in the development of the pro-drop parameter, perhaps extending the English null subject stage in bilingual children due to conflicting input and increased activation of both languages in the same environment.

Fig. 1 Distribution by group of null and overt acceptance in English and Spanish

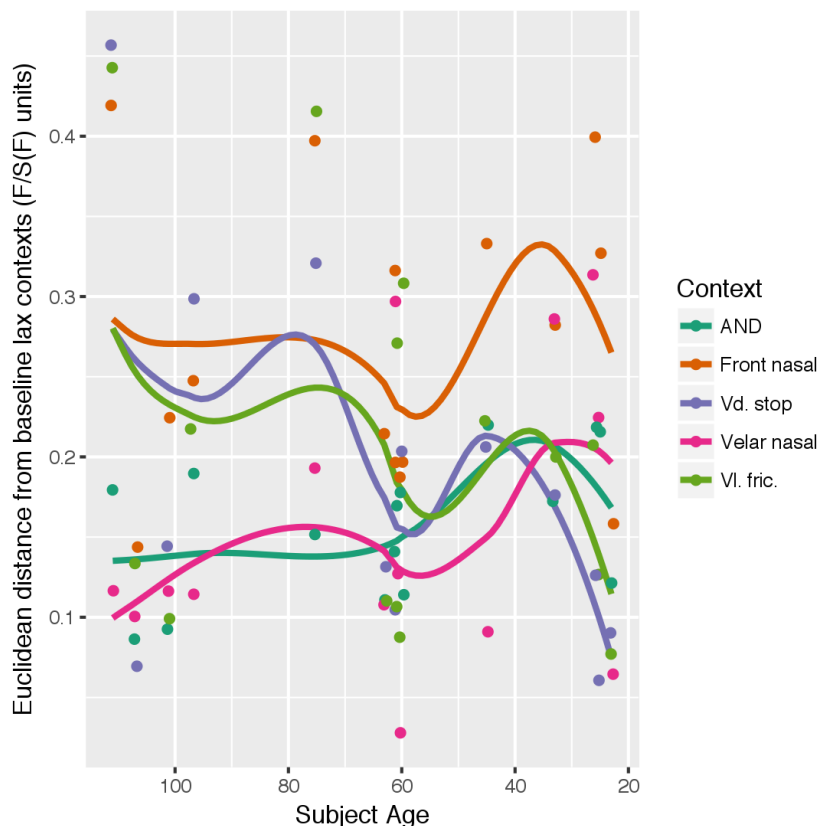


Parent L1-effects in NYC English short-a variation

Bill Haddican, Zi Zi Gina Tan, Sabrina Lagreca, Rebecca Rich, Kurt Werber, Michael Newman, Cece Cutler, Ariel Diertani and Christina Tortora (CUNY)

A set of recent studies has reported evidence of change in the New York City English (NYCE) short-a system (Becker and Wong, 2010; Becker, 2010; Newman, 2014; Newlin-Lukowicz, 2015; Coggshall, 2017). Taken together, these results suggest that the complex set of conditions on short-a tensing described in previous work (Trager, 1930; Labov, 1966, 2007) are increasingly absent in the speech of younger speakers, who tend instead toward one of several simplified systems. Importantly, with the exception of Newlin-Lukowicz (2015), none of the recent studies suggesting change have taken into account parent L1 in sampling independent of ethnicity, despite previous evidence of parent-L1 effects on short-a acquisition in different dialects (Payne, 1976; Labov, 2007). This poster reports on a recent production study intended to address this issue.

The data reported come from two sources: (i) a corpus of sociolinguistic interviews with 24 speakers from across the five boroughs and Nassau county; and (ii) oral history recordings from six Bronx residents gathered in the 1980s through the Bronx Oral History project. The thirty speakers are 16 women, 14 men, ranging in year of birth from 1906 to 1996, all native speakers of NYCE. Subjects are from a range of self reported ethnicities, with whites (n=20) over-sampled in an effort to test claims about white groups from Labov (1966). For half of the subjects, at least one parent was an L1 speakers of NYCE; for the other half both parents were non-native speakers. 9515 stressed short-a vowels were measured at 35% of duration using FAVE-Extract (Rosenfelder et al. 2014) and Prosodylab-Aligner (Gorman et al. 2011), via DARLA (Reddy & Stanford 2015).



LMER modeling with normalized F1 and F2 as the dependent variable reveals an effect of parent L1 independent of ethnicity, such that white subjects with at least one L1-NYCE-speaking parent better conserve Tragerian-system constraints for following voiceless fricative and *and* contexts, than those with no L1-NYCE speaking parent.

In addition, among whites with ≥ 1 NYCE-speaking parent (n=15), there is a following sound*age interaction on short-a, showing weakening of the Tragerian constraints as reported in the above literature. We illustrate this in the figure which shows, for

five environments, by-speaker mean euclidean distances from “baseline” lax context: voiceless stops, voiced fricatives and liquids. (Lines are loess smoothers.) The figure shows, for younger speakers movement away from lax realizations for traditionally lax environments *and* and velar nasals, and increased laxing for following voiceless fricatives and voiced stops.

A second issue addressed in this poster is possible change in the diphthongal quality of short-a. Traditionally, tensed realizations are described as ingliding diphthongs, and lax forms as more monophthongal (Labov 1966). A question that arises from the perspective of this description is whether the diphthongal quality of short-a is being lost in a way parallel to short-a tensing. We measured diphthongal quality for each token by taking the euclidean distance between nucleus and glide using the measurements for F1 and F2 at 20% and 80% of vowel duration. We used this measure as the dependent variable in modeling with log of vowel duration as a covariate. The analysis revealed an interaction between age and following sound, suggesting change in the diphthongal quality of short-a in different contexts that only partially follows the patterns of change observed for tensing. For younger speakers, following front nasal and *and* contexts show greater euclidean distance measurements relative to lax contexts, a result consonant with greater raising of the nucleus. The analysis revealed no reduction in euclidean distance measures for following voiced stop and voiceless fricatives contexts parallel to the change in F1 and F2 for the midpoint as described above. The results are consonant with the fact that, among older subjects in the sample, tense short-a realizations with long diphthongal trajectories are relatively rare.

To summarize, this poster reports two main findings relevant to recent work on change in NYCE short-a: (i) evidence of change away from the Tragerian system controlling for ethnicity and parent L1; and (ii) evidence of change in the diphthongal quality of short-a conditioned in a way only partially parallel to change in location in F1~F2 space.

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Finite-State Models of Harmonic Serialism

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A foundational debate in the design of grammar formalisms for phonology is whether surface forms are derived from underlying forms *in series* or *in parallel*. The Sound Pattern of English (SPE) formalism of Chomsky & Halle (1968), following other generative approaches at the time, took the serial approach by casting phonology as a sequence of rules to be applied one at a time in a fixed order. Optimality Theory (OT, Prince & Smolensky 1993), on the other hand, simply views phonology as a mapping between surface and underlying forms, without considering this mapping to be decomposed into several derivational steps.

Computational analysis of SPE and OT shows that OT is strictly more powerful than SPE in the sense that OT can generate all input–output mappings that SPE generates, but not *vice versa* (Kaplan & Kay 1994, Frank & Satta 1998). This suggests any SPE analysis can be replicated in OT. However, OT cannot produce serial derivations, even though there are empirical reasons to believe that phonological derivations are fundamentally serial in nature. An example, due to McCarthy (2010), can be found in Macushi. In this language, unstressed vowels are deleted, as shown in the following data (Hawkins 1950).

	Underlying	Intermediate	Surface
(1)	piripi	pirí.pí	pí.pí
	wanamari	waná.marí	wná.mrí

(1) presents a problem for standard OT. The choice of which vowels to delete depends on which syllables are stressed, but EVAL does not know which syllable is stressed, since this information is not represented in the input to GEN. Instead, a natural analysis for (1) would propose that the surface form is derived from the underlying form in two steps. First, syllable boundaries and stress are assigned, resulting in an intermediate form. Then, unstressed vowels are deleted from the intermediate form, yielding the surface form.

This kind of analysis can be implemented in OT by modifying the framework to allow for opaque derivations. One such modification is *Harmonic Serialism* (HS), an alternate version of OT described in Prince & Smolensky (1993). In HS, surface forms are derived from underlying forms via a series of incremental changes. GEN is restricted so that candidates can only be obtained by inserting, deleting, or modifying one segment of the input. If the faithful candidate is chosen by EVAL, then that candidate is the surface form; otherwise, the grammar is applied to the winner again until a faithful mapping is obtained.

While HS allows for serial derivations, repetitive iteration of the grammar appears to be an extremely powerful mechanism, since all computable functions can be represented as iterated *finite-state transducers* (FSTs). On the other hand, the analysis of SPE by Kaplan & Kay (1994) suggests that phonological mappings are of at most finite-state complexity, and empirical work on the *sub-regular hierarchy* (Heinz et al. 2011, Chandlee 2014) suggests that they are even less complex. This presentation addresses the concern of iteration complexity by presenting a computational analysis of the serial derivations that appear in HS. From the analysis, the following formal results are

obtained about the expressive power of HS.

- An HS grammar describes a finite-state mapping as long as the sequence of changes it effects does not “change direction” arbitrarily many times.
- HS grammars with *positional faithfulness constraints* (Beckman, 1998) can generate arbitrary finite-state mappings as well as non-finite-state mappings.
- The length of an HS derivation, finite-state or not, is linear in the size of its input as long as markedness constraints are *tier-based strictly local* (Heinz et al., 2011).

These results follow from two key ideas. Firstly, HS has the property of *harmonic ascent* (McCarthy 2000), meaning that the behavior of EVAL is to choose candidates obtained from removing marked structure from the input. Secondly, a technique by Abdulla et al. (2003) allows us to simulate iterated length-preserving FSTs under certain conditions. When these conditions are met, HS grammars are guaranteed to be finite-state.

In conclusion, the contribution of this paper is as follows. Firstly, it presents a formal analysis of HS, investigating its expressive power. Secondly, it demonstrates that in practical cases, OT may be augmented with repetitive iteration without increasing its expressive power beyond that of FSTs.

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“All” quantifiers can float, but not all quantifiers can float

Universal quantifiers (*all/both/each*) in Germanic/Romance differ from existential quantifiers and other functional elements in the nominal domain (e.g. Dem, Num, Poss), in that *they can float* (1). I argue that this follows from two exceptional properties of (universal) quantifiers: (i) all quantifiers are opaque to the Labeling Algorithm (Chomsky 2013), and (ii) *QP*-quantifiers (i.e., universal quantifiers at the top of the nominal domain; (2)) do not need to check Case in the syntax.

- (1) a. The students_i will *all/both/each* t_i read two books.
 b. *[(The) students_i will *some/twenty* t_i read two books.]
 c. *Students_i will *the/those/my* t_i read two books.
- (2) a. [QP **all** (of) [DP those [NumP twenty [NP students]]]] (English)
 b. [QP **todos** [DP aqueles [PossP meus [NumP vinte [NP alunos]]]]] (Portuguese)

Labeling: Chomsky (2013) argues that the label of a syntactic object SO created upon the merger of α and β is defined by a *Labeling Algorithm* (LA) applying at the point SO is transferred to the interfaces. LA identifies the closest head in $SO = \{\alpha, \beta\}$, which thus provides the label to SO. If α is a head and β a maximal phrase, SO is labeled $\alpha(P)$. Though, Chomsky points out that the merger of two maximal phrases ($SO = \{WP, XP\}$) creates a labeling problem: Given that the heads W and X are equidistant to the SO node, LA cannot define the label of SO. Two possible solutions are available: (i) movement of WP or XP, which allows the remaining phrase to provide the label to SO (with traces being ignored by LA); (ii) feature sharing (agreement) between WP and XP, which allows SO to be labeled by the relevant feature. Note crucially that in a quantifier floating structure like (3), neither solution is available: Movement of neither QP nor XP takes place, and there is no feature sharing between QP and XP (note that while a QP can float in several positions in (4), the Labeling Algorithm is unforgiving to the DP in (5): There is no ϕ -agreement in those positions). The structure in (3) should thus be ruled out by LA, contrary to fact. Given what is known about the sentential spine and the selectional requirements of *will*, the ?-marked node in (3) must be labeled XP. In other words, LA must be oblivious to the quantifier and proceed directly to XP, seamlessly having XP project further. I propose this is indeed the case in quantifier floating.

- (3) The students_i will [_{? [QP all t_i] [_{XP read two books}]]. {? {QP, XP}}}
- (4) The carpets will {all} have {} been {} being {} dusted for two hours. (Sportiche 1988)
- (5) *[(There) will {the carpets} have {} been {} being {} dusted for two hours.]

Saito (2016) argues some elements are intrinsically opaque to (i.e. ignored by) LA. For instance, suffixal case in Japanese works as an *antilabeling device*, which among other things allows for multiple nominative subjects in the language (6). Assuming there is no ϕ -agreement in Japanese, DP-TP merger creates the phrase-phrase labeling problem. If the NOM-marked DPs are opaque to LA, LA search can proceed to TP, seamlessly labeling each relevant node as TP, as in (7).

- (6) Bunmeikoku-ga dansei-ga heikin-zyumyoo-ga mizika-i (Japanese)
civilized.country-NOM male-NOM average-life.span-NOM short-PRES.
'It is in civilized countries that male's average life span is short.' (Kuno 1973, apud Saito)

- (7) [_{TP} DP-NOM [_{TP} DP-NOM [_{TP} DP-NOM [_{TP}]

I extend Saito's proposal to quantifiers, which raises the question of why they can be opaque to LA. I suggest that this follows from a semantic requirement: A quantifier phrase is an operator that has its scope identified with respect to its sister, which requires that its sister projects (the sister thus being interpreted as the scope domain of the quantifier). Importantly, note that floating quantifiers are subject to scope-freezing, i.e., they must be interpreted in their surface position. I maintain that their being interpreted in that (floating) position is what allows for them to be opaque to LA, by necessity. In other words, floating is licensed by an interpretation output. In fact, the

property of being opaque to LA for interpretational reasons may apply to all quantifiers, not only to those that can float. Consequently, that allows for all quantifiers to QR at LF without creating a labeling problem (QR is thus another instance of phrase-phrase merger that can be resolved by the current proposal). In (8), for instance, the non-floating numeral *two books* can QR and merge with TP; being opaque to LA, the quantifier allows for the ?-marked element to be labeled as TP.

(8) a. Five students read two books. $5 > 2; 2 > 5$

b. LF (inverse scope): [_? [_{NumP} two books]_i [_{TP} five students read t_i]] {? {NumP, TP}}

All quantifiers can QR, but not all quantifiers can overtly float, which is in fact our main question here. While the above proposal sets all quantifiers apart from other functional categories in the nominal domain, we still need to set QPs apart from other categories in the nominal domain (including existential quantifiers). That brings us to the second exceptional property of QPs.

Case: Quantifiers of category QP are exempt from the Case filter in the syntax (i.e., they do not need to be licensed for abstract Case, although they can), which grants them the ability to surface in positions where DPs (and smaller categories) are ruled out. Take for instance the quantifier *each/cada um* (9). In both English and Portuguese, the DP is licensed by the (partitive) preposition *of/de*, while the QP is licensed with nominative Case by being in the (non-floated) subject position. That shows that QP and DP bear two independent Cases (i.e., there is no Case transmission or concord here). When floating occurs in (10) the DP is licensed with nominative (note the absence of *of/de*). Thus, there is no abstract Case left for the quantifier, and yet the sentence is grammatical. I conclude that the QP can escape the Case filter in the syntax. That property is now restricted to quantifiers of category QP (as expected given the paradigm in (1) above). Moreover, this is further evidence for the noun-clause parallelism: While Bošković (1995) argued that CPs are only optionally assigned Case, I argue the same applies to the highest layer of the nominal domain, QP.

(9) a. *Each of* the students read two books. (English)

b. *Cada um dos* alunos leu dois livros. (Portuguese)

(10) a. The students read *each* two books. (English)

b. Os alunos leram *cada um* dois livros. (Portuguese)

Additional evidence for the proposal above comes from Brazilian Portuguese (BP). Contrary to European Portuguese and Spanish, BP disallows VSO order; (11a). Although locative inversion facilitates VS order (cf. (11b), where the PP is analyzed as receiving nominative Case while the subject is licensed with partitive; Avelar 2009), it is still not enough to license VSO order. A NumP e.g. in (12) is thus ruled out, for while the locative PP gets nominative and the direct object gets accusative, there is no Case for the subject. The prediction of the proposal that QPs do not need abstract Case is thus that QP subjects should be licensed in that construction, which is borne out, as is shown by the grammaticality of (12) with a QP. As the QP also does not pose a labeling problem, it may surface in that position, where any other nominal category is excluded in BP.

(11) a. *Comprou o João um computador. b. Nessa fábrica trabalha várias pessoas. (BP)
bought the John a computer in-this factory works several people

(12) Nessa fábrica comprou *várias pessoas / *cada um* um computador.
in-this factory bought *several people / each one a computer

This paper addresses the question of why only one category in the nominal domain (i.e. QP) can appear in the so-called “floating” construction. Taking this to be an exceptional behavior, I tackle the question of what makes QPs exceptional. The analysis proposed here allows us to bring closer a number of constructions involving quantifiers (e.g. floating, raising, and exceptional VSO in BP). The analysis also provides additional evidence for Saito’s (2016) proposal that some elements are inherently opaque to LA, and ultimately sheds further light on the Labeling Algorithm itself.

The difference between perception and production of prosodic information in Chinese *wh*-scope disambiguation

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Research Question: This study aims to investigate whether the same prosodic strategies are used to disambiguate sentence meanings in production and perception by focusing on *wh*-scope ambiguous sentences like (1) in Mandarin Chinese. As in (1), sentence final particles such as *-ma* and *-ne* are intentionally excluded in order to examine the prosodic effect independently. We conducted two experiments: production test and perception test.

- (1) Zhengzhi wen-guo Lisi jian-guo shui?
Zhengzhi ask-Perf Lisi meet-Perf who
a. ‘Did Zhengzhi ask who Lisi met?’ (embedded scope reading of *wh*-phrase)
b. ‘Who did Zhengzhi ask whether Lisi met?’ (matrix scope reading of *wh*-phrase)

Experiment 1: We created four sets of stimuli. Each set consisted of eight conditions (=2*2*2: subject/object *wh*-phrase position, default/A-not-A construction, regular/D-linked *wh*-phrase). For each sentence, the contexts leading to different scope readings were provided. The participants (N=13) read each context first and were recorded while reading the target sentences.

Result: The lowest and highest pitch heights of *wh*-phrases, matrix and embedded verbs were measured. All data were normalized with Z-score. The biggest pitch excursion (linear regression: $p < .05$) was found on the *wh*-phrase for the matrix scope reading as in (2), and we also found that matrix verbs and embedded verbs are prosodically focused contingently upon syntactic structures and *wh*-phrase types.

(2) The pitch excursion on *wh*-phrases

Wh-type	A-not-A	Embedded Scope	Matrix scope	<i>p</i> -value
D-linked <i>wh</i>	No	1.918692	2.020285	< .05
Regular <i>wh</i>	No	1.257796	1.400369	
D-linked <i>wh</i>	Yes	1.604984	1.818547	
Regular <i>wh</i>	Yes	1.016003	1.222323	

Experiment 2: In the perception test, the same stimuli from Experiment 1 were utilized. A Mandarin native speaker recorded two versions of every target sentence by using prosodic strategies observed in Experiment 1. The 64 target sentences intermingled with 112 fillers were distributed across 4 sets in a Latin Square Design. The participants (N=30) were asked to choose one of the given answers as in (3) after listening to the audio file.

(3) Q: Zhengzhi wen-guo Lisi jian-guo shui? (Audio)

A: a. Shide('Yes', embedded reading of *wh*) b. Liu jun('Liu jun', matrix reading of *wh*)

Result: As in (4), the prosodic cues shown in the production test do not play a role in disambiguating *wh*-scope ambiguity in Chinese.

(4)

	Embedded scope prosodic cue	Matrix scope prosodic cue	p-value (logistic regression model)
Matrix scope reading	60%	65%	0.21

The prosodic patterns marking *wh*-scope found in Experiment 1 was not salient enough to determine the *wh*-scope in perception.

Discussion: This study shows that there is a mismatch between speakers' encoding and hearers' decoding of *wh*-scope information. This result is surprising compared to the prosodic effect on *wh*-scope in Japanese and Korean (henceforth, J&K). As a tonal language, Chinese is typologically different from J&K. The prosodic cues in J&K are crucial to distinguish the two *wh*-scope readings because the span of deaccented phrases exactly matches the range of syntactic/semantic *wh*-scope. Thus, the sentence level prosodic pattern reflecting speakers' intention can help hearers to decide *wh*-scope in J&K (Hwang 2011). In Chinese, since lexical tones should be reserved, the prosody at the sentence level, however, is restrained by the lexical prosody (Jun 2005). In sum, there is an asymmetry of disambiguating strategies between production and perception in Chinese.

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ASL Register Variation L2 Interference: An Analysis of Nyle Dimarco's Speech

Introduction: We did an analysis of ASL register variation, by comparing a speaker's intrapersonal variation. We compared the two registers that operate at opposite ends of the spectrum: Informal and Formal. The speech samples utilized for this analysis were pulled from the speaker's Youtube vlogs. We hypothesized an increase in English L2 interference in the formal register.. We found that in the formal register, DiMarco exhibited increased instances of accessing SAE in comparison to his informal speech sample. The parameters that we elected to analyze were fingerspelling, SAE preposition use, word order, and Non-manual markers.

Previous: In prior literature by Valli and Lucas (2000) it is shown that, across registers, we expect to find language usage differences within a single speaker of ASL. While Valli and Lucas discuss the grammatically permissible ways in which ASL may shift across registers, such as reduced perseveration or varying permissible lexical items, they do not discuss the specific influence of bilingualism on Deaf speakers. The prior literature we reviewed also does not discuss the potential ways in which a speaker who is fluent in both ASL and SAE may exhibit interference from L2 languages. Research exists for this in spoken languages, but less is present for sign languages.

Methods: We elected to focus on a single speaker. We chose Nyle DiMarco, who has stated in interviews that he has Deaf family, and did not learn oralism. He is an L1 user of ASL, with proven fluency in SAE as his L2. He went to Deaf residential schools through high school, and has a Bachelors in Mathematics from Gallaudet University. We analyzed 2 vlogs for informal speech samples, and 2 formal examples. We glossed an equivalent amount of speech time in the formal samples as the informal samples. Annotations were done using ELAN 4.9.1, with consulting input from a native Deaf user of ASL and SEE, with proven fluency in both SAE and ASL. We did not seek to ascribe potential reasons for why utterances were done, as that can be highly subjective. Instead, we chose to document visible speech utterances and quantify them accordingly.

Findings: We found an increased rate in fingerspelled utterances that were used to access a specific SAE lexical item within the formal example (see example 1). When discussed with the consultant, we were advised that these were lexical items did have ASL equivalents. There were 8 unique tokens of fingerspelled words that directly accessed an SAE word, in lieu of its equivalent ASL sign. Within the informal speech sample, only 4 instances occurred. Nyle also exhibited an increased rate of SAE preposition use in the formal sample (see example 2). We had predicted a more drastic shift in ASL-to-English word order, but the subject did not exhibit this behavior. His word order was consistent across both registers, except for one anomalous example of prescriptive ASL question structuring(see example 3). He also exhibited a L1 inteference, where "what" was signed in both the SAE and ASL word order locations. Finally, Nyle also showed decreased rate of non-manual markers. The most consistent NMS that he used were eyebrow raises for topicalization. The biggest difference aside from decreased rate of NMS was that he also chose to mouth specific SAE borrowings in the formal sample (see example 4).

Conclusion: Overall, we found that the speaker confirmed our hypothesis. This behavior was consistent across 3 of the 4 parameters analyzed. This research could potentially be expanded to see if this is a feature unique to DiMarco, or if it is consistent across bilingual ASL and SAE speakers. Additionally, research could also be done to continuing mapping out the borders between SAE and ASL, especially where speakers have a lower fluency in English.

Fingerspelling example:

(1) a. **Informal:**

...PRO₁ THINK PRO₁ NEED ONLY ^{mouth: "stay that way"} STAY THAT W-A-Y
"*...I think I just need to stay that way.*"

b. **Formal:**

THINK R-A-R-E OPPORTUNITY FOR PRO₁
"*I think this is a rare opportunity for me.*"

SAE Preposition Example:

(2) a. **Informal:**

LOOK-FORWARD **TO** THIS MONDAY, LOOK PRO₁ **ON** L-I-V-E PRO₂
"*Look forward to watching me this monday, Live!*"

b. **Formal:**

REALLY VERY HONOR **TO** B-E THIS PERSON
"*[I'm] really very honored to be this person.*"

c. AND LAST, WANT THANK-YOU PRO₂ ^{sign name} TUDOR T-U-D-O-R AND #MD
^{mouth: encourage me man I am now}
INSTITUTE **FOR** ENCOURAGE PRO₁ MAN PRO₁ A-M NOW THIS
"*And lastly, I want to thank Tudor, and the Maryland Deaf Residential school,
for encouraging me to be the man I am now, here.*"

Word Order:

(3) **Formal:** I-F NOT FOR IX-RIGHT #MD INSTITUTE,

^{rhēt}
PRO₁-POSS SUCCESS WILL? DON'T-KNOW
"*I don't know if I'd be successful without the Maryland Residential Deaf school.*"

Non-manual Markers

(4) a. **Informal:**

THINK THIS-WEEK PRACTICE ^{nms-purse-lips} 1-WEEK PERFECT
"*I think practice has gone perfectly this week.*"

b. **Formal:**

...THIS EVENT INTEGRATE FOR PRO₂-PL, PRO₁-PL ^{nms: Ø} THUS-FAR PERFECT
"*This event has played out perfectly, so far.*"

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A Decomposition Analysis of Color Terms in Korean

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Introduction. Although adjectival meaning and structure have been well studied, there have been relatively few investigations of color adjectives (Kennedy and McNally, 2010, Hansen and Chemla 2017 a.o). In this paper, we bridge this gap by providing a decomposition analysis of color terms in Korean. Korean color terms come in two forms: native Korean roots, and borrowed Chinese roots. We propose that Korean color terms start out as property-concept roots and then combine with functional heads in the syntax to derive adjectival meaning. We show that both Chinese and Korean have to be nominalized or turned into a verbal predicate in order to appear in canonical adjectival positions, such as attribution or predication.

Color Terms in Korean. It has been controversial whether Korean has adjectives (Maling and Kim, 1998; Kim, 2002). Our decomposition analysis of color terms in Korean shows that color terms have more complex structure. First, there are two different expressions for color terms- borrowed Chinese roots (Class C), or native Korean roots (Class K). In both these classes, there is an addition of the morpheme *-sayk* (which means ‘color’), to the end of the root. The *-sayk* ending is optional in the verb form when saying, for example, ‘the car is blue-colored’. See below for an exhaustive table (1) illustrating the color terms in Korean.

(1)

English	Chinese Root (Class C)	Korean Root (Class K)	Verbal Form	Verbal Morphological Gloss
white	baek	hayan/hueen	hueen-sayk-(i- da)/haya-da	White-color (is)/White-colored
black	heuk	geomeun/kkaman	geomeun-sayk-(i- da)/kkama-da	Black-color (is)/black-colored
red	jeok /hong	ppalkkan	ppalkkan-sayk-(i- da)/ppalkka-da	Red-color (is)/Red- colored
yellow	hwang	noran	noran-sayk-(i- da)/nora-da	Yellow-color (is)/Yellow-colored
blue	cheong	paran	paran-sayk-(i- da)/para-da	Blue-color (is)/Blue- colored
green	chorok/nok	paran		
purple	jaju	bora		
orange	juhwang	-----		
pink	bunhong	-----		
grey	hoe	-----		

Observations. Color terms in Korean follow a pattern, namely, lower level color terms (i.e. color terms that develop in cultures first) such as *white*, *black*, *red*, and *yellow* have both Chinese and native Korean roots. Blue and green also have a Chinese and native Korean root, however there is a possibility of the ‘grue’ phenomenon occurring, i.e. the language might not have a true concept of blue vs. green, but rather a process which combines them into one blue/green definition in a native Korean term (e.g. *paran*). Where higher color terms are concerned, such as orange, pink, and grey, there is only a Chinese root, and in some cases, an English borrowing.

Analysis. We propose that the Korean roots and the Chinese roots start out as property concept expressions. However, their syntactic behavior differs as they combine with different functional heads. The native Korean roots, Class K, combine with a null verbal element and then combine with the nominal functional head, therefore being nominalized by the nominal marker *-sayk* (1). The semantics of the null verbal element is given in (2) where Π is a metavariable over property concept denoting expressions.

- (1) Class K derivation
 a. $[\sqrt{\text{hayan}} \ \varnothing_v] - \text{sayk}$
 b. $\llbracket \varnothing_v \rrbracket = \lambda \Pi. \lambda x. [\Pi(x)]$
 (2) $\llbracket \text{hayan-sayk} \rrbracket = \lambda x. [x \text{ is an instance of white color}]$
Lit. ‘being an instance of the property of white color’

Chinese roots are borrowed roots and hence they combine with a different functional head. This head is a nominal head that spells-out as *-sayk*.

- (3) Class C derivation
 a. $\llbracket [\sqrt{\text{baek}} + \text{sayk}_n] \rrbracket$
 b. $\llbracket -\text{sayk}_n \rrbracket = \lambda \Pi. \lambda d. \lambda x [x \text{ is an instance of } \Pi \text{ and } \mu(x) \geq d]$
 (4) $\llbracket \text{baek-sayk} \rrbracket = \lambda x \exists d [x \text{ is an instance of whiteness and } \mu(x) \geq d]$
Lit. ‘being an instance of the property of white color measuring to some degree’

The evidence for the null verbal element comes from the fact that only Class K roots can participate in verbal forms, such as (5).

- (5) a. hueen-sayk-i-da
 ‘white color is’
 b. hueen-sayk-haya-da
 ‘white colored’

Class C nominals can appear in comparative constructions only with the degree marker ‘more’.

- (6) i shirt.nun gu shirt poda daw baek.sayk(i-da)
 This shirt.top that shirt than more white colored(is)
 ‘This shirt is more white than that shirt.’

Follow-up survey. To test the use of Class C and Class K color terms, we are currently running a forced choice elicitation task. In the experiment, participants will either be asked to make a forced choice which involves a picture and a question asking the participant to choose which color from a list matches the image best. The second question type will be a fill-in-the-blank option where the participant will be able to write in their own option (in Korean) that best describes the image, eg. “The flower is _____ colored.”.

Conclusion. We have shown that Korean color terms do not start out as lexical adjectives. They derive their adjectival meaning using functional heads in syntax. Two different functional heads derive adjective-like meaning. This account has consequences for degree semantics and the functioning of comparatives and degree expressions in the language.

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Gender difference in syntactic acceptability judgments

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While both large-scale experimental collection of grammaticality judgments and native speaker intuitions have been shown to be reliable methods of collecting grammaticality data (Sprouse and Almeida 2012, Sprouse 2011), over a large group, subjects identifying as female give on average 0.58 higher ratings to test sentences on a 1-7 scale than do subjects identifying as male. In areas where judgments are particularly nuanced or used in a comparative way, the gender makeup of subject pools could significantly alter the conclusions a researcher might draw from data. For instance, if one subject pool contains 90 females and 10 males and the next day's subject pool contains the inverse distribution, identically grammatical sentences on the second day will, on average, have a significantly lower rating.

The data to support this claim come from over 4000 individual sentence judgments from 300 unique native English speakers (150M, 150F), ages 18-71 on Amazon Mechanical Turk. Subjects rated a variety of English sentences, from grammatical (1) and ungrammatical fillers (2) to less clearly grammatical constructions (3-5) on a 1-7 grammaticality scale.

- (1) Mitch never believed in the tooth fairy.
- (2) *Carol jumps more than.
- (3) ?Mary always probably kicked with her right foot.
- (4) ?Which motorbike did Nick assume Roy earnestly to have driven too fast?
- (5) ?Sandra allowed Max reluctantly to use her car.

No mention of gender was made in the task description, though gender information was anonymously collected as a fill-in-the-blank item along with other demographic information like age and native language. Although there were no significant differences found among different age groups or native language groups, female subjects rated grammatical and test types of sentences significantly higher ($p < .001$) than did males, as shown in Table 1. They also rated ungrammatical fillers significantly lower than male subjects.

Sentence Type	Gender	Avg. Rating	St.Dev
Grammatical	Female	6.67	.58
	Male	6.08	1.17
Ungrammatical	Female	1.44	.50
	Male	1.68	.79
Test Item	Female	4.10	1.45
	Male	3.52	1.71

Table 1: Acceptability ratings by gender

What might explain this difference? It is well-known that women are often innovators of language change (Labov 2001), adapting new constructions and linguistic trends on the

whole before men do. Thus it may be that women are more adaptable regarding nonstandard language in general, especially with less commonly heard constructions like (3). Labov also describes women as being less likely to use clearly nonstandard forms, which may contribute to their lower ratings (‘stronger reactions’) towards clearly ungrammatical fillers. Societal factors may also point to women being more accepting in general, in the sense that women have been shown to be more accommodating when it comes to stigmatized physical appearance (Latner et al. 2005) or behavior (Martin 1990) and may have internalized values of tolerance or cooperation more than men have. The result could also be tied to the particular subjects used (who were in this case recruited online). Perhaps in-person groups of subjects would behave differently, although preliminary data (based on 25 female and 15 male subjects) indicate that women’s judgments are still higher in test sentences ($p < .05$) when recruited offline.

Though it can be assumed that most subject pools are homogeneous enough to not cause inaccuracies in conclusions drawn from acceptability judgments, researchers should consider collecting gender data from participants to ensure that gender is not responsible for skewing any of their results.

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Effect of Speaker on the Nonword Repetition Task in Monolingual and Bilingual Children and Adults

Keywords: language acquisition, bilingualism, sociolinguistics, nonword repetition task, social biases, children

Background: It is known that children as young as 14 months have a preference for their peers when imitating familiar gestures and remembering novel information (Ryalls et al. 2000, Zmyj et al. 2012). What is not well understood is the role of this ‘peer-model advantage’ in relation to monolingual versus bilingual language development. For children that speak a different home language and begin school with little knowledge of English, it was predicted that the peer-model may be more salient than for monolingual children since peers are a source of a language that they do not hear at home and there exists strong social pressures to learn English. It was found that in fact, there is an adult voice advantage for all groups.

Methodology and Participants: In this project, I investigate if monolingual and sequential bilingual children treat adult and peer voices differently using a nonword repetition task and a post-testing questionnaire about attitudes towards two voices heard during the experiment. 36 4-6yr old children of both language backgrounds were tested as well as 24 monolingual and bilingual adults. All participants were asked to repeat 16 nonwords of 1, 2, 3, and 4 syllables (e.g. /tʃoʊvæg/, /nɑɪtʃɔɪtəʊvub/) taken from Dollaghan & Campbell, 1998. The stimuli nonwords were read by a 5 year old peer and by a 35 year old adult in counterbalanced orders. Repetitions were scored for phoneme accuracy, pitch matching, and word duration matching. After the nonword repetition task, participants were asked “What was your favorite voice? Why? What voice was easier to understand? Why?”.

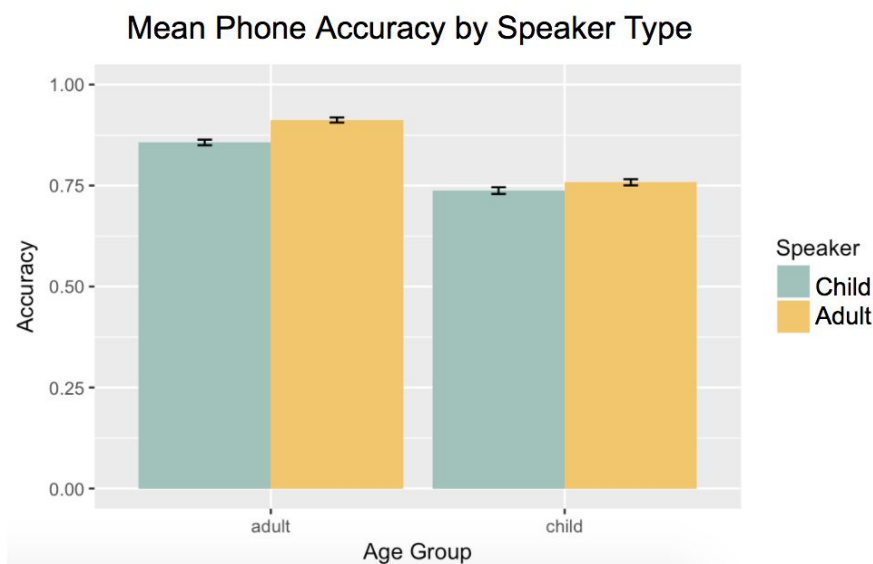


Figure 1: Mean phone accuracy (score of 1 or 0) of adult and child participants on adult and child input speakers

Results: Preliminary results suggest that there is an adult voice advantage for verbal repetition. Repeating after an adult voice yielded higher accuracy for adults and children of both language backgrounds at a significance of $p < .0001$. Surprisingly, there was no significant differences between bilingual and monolingual groups ($p < .18$). Figure 1 shows that children and adults both had significantly better

performance on the adult speaker in the nonword repetition task. Figure 1 collapses both bilingual and monolingual participants because, as previously mentioned, there was no significant difference in accuracy between the two groups. Length of the nonword (1-4 syllables) also had a significant effect on phoneme accuracy ($p < .0001$).

On post-testing questions adults of both language backgrounds rated the adult voice to be both ‘favorite’ and ‘easier’ at significant frequency ($p < .001$). However, both monolingual and bilingual children rated the adult voice as ‘favorite’ and ‘easier’ at chance. Similar to accuracy scores on the nonword repetition task, language background seems to not play a role in the social perception of the two voices in post-testing questions.

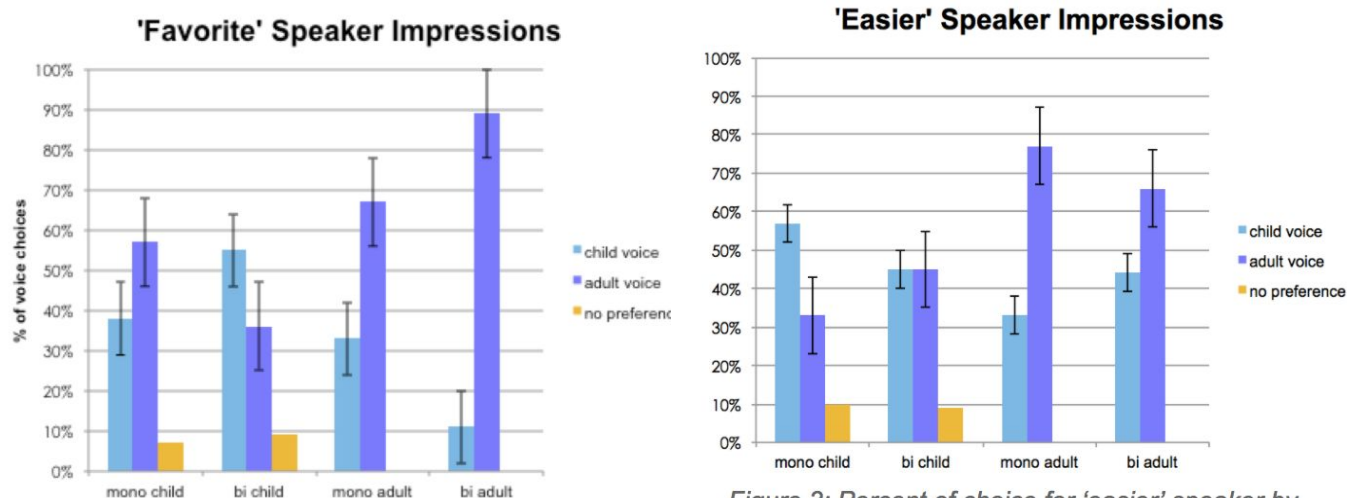


Figure 2: Percent of choice for ‘favorite’ input speaker by age and language experience

Figure 3: Percent of choice for ‘easier’ speaker by age and language experience

Discussion: Though children may show a peer-model advantage on motor repetition tasks, these findings suggest the preference for peers is not true for language repetition. These findings are evidence against the initial hypothesis that sequential bilingual children may be more receptive to peer input than monolingual peers on both verbal repetition and social perception measures. This study confirms recent findings by Cooper et al. that found that toddlers preferred adult speech models over own voice and peer voice models in an eye-tracking task. This recent study as well as the present study are invitations to further explore the intricacies of peer versus adult model preferences.

References: Cooper, A. et al. (2018). Toddler’s Comprehension of adult and child talkers: Adult targets versus vocal tract similarity. *Cognition*. 173 pp. 16-20. || Dollaghan, C., & Campbell, T. F. (1998). Nonword repetition and child language impairment. *Journal of Speech, Language, and Hearing Research*, 41, 1136-1146. || Ryalls, Brigitte Oliver, et al. “Infant Imitation of Peer and Adult Models: Evidence for a Peer Model Advantage.” *Merrill-Palmer Quarterly*, vol. 46, no. 1, 2000, pp. 188–202. || Zmyj, Norbert et al. “The Peer Model Advantage in Infants’ Imitation of Familiar Gestures Performed by Differently Aged Models.” *Frontiers in Psychology* 3 (2012): 252. *PMC*.

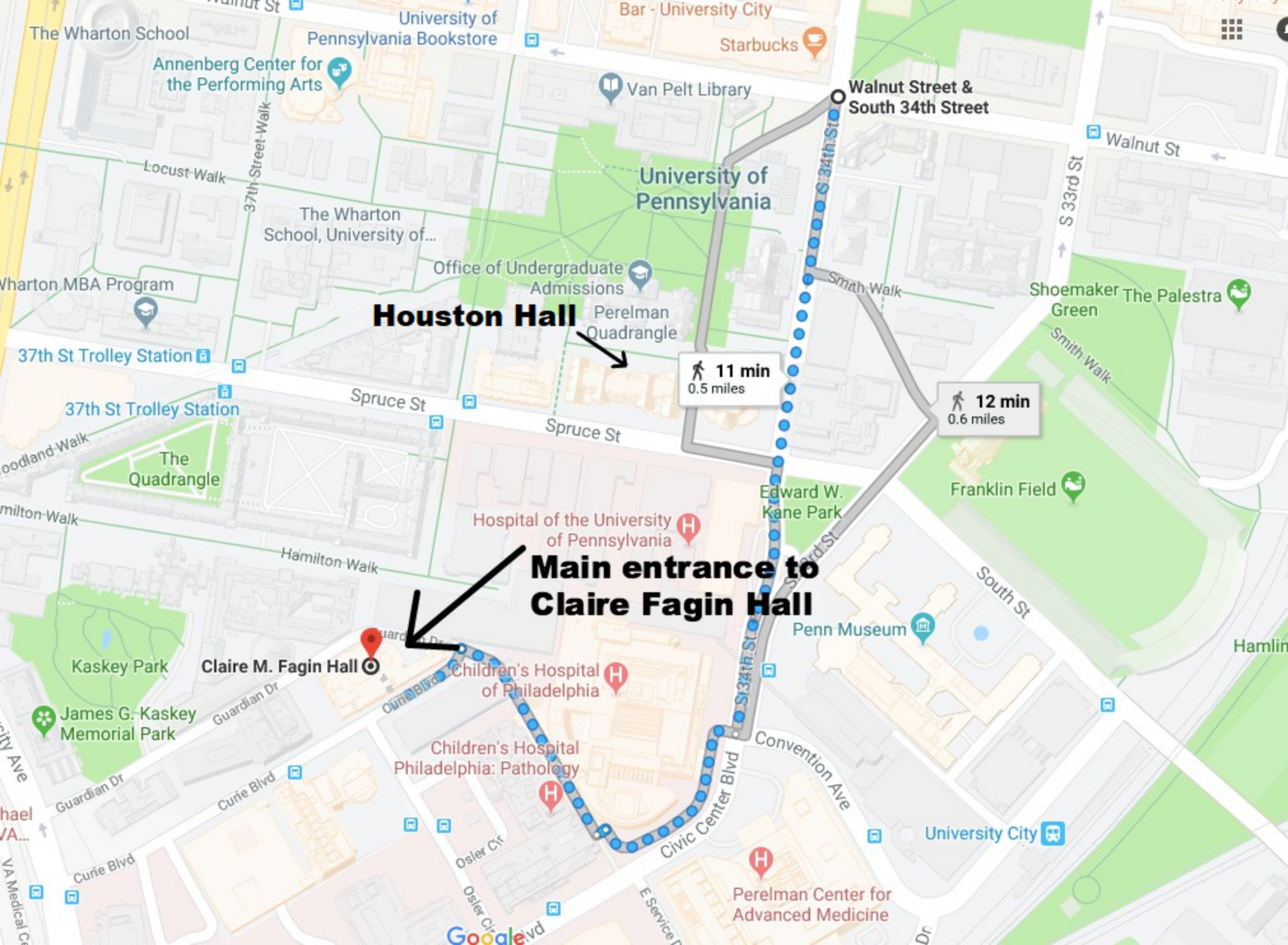
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To access the AirPennNet-Guest wifi,

1. Select the AirPennNet-Guest SSID
2. Open a browser
3. Review and accept the Acceptable Use Policy terms and conditions
4. Enter a valid email address
5. Click Submit

For more information, please see

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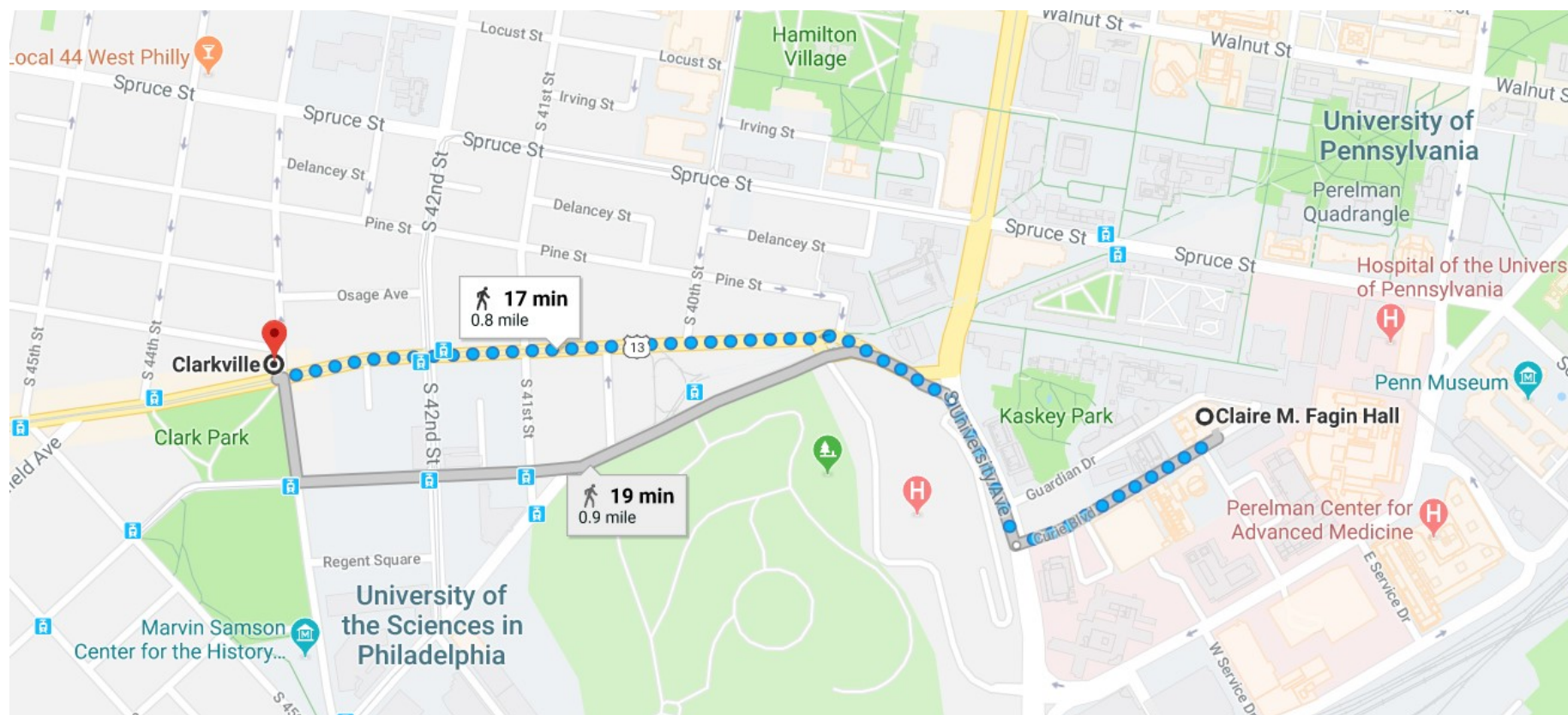
Houston Hall

11 min
0.5 miles

12 min
0.6 miles

**Main entrance to
Claire Fagin Hall**

Claire M. Fagin Hall



After the keynote address by Prof. John Rickford, we will have our traditional annual PLC party at Clarkville, on [4301 Baltimore avenue](#), starting at 9pm on Saturday. There will be free pizza and local beers!

Please also make sure to bring a valid form of ID to the party on Saturday, since Pennsylvania bars are required to check the age of anyone that looks 30 or younger.