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Aubrey Healey (Editor in Chief)
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Acknowledgements

The High Desert Linguistics Society (HDLS) is a student organization that was founded almost twenty years ago at the University of New Mexico by graduate students of the Linguistics Department. The mission of HDLS has always been to offer a professional setting where linguists from across the globe can come together to share their research and learn about new advances in the field. The first HDLS conference was held in 1998, and since then the HDLS members have continued to welcome both new and well-established scholars to present their work. The conference features presentations from cognitive, functional, and typological approaches to Discourse Analysis, Language Change and Variation, Bilingualism, Sociolinguistics, Indigenous Languages, Languages of the Southwest US, Language Revitalization and Maintenance, Signed Languages, and Gesture Research.

Our conferences are held on campus at the University of New Mexico in Albuquerque. For what started out as a small student-run conference, the size, scope, and prestige of HDLS conference has grown substantially over the last couple decades. In November of 2014, the eleventh HDLS conference included three keynote addresses, four panel presentations, fifty-nine general presentations, and a poster session. We have many people to thank for the remarkable success of the eleventh High Desert Linguistics Society Conference. Firstly, we would like to thank our fantastic keynote speakers, Joan Bybee, Salikoko Mufwene, and Carol Padden, for sharing their riveting theories and research with us. We are also grateful to our plenary panelists on Signed Languages and Grammaticalization: Terry Janzen, Jill Morford, Barbara Shaffer, and Sherman Wilcox, as well as all of our other panelists and presenters, for sharing their research and passion for linguistics with us. Our gratitude is extended to our HDLS faculty advisor, Chris Koops. We would like to thank our generous sponsors, without whom funding this conference would have been much more difficult: The Office of the Vice President for Student Affairs, The College of Arts and Sciences, The Department of Linguistics, The Department of Spanish and Portuguese, and The Graduate and Professional Student Association.

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Clisis and opportunity
Or: How I learned to stop worrying about clitic definitions and love the distributional phenomena

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ABSTRACT. The work of grammaticization research is far from done, as not all important stages of the process of grammaticization have been equally addressed. Indeed, despite the fact that painstaking effort has gone into establishing criteria for distinguishing open-class words from closed-class clitics, there is still no consensus as to where to draw the line between clitics and affixes. Moreover, the most prominent grammaticization literature often uncritically follows the lead of descriptive grammars which tend to overlabel all morphology as affixes and which, if they address the non-affix-like behavior of clitics at all, simply describe them as exceptional types of affixation (Kornfilt 1997:122, Mace 1962:219, Mahootian 1997:86, Nevins 2010:56, Schroeder 1999:28, Windfuhr 1979:139-140). Operating on observations of distributional phenomena, we propose here just such an objective, quantifiable criterion with which to evaluate morphemes for clitic status: Since clitics definitively mark phrases, if a marker is separable from the open-class word it applies to, then it is a clitic. Likewise, if it is not separable from it, then it is an affix. We, moreover, note that within these two categories – clitic and affix – there are gradations of borderline and core, which display characteristics more or less typical of their development along the cline of grammaticization.

Keywords: clitic, affix, grammaticization, Turkish, Persian, Wappo, Danish, Spanish, Hungarian, Biblical Greek, Kayardild

1. FIRM GROUND ON WHICH TO MEASURE PROGRESS ALONG A CONTINUUM. Many linguists interested in diachrony agree on the existence of a continuum in which functional words may grammaticize into clitics and thence into affixes. However, there is not a clear-cut consensus on the boundary between clitics and affixes, based on purely distributional phenomena, which can be tested cross-linguistically. The long history of this lack of touchstone criteria goes back to the 19th Century, when Eurocentric attempts to fit Near-Eastern languages like Turkish and Persian into European-friendly molds resulted in foundational literature of which later linguistics did not revise the terminology.

2. A NOTABLE GAP IN CURRENT GRAMMATICIZATION THEORIES. To date, typological research does not systematically distinguish affixes and clitics. As we will see below, what some call clitics, others call affixes. While this lack of consensus in typological literature makes for less than optimal consistency when bringing together data from multiple works, what is worse is that even larger typological enterprises do not systematically make this crucial distinction within single works or a single series of works.

Heine and Kuteva, in their *World Lexicon of Grammaticalization* (2002), give an impressive cross-linguistic catalogue of grammaticization shifts from free words to bound morphemes, but they do not systematically distinguish clitics from affixes.

Hopper and Traugott's *Grammaticalization* (2003) similarly does not systematically distinguish clitics from affixes, despite dedicating a section to clitics (142-151), where the authors claim "it is hard to make generalizations" about clitics (5). They then proceed to mistake Persian clitics for affixes (167) as well as Turkish clitics for affixes (155).

Bybee, Perkins and Pagliuca's *Evolution of Grammar* (1994) surveys semantic shifts corresponding with grammaticization in such semantic domains as tense (243-279), aspect (51-105, 125-174), and mode (176-240). The authors discuss how markings start with free word descriptions (69-74) and then discuss how grammatical words become markers by degrees, systematically ranking such characteristics as phonetic reduction (107-110) and loss of autonomy (106-115). They finally go on to discuss the mechanisms which appear to motivate such changes (281-302).

What Bybee and colleagues do not do is systematically distinguish the clitic stage from the affix stage of grammaticization. As such, like Hopper and Traugott (2003), they classify Turkish clitics as affixes (141). Turkish clitics have presented an enduring stumbling block for several generations of researchers, dating back to pre-theoretical descriptions (Boyd 1842:42), which have since been perpetuated by many didactic and descriptive grammars that uncritically inherit such labeling. For example, Kornfilt (1997) discusses as instances of "suffixes" Turkish clitics which are clearly separated from the nouns they mark, such as in (1) below, where the noun *vazo* 'vase' is separated from the plural *=ler*, first person possessor *=(i)m* and accusative marker *=i* by another noun (122):

(1) [vazo ve heykel]=ler=im=i sat=tı=m^{i}
[vase and statue]=PL=1SG=ACC sell=PST=1SG
'I sold my vases and statues'

Rather than reading the plural *=ler*, first person possessor *=(i)m* and accusative marker *=i* as clitics separated from the noun they mark, Kornfilt claims that these "suffixes for plural, possessive agreement, and case can be omitted under identity in the first conjunct, but not in the second conjunct" (122). However, she only evokes the transformation of omission under identity

ad hoc for this situation and evokes other transformations in other passages within the same work (110).

What is surprising is the caliber of work that this analysis is found in, as the typologist Bernard Comrie was the series editor for Kornfilt's book and others from this collection of otherwise rigorous descriptive grammars (ii). However, even in Comrie's (1989) own writing, he uncritically categorizes Turkish clitics as "affixes" and then goes on to add that they are agglutinating "as if the various affixes were just glued on one after the other" (44), not noting (or apparently noticing) that the non-fusional nature of these markers derives from the fact that they are, in reality, separate from the words they mark.

In contrast with Turkish, Persian clitics, especially those with their origins in free words, seem to be consistently regarded as clitics (Browning & Karimi 1994:95, Carnie 2013:348). For example, the Persian definite accusative clitic *=râ*—originally the free noun *rādiy* meaning 'goal' (Hopper & Traugott 2003:166-167)—is separated from the noun it marks by subordinated material, as seen in (2), where *=râ* is separated from *maʔnâ* 'significance' by the dependent genitive *ešq* 'love' (Ḥaydarzâdeh 2008:714).

(2) « معنای لطیف عشق » را فهمیدم

[{maʔnâ **ye**= laṭif} **e**={ešq}] =râ fahmid-am
[{meaning **DEP**=tender} **DEP**={love}]=ACC understood-1SG
'I understood the tender meaning of love'

However, Hopper and Traugott (2003:167) uncritically follow the lead of descriptive grammarians who label *=râ* as a suffix (Fisiak 1988:299, Mahootian 1997:198).

Descriptive grammarians have a history of disregarding the distinction between clitic and affix. For example, in Wappo, case markers are separated from the noun they mark by subordinated material, as in (3). However, Thompson and colleagues describe them as "suffixes"

despite their admission that “Unlike some case languages, in Wappo case suffixes only appear on the last word of a complex noun phrase” (2006:18).

(3) [ce k’ew hučew’iš]=i ew ṭ’oh-taʔ
[DEM man happy]=NOM fish catch-PST
‘that happy guy caught the fish’

Perhaps, individual linguists or even co-authors cannot be expected to treat every linguistic phenomenon with the same weight. However, even the *World Atlas of Language Structures* (*WALS*), which brings linguists together for collective typological work, does not categorize the clitic-affix distinction according to systematic distributional criteria even for such well-known languages as Turkish (“Language Turkish” n.d.) and other Turkic languages (“Language Azerbaijani” n.d.), and Persian (Dryer n.d.), despite the fact that *WALS* aspires to be a repository of typologically significant distinctions worthy of rigorous morphophonological analysis (Dryer & Haspelmath n.d.).

2.1. A TOUCHSTONE CRITERION. What examples like (1), (2), and (3) in fact demonstrate is that the clitics of languages like Turkish, Persian, and Wappo act as we would expect clitics to behave in coordinated and subordinated phrases. For example, in coordinated phrases, these clitics appear distributed across all conjoined words, as with the genitive clitic *=ın* and the possessed-state clitic *=sı* in (4) below, or separated from at least one term via factorization out of the conjunct phrase, as with the same morphemes in (5) below (Attaoullah 1998:68).

(4) [istiklâl=ın ve cumhuriyet=in] [muhafaza=sı ve müdafaa=sı]
[independence=GEN and republic=GEN] [protection=PSD and defense=PSD]
‘The protection and defense of independence and the republic’

(5) [istiklâl ve cumhuriyet]=in [muhafaza ve müdafaa]=sı
[independence and republic]=GEN [protection and defense]=PSD
'The protection and defense of independence and the republic'

This corresponds with Carstairs' (1987) proposal to distinguish clitics from affixes based on the fact that clitics enter into constructions with phrasal constituents, not simply single words (151-152). Carstairs gives examples like those from English in (6) and (7), as part of a series of examples exhibiting increasing degrees of head-enclitic separation (151), as well as that of Danish in (8) which far surpasses the degree of distance which English typically tolerates (155):

(6) [that man we met]='s daughter
'the daughter of that man whom we met'

(7) [that man we bumped into yesterday]='s daughter
'the daughter of the man we bumped into yesterday'

(8) [et av de små børn som er her i feri=en]=s fødselsdag
[one of the small children who are here for holiday=the]='s birthday
'the birthday of one of the small children who are here for the holidays'

While Carstairs uses modification following Germanic nouns to test his hypothesis of separability, the result is the same as it would be for Turkish. The only difference is that no modifiers can follow Turkish nouns since Turkish is a highly harmonic head-final language, and as such the only way to put space between a noun and its enclitics is to separate them via coordination (151).

2.2. USEFUL DIAGNOSTICS. Zwicky and Pullum (1983) provide a helpful short list of behaviors characterizing clitics, but as these are symptomatic rather than illustrative of the core phenomenon, they ultimately find it necessary to hedge their overgeneralizations for "special" sub-groups of clitics. Aikhenvald's (2002) catalogue of characteristics is even longer and

subsequently does less to narrow down a defining criterion for identifying clitics, though she does provide an insightful list of symptoms (43).

Carstairs (1987) proposes a much clearer and more concise single criterion, namely that clitics enter into constructions with constituents larger than a single word (151-152). However, he provides no clear means of testing his claim cross-linguistically. Klavans (1985) makes a similarly useful contribution by expounding on a combination of syntactic, morphological, and phonological directionalities which intersect each other to create a diversity of clitic manifestations across languages (102-104).

In order to argue that change in usage progresses through a continuum and gauge the extent to which it does so, such a continuum should have stable milestones of a purely distributional nature, from which to measure such progress. Like Carstairs' (1987) analysis, the analysis herein is based on the criterion of separability between the clitic and the head word of the phrase it marks, incorporating the combinatory factors creating the diversity that Klavans (1985) discusses, as well as building upon the greater traditions of research in typology and grammaticization.

Zwicky (1985:284-286) refers to a list of clitic symptoms proposed by Zwicky and Pullum (1983:503-504), which accurately describe the way clitics of low grammaticization interact with morphosyntax:

A. Clitics can exhibit a low degree of selection with respect to their hosts, while affixes exhibit a high degree of selection with respect to their stems.

B. Arbitrary gaps in distribution are more characteristic of affixed words than of clitic groups.

C. Morphophonological idiosyncrasies are more characteristic of affixed words than of clitic groups.

D. Semantic idiosyncrasies are more characteristic of affixed words than of clitic groups.

E. Syntactic rules can affect affixed words, but cannot affect clitic groups.

F. Clitics can attach to material already containing clitics, but affixes cannot.

They also propose a subgroup of special clitics, bunching together clitics which have "no corresponding full forms" and those which "do not have the same distribution as the corresponding full forms" as in the pronominal clitics of many Romance languages (510). However, English =*'s* while having no corresponding full form, follows all of the above outlined criteria and is in no way limited in distribution like the clitics of Romance languages are.

No less importantly, Zwicky (1985) clearly defines the other side of the clitic continuum, namely that which distinguishes clitics from full words (286-287), thus effectively dispelling the fallacy of "particles," which Zwicky appropriately describes as "a pre-theoretical notion that has no translation into a theoretical construct of linguistics" and is thus worthy of being altogether "eliminated" from the vocabulary of linguistics (284).

3. A CONTINUUM WITH CLEAR NATURAL MILESTONES. As helpful as the analyses of Zwicky (1985) and Zwicky and Pullum (1983) are, recourse to such terms as "special" to refer to subgroups seems less than optimal. It makes far better sense to determine how and, if possible, why these forms differ in distribution. Both of these questions can be answered by observing a continuum-based analysis founded purely on distributional phenomena with an understanding of diachrony, as seen in Table 1 below.

SCALE	NAME	CHARACTERISTICS	EXAMPLES
Type I.	Low-Gram Clitics	separable by subordinated or coordinated material	Eng. *='s* , *='ve*
Type II.	High-Gram Clitics	separable by coordinated material	Spn. *=los, los=*
Type III.	Low-Gram Affixes	inseparable, no agreement	Eng. *-n't, -ed*
Type IV.	High-Gram Affixes	inseparable, agreement	Grk. ACC *-n*, NOM-*s*

TABLE 1. Continuum-based Analysis of Clitics and Affixes.

The classifications of low-gram and high-gram reflect an understanding not only of placement along a continuum but also of grammaticization path, thus providing utility for theories of grammaticization and general typology alike, the latter of which is the focus of the following sections.

3.1. TYPE I: LOW-GRAMMATICIZATION CLITICS. The English genitive clitic *='s* can be separated from the noun it marks by subordinated material, as seen in (9), where *='s* is separated from *friend* by the subordinate genitive *mine* (Hacker 2008). Similarly, the Persian definite accusative clitic *=râ* is separated from the noun it marks by subordinated material, as seen in (9), where *=râ* is separated from *maʔnâ* by the dependent genitive *ešq* (Ḥaydarzâdeh 2008:714).

(9) [a friend of mine]='s dorm
'The dorm of a friend of mine'.

(2) « معنای لطیف عشق را فهمیدم »
[{maʔnâ **ye**= laṭif} **e**={ešq}] =râ fahmid-am
[{meaning **DEP**=tender} **DEP**={love}]=ACC understood-1SG
'I understood the tender meaning of love'

According to the ranking scheme above, the fact that these clitics can be separated by subordinated material means that they can also be separated from the nouns they mark by coordinated material, as seen in (10), where *='s* is separated from the first coordinate *Nigel* by

the second coordinate *girlfriend* (Gadd & Dixon 2011:129), and in (11), where =*râ* is separated from the first coordinate *daftar* by the second coordinate *qalam* (Avishan 2012:154).

(10) [Nigel and his girlfriend]=’s relationship
‘The relationship between Nigel and his girlfriend’

(11) «دفتر و قلم را... گذاشت»
[daftar va qalam]=râ gozâš-t
[notebook and pen]=ACC put-PST
‘He placed the book and pen’

3.2. TYPE II: HIGH-GRAMMATICIZATION CLITICS. In contrast, Spanish pronominal clitics only appear separated by coordinated material. This is true whether used as proclitics, as seen in (12), where the pronominal proclitic *los*= ‘them’ is separated from the head verb *oír* ‘hear’ (Tello 1997:190), or as enclitics, as seen in (13), where the pronominal enclitic =*los* ‘them’ is separated from the head verb *matar* ‘kill’ (Duro 1894:297).

(12) los= [ve-o y oig-o] amenazándo=me
them=[see-1SG and hear-1SG] threatening=me
‘I see and hear them threatening me’.

(13) suele-n… [mat-ar y com-er]=los
be.accustomed.to-3PL [kill-INF and eat-INF]=them
‘They are accustomed to killing and eating them’.

As for the position of Turkish, it could fall into either category 1 or category 2; there is no testable way to know since all subordinated material precedes its head and thus cannot intervene between such a head and its enclitics. What is certain is that the Turkish markers under investigation are clitics in that they are separable by some means. The degree of clitic they are does not appear to be investigable further, since subordinate material never follows nouns and only follows verbs in subordinate tensed clauses, which are unlikely candidates for carrying the verbal markers of the main clause. If necessary, however, it would be wise to err on the side of

safety and assess it only by what demonstrably happens; it should accordingly be deemed a Type 2: High-Grammaticization Clitic since only Type-2 Clitic separation has so far been attested in the literature.

3.3. TYPE III: LOW-GRAMMATICIZATION AFFIXES. The Spanish synthetic future used to be an enclitic variant of the auxiliary verb *haber* 'have (done)' which was separable from the verb it marked, as in (14), where it is separated from the head verb *ver* 'see' by the pronoun enclitic *=lo* 'it' (Genesis 9:16, La Santa Biblia).

(14) estar=á el arco en las nubes, y [ver=lo]=hé para acordar=me
be=will.he the rainbow in the clouds, and [see=it]=FUT.1SG for reminding=me
de=l pacto
of=the pact
'The rainbow will be in the clouds, and I will see it so as to remind myself of the pact'.

However, in contemporary Spanish, the synthetic future is now a suffix, as in (15), which is fully inseparable from the verb it marks (Crego 2011:206), as it would now produce an ungrammatical result, as in (16), if the old construction were applied:

(15) yo lo=[filmar-é].
yo lo=[filmar-FUT:1SG]
'I will film it'

(16) *[film-ar=lo]=hé.
[film-ing=it]=FUT:1SG
~~'I will film it'~~

Hungarian is often ranked as typologically equivalent to Turkish, and it is commonly noted that its suffixes come from free nouns which evolved into clitics and then eventually suffixes (Hopper & Traugott 2003:110-111). However, unlike Turkish, Hungarian noun and verb markers,

as seen in (17), truly are suffixes (167), in that they can never be separated from the nouns and verbs they mark, as seen in (18):

(17) ebben a [ház-ban es kert-ben] annyi gyonyoruk van
this the [house-LOC and garden-LOC] many pleasures exist
'there are so many pleasures in this house and garden'

(18) *ebben a [ház es kert]-ben annyi gyonyoruk van
this the [house and garden]-LOC many pleasures exist
'~~there are so many pleasures in this house and garden~~'

In failing to be separated by coordinating material, the Hungarian case affixes, which were once separate words, show themselves to have clearly crossed over to affix status. However, their agglutinating nature is not the only thing that reveals their low degree of grammaticization, as seen in the next section.

The Hungarian examples above parallel the distribution that Zwicky and Pullum (1983) call attention to with regards to English *-n't* being an affix rather than a clitic. While *-n't* can mark each individual auxiliary verb it applies to, as in (19), it cannot be separated from one by conjunction, as in (20) or (21).

(19) She [wo-n't and can-n't] do it.
'She cannot do it and will not do it'

(20) *She [wo and can]=n't do it.
'~~She will not do it and cannot do it~~'

(21) *She [will and can]=n't do it.
'~~She will not do it and cannot do it~~'

Lest this be seen as a quirk of the formal alternation irregularities of *will*/*won't*, note that despite a similar *me*/*mine* alteration, *me* with *='s* can be interpreted as possessive when separated by coordination, as in (22):

(22) I did forget [me and my girlfriend]=’s anniversary.
‘The anniversary of me and my girlfriend’ (Burton 2008:95)

Moreover, even when no such alternation irregularities exist, *-n’t* cannot be separated from a verb by conjunction, as in (23), where *-n’t* clearly does not apply to both *could* and *should*:

(23) *She [could and should]=n’t do it.
‘~~She could not do it and should not do it~~’

Given that a bound morpheme’s separation from the head it marks is characteristic of clitics, it follows that such separation excludes affixes. Hence, we can state a primary symptom pair applying to clitics and affixes.

> Symptom Pair 1. Since clitics mark phrases and not words, they can always be separated from the phrase heads they mark; consequently, since affixes mark words, they can never be separated from the heads they mark.

3.4. TYPE IV: HIGH-GRAMMATICIZATION AFFIXES. In addition to determining whether a marker is an affix, it is also possible to measure the degrees of affixation, as done in Croft (2003:252-261). However, only one distinction will be developed here, that of agreement vs. non-agreement.

Biblical Greek has case affixes which mark not only the noun but also its adjectival dependents, as seen in (24), where both *paráklêsi* ‘encouragement’ and *aiônía* ‘eternal’ are marked by the accusative *-n* (2 Thessalonians 2:16). Some languages go a step further, by marking not only adjectival dependents for case but also nominal dependents, in addition to the case marking they already have. In the Tangkic language of Kayardild in Australia, in (25) below, the *-nguni* affix signifying ‘with’ appears on both the head noun *walbu* ‘raft’ and on its dependent possessor noun *dangka* ‘man’, which is already marked with its own genitive *-naba*,

and both nouns further distribute their respective case affixes onto their own dependent adjectives (Evans 1995:105):

(24) « δοὺς παράκλησιν αἰωνίαν »
do-us [paráklêsi-n aiônía-n]
give-ing [encouragement-ACC eternal-ACC]
'giving eternal encouragement'

(25) [{dan-kinaba-nguni dangka-naba-nguni} {mirra-nguni walbu-nguni}]
[{this-GEN-with man-GEN-with} {good-with raft-with}]
'… with this man's good raft'

This phenomenon is not limited to nouns. Similarly, in Kayardild, as seen in (26), affirmative mood marking (generally with the suffix -ntha) is distributed on the nominal dependents of the verb (Plank 1995:29):

(26) [ngijuwa yalawu-jarra-ntha yakuri-naa-ntha
[I:SBJ:AFRM catch-PST-AFRM fish-UNREAL-AFRM
waytpala-karra-nguni-naa-ntha mijil-nguni-naa-ntha]
white:man-GEN-INS-UNREAL-AFRM net-INS-UNREAL-AFRM]
'But yes, I did catch some fish with the white man's net'

In contrast, while Hungarian has case affixes, they mark only the head noun and not its adjectival dependents, as seen in (27), where only the noun *szoknyák* 'skirts' is marked for accusative case, while the adjective *hosszú* 'long' is not (Rounds 2009:152). Any attempt to distribute case marking to the adjective results in an ungrammatical construction, as seen in (28):

(27) [{hosszú} szoknyák-at] viselnek
[{long } skirts-ACC] wear:3PL
'They are wearing long skirts'

(28) *[{hosszú-at} szoknyák-at] viselnek
[{long-ACC} skirts-ACC] wear:3PL
~~'They are wearing long skirts'.~~

Given that suffix agreement exists further along the continuum than suffixation does without agreement, it follows that clitics (which are less grammaticized than low-gram affixes) can never show agreement. Accordingly, since Turkish case marking consists of clitics, rather than affixes, it must be the entire noun phrase which is marked for case, as seen in (29), where a noun phrase, modified by an adjective, is marked externally by the dative clitic *=a* (Sakarya 2010:118).

(29) [küçük çocuğ]=a bak=ıyor=lar=dı
[small child]=DAT look=PROG=PL=PST
'They were looking at the small child'

Any attempt at the high-grammaticization suffix behavior of pervading the noun phrase and distributing the case to the adjective results in an ungrammatical construction, as seen in (30):

(30) *[küçüğ-a çocuğ-a] bak=ıyor=lar=dı
[small-DAT child-DAT] look=PROG=PL=PST
'~~They were looking at the small child~~'

Given that agreement is characteristic of higher degrees of grammaticization for affixes, it follows that adjectival agreement excludes clitic case marking. Hence, we can state a second symptom pair applying to clitics and affixes.

> Symptom Pair 2. Since affixes mark words and not phrases, they mark not only the head word but are often also distributed among its dependents as agreement markers; consequently, since clitics mark phrases and not words, they can never mark the head and be distributed among its dependents as agreement markers.

4. WHY THE DISTINCTION BETWEEN CLITICS AND AFFIXES MATTERS. As mentioned above, in order to drive home the proposition that grammaticization progresses through a continuum and accurately gauge the extent to which it does so, such a continuum should have stable milestones of a purely distributional nature. An accurate understanding of clitic separability from words, as

well as the conjunction which characteristically elicits this, provides just such a typological stability.

When linguists working along the lines of Comrie (1989) discuss asymmetrical behavior among numerals in Russian (107-110), they rely on the stable assumptions about morphosyntactic distribution which Comrie outlines. This should as a case in point where expanding the knowledge base of stable distributional phenomena can only contribute to a progressively developing body of research.

Likewise, when linguists working along the lines of Haspelmath (2004) discuss semantic maps, there are clear-cut patterns of distribution which demonstrate both the fact that change is occurring and the rate at which change is occurring. Again, expanding the knowledge base of stable distributional phenomena can only continue to enrich such analyses.

This sort of stability is especially true for dynamic analyses such as grammaticization (Bybee et al. 1994), as this type of analysis concerns itself with rates of change, and there is no way to measure such rates without a stable ground to work with. Indeed, if grammaticization is to be discussed with any certain accuracy at all, then the milestones along the continuum must be clearly defined. Usage change is akin to a figure moving across the ground of distribution, and without a stable ground to move across, it becomes impossible to measure such a figure's gradations of movement.

Not having a stable ground as a point of reference is tantamount to discussing two dynamic figures and attempting to describe the absolute position of one with reference to the other. Fortunately, this is not necessary, since distributional facts are clear and measurable, nor is it even practiced by Comrie (1989) or others of the same persuasion, who make continuum claims based on assumptions of distributional reliability in the majority of their work.

By building on this stable knowledge of distributional phenomena, it is possible to develop a foundation for a typologically consistent descriptive system of the distributive qualities of clitics and affixes which cuts across theoretical orientations, as well as one of coordinate and subordinate constructions. The enterprise we are proposing herein attempts to forward the pursuit of stable knowledge while not obtruding on particular orientations. Indeed, determining the distinctions between affixes, clitics, and full words is not merely a niche concern for linguistics. It is a fundamental need for working with everything from morphophonology to morphosyntax and beyond.

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[1] Spanish's sister language of Portuguese still maintains the older construction in the written register (De Guimaraens 1960: 329):

(a) e a lua [beij-ar=me]=á.
and the moon [kiss-INF=me]=FUT:3SG
'and the moon will kiss me'

Code-switching on Facebook: Structural constraints

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ABSTRACT. This study examines the structural constraints, proposed by Poplack (1980), of Romanized Arabic-English code-switching (CS) on Facebook. The findings of the study indicate that there is a violation to Poplack's (1980) constraints. The suitability of the FREE MORPHEME CONSTRAINT to the written communications or COMPUTER-MEDIATED COMMUNICATIONS (CMC) has been invalidated due to lack of information on the phonological integration of the English lexical items to the Arabic bound morphemes. Thus, this constraint is not suitable for this sort of corpus. Similarly, the EQUIVALENCE CONSTRAINT has been violated due to the fact that the grammar of the two languages is completely different. The study concludes that the two constraints proposed by Poplack (1980) are invalid for CS on CMC, as is the case with oral CS as proposed in the literature.

Keywords: code-switching, bilingualism, CMC, Jordanian Arabic, Romanized Arabic

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1. INTRODUCTION. This study examines the syntactic constraints on Jordanian Arabic-English code-switched Facebook posts. Although Arabic/English code-switching (CS) has been examined extensively in its oral from (See Al-Khatib & Sabbah 2008, Ghanem 2010, Palfreyman & Al Khalil 2003), no research to this date has looked at the syntactic constraints of this phenomenon on Facebook or in any other COMPUTER-MEDIATED COMMUNICATIONS (CMC). In this study, I aim to re-examine the hypothesized universal validity of the two syntactic constraints, i.e., Poplack's (1980) FREE MORPHEME and EQUIVALENCE CONSTRAINTS in the light of the Arabic/English CS on the social network of Facebook. Also, since Facebook posts are asynchronous, I hypothesize that Jordanian bilinguals do not violate the above-mentioned constraints when they code-switch because asynchronous communication enables them to reread their posts and edit them before sending them to the other party. I also hypothesize that Jordanian bilinguals are able to produce different types of CS.

1.1. WRITING SYSTEMS ON CMC. The Romanized writing system of Arabic is simply a combination of English alphabets and numbers. It emerged with the invention of mobile phones in the 1990s, when users had to use the English keypads to send text messages because at that time the keypads did not support the Arabic alphabet. Accordingly, it became habitual that people use this form of writing even after the emergence of the Arabic keypads. The Romanized writing system of Arabic uses English letters to represent the equivalent Arabic phonemes that sound the same in both English and Arabic, whereas it uses numbers to represent Arabic phonemes that do not exist in English. These numbers are used as a phonetic transcription for the Arabic phonemes (see Table 1).

English Numerals As Used in Romanized Arabic	Equivalent Sound in Arabic	Arabic Character
2	voiceless glottal plosive	ء
3	voiced pharyngeal fricative	ع
3’	voiced velar fricative	غ
6	voiceless emphatic alveolar plosive	ط
6’	voiced emphatic interdental fricative	ظ
7	voiceless pharyngeal fricative	ح
7’or 5	voiceless velar fricative	خ
8	voiceless uvular plosive	ق
9	voiceless emphatic alveolar fricative	ص
9’	voiced emphatic alveolar plosive	ض

TABLE 1. English numbers and their phonetic equivalences in Romanized Arabic

The use of English numbers in Romanized Arabic, which resembles the Arabic letters, is to represent sounds that are not existent in the English language. Consequently, Arabic speakers choose the numbers above because their shape resembles the Arabic letters. For example, number ‘3’ resembles the letter ‘ع’ in Arabic, even though it is in the opposite direction. Similarly, number ‘7 is close in shape to the letter ‘ح’ in Arabic.

1.2. LINGUISTIC STUDY OF CMC. CMC refers to the communication that is carried out among computer users. This communication can be synchronous or asynchronous. While the former refers to real time communication like chat rooms or instant messenger, the latter refers to delayed response communication like e-mails text messaging, Facebook comments, etc. Crystal (2006) views CMC as an emerging third medium of communication, a hybrid that combines oral and written language features. CS on CMC has received little attention in the literature in general as opposed to CS in face-to-face communication. This new form of hybrid writing appears only in CMC and motivates the use of (switching to) English because the two languages used are written in the same letters. This makes the use of CS on CMC the same as CS in oral

communications because bilinguals can alternate between two languages easily as long as they use the same writing system.

1.3. SYNTACTIC CONSTRAINTS. The constraints that I will test in this study are Poplack's (1980) FREE MORPHEME CONSTRAINT and EQUIVALENCE CONSTRAINT. The Free Morpheme Constraint forbids a code-switch between a bound morpheme and a lexical form unless the lexical form is phonologically integrated into the language of the bound morpheme. The Equivalence Constraint states that CS occurs at points where the juxtaposition of elements from the two languages does not violate a syntactic rule of either language, that is, where the surface structure of two languages coincides. The Equivalence Constraint states that CS occurs at points where the surface structures of the two languages are similar. This has to do with the word order of the two languages where the CS utterances must be grammatically possible in the two languages.

2. METHODOLOGY.

2.1. PARTICIPANTS. Participants are 10 (6 males and 4 females) Arabic/English Jordanian bilinguals whose L1 is Arabic and L2 is English. Their proficiency in L2 does not vary significantly. They are all university graduates with ages ranging between 27 and 39 years old (age mean= 31.4) and are all acquaintances of the researcher. They all studied English in schools from grade five to grade twelve and took some courses in English at the university level. At the time of collecting data, they were all living in Irbid, a city in the north of Jordan.

2.2. DATA COLLECTION AND CODING. A total of 200 instances of CS were collected between November 2012 and August 2013 from the ten bilinguals' profiles on Facebook. Types of postings that were scrutinized take the form of status updates, wall-to-wall comments, photo and

video posts, comments, etc. All these postings were characterized as asynchronous. The CS instances collected were written in Romanized Arabic and English. Only intra-sentential switches were tested against the Free Morpheme Constraint and the Equivalence Constraint.

3. RESULTS AND DISCUSSION.

3.1. THE FREE MORPHEME CONSTRAINT. One element of Poplack's (1980) Free Morpheme Constraint relies on phonological integration as a criterion. As the data under investigation is textual in nature, there is little phonological information available, and as such, this constraint is not suitable to be used on this type of data. For example, we cannot decide if there is a phonological integration between a bound morpheme and a lexical item as is the case with oral conversations, where it is easy to tell if any English word is phonologically integrated into Arabic. Furthermore, there is no mechanism to test if any Arabic bound morpheme is phonologically integrated into any English lexical item. That being said, the data still shows that there are many counterexamples that invalidate Poplack's constraint in my study, in which the Arabic definite article *el* is cliticized to English nouns and noun phrases. Also, some JA speakers (or Facebook users in this study) assimilate the Arabic definite article to the following English word as shown in example 1 where the users dropped the /l/ and used /s/, which already exists in the word *security*, because the two sounds are adjacent. So, in the same example, the participant was trying to write the assimilated definite article the way it is pronounced in spoken utterances without adding another /s/. This phonological process was also reported by Al-Enazi (2002). In example 1 below, the phonologically assimilated JA definite article *el* (which became /s/ after undergoing assimilation) is cliticized to the English noun *security* and none of the two words is phonologically integrated to the other language. However, since the corpus of this study is taken

from written conversations not oral ones, it is hard to predict if the lexical item *security* is phonologically integrated in the language of the bound morpheme, which is Arabic. This raises a question over the suitability of this constraint to the written communications or CMC, where one cannot tell if there is a phonological integration of English lexical items to Arabic bound morphemes like the examples below.

(1) *Bastana esecurity check min el mo5abrat*
I-waiting the-security check from the-intelligence
'I am waiting for the security check from the intelligence.'

Other counterexamples involve Arabic prepositions along with the definite article in its contracted form (i.e *3l* '*on the*') (example 4) and pronouns '*t*' (example 3). In all these cases, they are also found to be used with English nouns and verbs without being phonologically integrated to each other. Similarly, the definite article *el* in 2 is an example of a bound morpheme affixation to the English noun phrase *anti biotic*. Example 3 shows how the second person masculine pronoun in JA *t* is prefixed to the English verb *lose* to indicate that the verb agrees with the pronoun in gender and person.

(2) *7ata el anti biotic mesh nafe3ing kolo 3l fa9i allah b3een*
even the aniti biotic not working all for nothing god help
'Even the antibiotic is not working. It's useless. May god help me.'

(3) *la tlose el forsah.. ma btetkarar*

no 2M-lose the-chance no it-repeat

'Don't lose the chance. It never happens again.'

Another interesting example can be seen in 4 where the JA preposition *ʔala* '*on*' and the definite article *el* are contracted into *3l* '*on the*' and attached to the English noun *wheelchair*.

(4) *Maskeen shofto 3l wheelchair belmosttashfa*

Poor I-saw-him on-the wheelchair in-the-hospital

'Poor man! I saw him in the wheelchair in the hospital.'

The above examples show that Jordanian bilinguals violate the Free Morpheme Constraint when switching from Arabic to English on Facebook. This constraint has been violated (38%) 76 times in the 200 switches. This violation is not confined to the use of the definite article; it rather involves the use of the second person pronoun with an English verb attached to it as well as the use of the contracted form of the preposition and the definite article. This violation indicates that Poplack's (1980) constraint is not a universally suitable constraint and can be regarded as a language-specific constraint, i.e., Spanish/English or oral communication CS but not for CMC code-switching as it is hard to predict if there is a phonological integration or not. The violation of this constraint can be attributed to the fact that the structure and morphology of the two languages (JA and English) are totally different. While the definite articles, prepositions, pronouns are free morphemes that can stand alone in English, they are treated differently in Arabic. The definite article in JA is a bound morpheme that is always prefixed to nouns and

adjectives (Al-Deaibes 2015), whereas prepositions and pronouns in Arabic can be free morphemes that stand alone or bound morphemes that are affixed to other words, which is different than English. With that being said, I here claim that Poplack's constraint lacks universality in both oral as well as written communication CS, which is contrary to my hypothesis.

3.2. THE EQUIVALENCE CONSTRAINT. According to the Equivalence Constraint, any switch that violates the syntactic rules of Arabic and English is not permissible. This constraint can account for the CS that occurs between a pair of languages that have the same word order, which is not applicable to Arabic/English CS occurrences. For example, English and Arabic do not have the same word order. Accordingly, if this constraint is a valid one and can be postulated as universal as suggested by Poplack, then there will be no CS between Arabic and English. The data of this study refutes the universality of this constraint by violating it in different ways. The following counterexamples 5-8 show how Jordanian bilinguals switched between English and Arabic in their posts and violated the Equivalence Constraint. All the examples below as well as other examples in the data violate the Equivalence Constraint in different ways depending on the position in which they take place in the clause or phrase. In example 5, the participant violated this constraint by using the English attributive adjective *nice* after the Arabic noun *3o6la* 'vacation'. The participant here treated the Arabic noun *3o6la* as if it were an English noun just to make it fit with the English adjective *nice*, which violates the structure of Arabic where the adjective comes after the noun. In this example, again, the subject treated English as the host languages, whereas Arabic is the embedded language.

(5) *ngarir sho ne3mal bel 3o6la el nice*
decide what we-do in-the vacation the nice
'Decide what to do in the nice vacation.'

Similarly, in example 6 where Arabic is the host language, as most of the data is for intra-sentential CS, the participant used the adjective *Arabic* after the English noun *class*, violating the constraint since English attributive adjectives come before nouns. Another example that violates the constraint is 7 in which the participant used the Arabic possessive second person pronoun *tab3oonak* '*your*' after the English noun *ideas* which clearly violates the English structure.

(6) *Saba7 el class el3arabi on a Fri morning*
morning the class the-Arabic on a Fri morning
'What a lovely morning for the Arabic class on a Friday morning.'

(7) *Wallah el ideas tab3oonak smart…. lol*
God the idea yours-2M.POSS smart laugh out loud
'By god, your ideas are smart.'

Another interesting example that contradicts Poplack's constraint is given in 8. The participant in this example violated the constraint in different ways in the same post. The participant used the Arabic demonstrative pronoun *ha9'* '*this*' to modify the English noun *chapter* which is a clear violation to the English structure where the demonstrative pronoun occurs before nouns, not after them as shown in the example. Another violation in the same example is the use of the Arabic

first person plural possessive pronoun *taba3na* '*our*' to modify the English word *doctor*, which is, as mentioned in example 8, a violation of the English structure and certainly Poplack's constraint.

(8) *El chapter ha9' begarif. Mesh fahim eshi wel doctor taba3na nerd*
The chapter this disgusting Not understand thing and-the doctor ours nerd
'This chapter is disgusting. I don't understand it, and our professor is a nerd.'

The data of this study shows that my hypothesis is wrong and and raises a question on the invalidity and non-universality of the Equivalence Constraint since it cannot prevent the occurrence of CS between Arabic and English at points where there is a difference between the structures of the two languages. My findings support previous research findings on oral conversations CS that Poplack's constraint is not universal even on CMC code-switching. Alenezi (2001), Al-Mansour (1999), Al-Qudhai'een (2003), Bentahila and Davies (1983), Berk-Seligson (1986) reported that Poplack's constraint was violated in their studies and showed that it lacks universality.

4. CONCLUSION. In this paper, I have examined the sociolinguistic phenomenon of CS with special focus on the intra-sentential instances because of their syntactic complexity. I have critically scrutinized the empirical predictions and tested the validity of two controversial syntactic constraints proposed by Poplack (1980), i.e., the Equivalence Constraint and the Free Morpheme Constraint. The results obviously show that there is a violation to the two constraints. The suitability of the Free Morpheme Constraint to the written communications or CMC has

been invalidated due to lack of information on the phonological integration of an English lexical item to an Arabic bound morpheme. Thus, this constraint was never designed for this sort of use.

The above-mentioned violations are against my hypothesis and led me to propose that Poplack's two constraints need be modified or re-evaluated to fit other pairs of languages and written communications; otherwise, they are considered as English/Spanish-specific constraints. With that being said, these two constraints are not universal as they have been violated by the JA/English bilinguals as well as other pairs of languages bilinguals. The violation of the three constraints can be attributed to the fact that the grammar of the two languages is completely different. For example, the word order of Arabic is different from that of English. Further, the attributive adjectives in Arabic occur after nouns, whereas in English they are positioned before nouns. Moreover, the definite article in English is a free morpheme, while the Arabic definite article is a bound morpheme.

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Associative iconicity: Sound effects in English speech

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ABSTRACT. In a series of three studies this paper investigates if SOUND EFFECTS – non-lexical speech sounds – are interpreted in the same way as conventional word forms, using language-specific experience with phonological forms. In Study 1 a sample of 30 sound effects was collected from 17 speakers on YouTube and rated for phonological and semantic properties. Study 2 performed identical analysis with 30 tokens of Japanese ideophones. In both studies phonological content alone was a significant predictor for semantic categorization. Study 3 used survey data measured agreement between participant and researcher semantic judgments of sound effects. An associative form-meaning relationship is proposed that governs the production/perception of English sound effects.

Keywords: iconicity, ideophones, sound symbolism, usage-based, cognitive linguistics.

1. INTRODUCTION. The acoustic realization of a given lexical item's phonetic segments will vary across a sampling of tokens in diverse phonological, morphological or discursive contexts. How listeners are able to reconcile this variation in comprehension is an unresolved question. Usage-based theories of phonological comprehension/production suggest that EXEMPLARS of particular phones are abstracted from the co-occurrence of sounds and meaning over numerous instances (Klatt 1979, Langacker 1987, Ohala & Ohala 1995, Pierrehumbert 2001, Pisoni 1997). Structuralists, on the other hand, suggest that sounds are perceived, stored and accessed separately from their semantic content in a modular system (Chomsky & Halle 1968, McClelland & Elman 1986, Norris 1994, Saussure 1986). While conventionalized lexical items constitute the majority of the sounds speakers produce when engaged in communicative acts, one unique language behavior that can only be explored in a usage-based framework is the phenomena of SOUND EFFECTS. Sound effects vary in their degree of conventionality and iconicity and are problematic to analyze without allowing for gradience and interaction between phonological and semantic content. Because of this, sound effects are usually relegated to the vagaries of performance, instead of the analyzable status of competence in an approach that clearly disambiguates these domains.

Some sound effects are typically called onomatopoeia; *bang, woof,* and *ouch*, for example. In addition to their conventionality, onomatopoeia are somewhat iconic as well – there is little or no variation in their meaning (conventional) and it is more or less clear that they sound like what they mean (iconic). Many languages outside the Indo-European family have a rich inventory of lexical items called IDEOPHONES that fall somewhere between true onomatopoetics and the highly unconventional sound effects that will be examined here. Ideophones have been documented in Japanese (Itô & Mester 1995), Aboriginal Australian languages (Courtenay

1974), Mayan languages (Durbin 1973), and many pidgins and creoles (DeCamp 1974). Other sound effects are less conventional and/or less iconic. They can be used to mimetically represent the sound an object makes, and they can also be used to describe more abstract entities like thoughts, feelings, or processes that do not have an obvious sound that can be imitated.

There is emerging evidence that even speakers in languages without established ideophonic systems access highly schematic sound-meaning mappings in addition to more conventional/arbitrary word forms (Monaghan et al. 2014, Pena et al. 2011). For example, Reilly and Kean (2007), in an English corpus-based analysis, detected patterned phonological characteristics for nouns that varied based on their imageability. Imageability is a measure of how often adults report that a strong mental image is evoked by an item. Etymology, syllable structure, phonological complexity, word length, prosody, phonological and neighborhood density (the number of similar sounding words or lexical competitors that exist in the language) were included in the analysis. The strongest correlations between factors and imageability were from word length and etymology. Specifically longer words were highly correlated with low-imageability nouns and shorter words with high-imageability nouns. Germanic word-origin was correlated with low imageability and Latinate word-origin was correlated with high imageability, indicating a non-arbitrary relationship between word-origin (a characteristic of form) and how easy to visualize the concept was (a characteristic of meaning). Variables with non-significant correlation were total number of phonemes, phonological neighborhood density, and presence of compounding.

In another study, Monaghan, et al. (2014), propose that arbitrariness and systematicity are competing forces in language where highly arbitrary language parts allow for ease of perception since lack of patterning causes low neighborhood densities, but systematicity allows for ease of

learning. They hypothesize that a mix of arbitrariness and systematicity is ideal for language learning. The authors use machine and human learning of artificially constructed languages to test this hypothesis and also assess the hypothesis on corpora of English and French. Machine and human learning studies found that arbitrariness in words was advantageous for language learning, but only if contextual information was also provided. For the corpora studies it was found that the onset part of words is more often arbitrary and the coda is systematic - suggesting this is the way the languages studied handle the need for both arbitrary and systematic information in the lexicon.

These findings suggest that phonological-semantic arbitrariness within the lexicon of English, and presumably all spoken languages, is not inviolate. While duality of patterning need not be completely dismissed, theories that rely on discreteness at various levels (such as word processing, reading, and language acquisition) are recommended for reexamination. This paper adds to the mounting evidence for this perspective.

2. BACKGROUND. There are discernible patterns connecting broad semantic properties and phonological forms in many languages. The Chinookan language, Wishram, has a reduction by lowered sonority for diminutive forms of many lexical items as well as expansion and heightened sonority for augmentative forms (Sapir 1911). English speakers in an early psycholinguistic experiment (Sapir 1929) showed an unconscious phonetic symbolism with the semantic properties *smaller* vs. *bigger* being attributed to the size of the "vibrating column of air in the resonance chamber" (high vs. low vowels). Also, Roman Jakobson has noted that in all of the world's languages, plural morphemes are denoted by either an increase or zero derivation from the singular forms, but never a morphemic decrease (1965).

Attempts over the past century to abstract any of these echoic/iconic properties as language universals have met with disappointment, however. Even the seemingly very robust "/a/: big, /i/: small" pattern in English and other Germanic languages must contend with the case of Bahnar (Diffloth 1994), a Mon-Khumer language of Vietnam. In Bahnar, the long and short variants its vowels are used in an extensive expressive system where /i/ is "big" and /a/ is "small."

"enormous"	ii	uu	i	u
"big"	ee	oo	e	o
"small"	ɛɛ	ɔɔ	ɛ	ɔ

Table 1: Bahnar "size" sound-symbolism.

For this reason, the topic of sound-symbolism has long been regarded as somewhat of a pariah by the mainstream of linguistic analysis. Most linguists more or less accept the Saussurean assumption that the nature of a linguistic symbol is a completely arbitrary association of SIGNANS (the material properties – acoustic or visual) with SIGNATUM (the interpretation of those properties). Saussure noted that the ARBITRARY connection between form and meaning was only one of three possible interactions. The other interactions include an ICONIC connection where the form and meaning are physically related and an INDEXIC connection where the form is physically related to a selected portion of the meaning (such as smoke being a signal for fire). Thomas Gamkrelidze (1974) observed that all three of these possibilities; ICONS, INDICES and SYMBOLS, form only vertical interactions. One form is matched with one meaning in one of three ways. What these definitions do not take into account are horizontal interactions:

> Phonetic closeness of familiar terms (mother, father, brother) is a phonetic allusion to the semantic proximity of the corresponding signata (…) In this sense

alone can we speak of the motivation of one series of relations through the other, of the dependence of the relations between the signata (107).

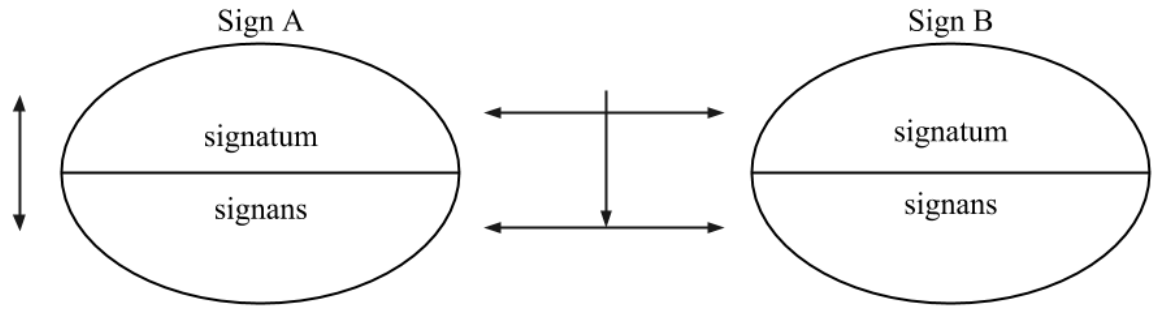

Figure 1: Horizontal relations between signans and signata (Gamkrelidze 1974:107).

Such "horizontal" relationships are both possible in the Sassurian framework, and substantiated in language. EXPRESSIVES – documented in languages other than English such as Japanese, ASL, Bahnar, and many others – are a class of lexical items closely related to sound-symbolism and phonesthemes, but distinct enough to warrant disambiguation. Diffloth (1994:108) calls them "a parallel sub-language grafted on, and parasitic on the conventional one." Many researchers who have documented sound-symbolisms for languages they work in note that they always use only the sounds in the conventional lexicon or a subset of those sounds. Though few signed language researchers necessarily recognize the cross-modality parallelism, the "classifier" systems (Dudis 2007, Suppalla 1986) in signed languages fit nicely into Diffloth's definition. The key is that phonesthemes, ideophones, etc. (or DEPICTIVES as they might be called in sign) create semi-conventional symbolic pairs from existing phonological and semantic schemas of the host language.

Sound effects are arguably neither phonesthemes, expressives, nor depictives though they share a number of similarities with each of these systems. It is clear that sound symbolism in some form exists in many different languages and that high levels of schematization are necessary to capture these phenomena. Given their unconventional nature, only a quantitative analysis can reveal regularities in form.

3. STUDY 1. This study attempted to identify connections between sound and meaning as constituents in an associative network in a sampling of sound effects. A sample of 30 sound effects was collected. Seventeen speakers were sampled in collection. Tokens came from natural student/teacher settings. All tokens were produced by the teachers, only. These teachers were, generally, well known master musicians teaching orchestral conducting, piano, violin, voice, etc. The majority (15/17) of these individuals did not speak English as their native language although the language spoken in all clips was English.

It is likely that a higher number of sound effects are found in the genre of teaching a masterclass in music due to the need to often sing or hum the melody of a piece of music being analyzed. The arbitrary assignment of phonetic segments to a melody is similar in quality to the process underlying sound effects. The difference is that humming a melody is not referential in any way (though the melody itself may be referential in some way, the issue of musical meaning is beyond the scope of this analysis). It seems likely that speakers were primed for making sound effects by their surface similarity to humming and since they were actively discussing the topic of producing sounds.[1]

Sound effects were coded for the phonological quality of their onset. The onset was considered prominent following Wescott's (1971) treatment of labio-velarity and derogation in

English where he notes that onsets and codas have greater degrees of prominence in assigning derogatory meaning when filled by labial or velar phones in informal slang. The particular quality noted for each token was the coarsest granularity level of the sonority hierarchy applicable to onsets – sonorants vs. obstruents. Sonorants include any phone that does not completely close the vocal tract. These are vowels, glides, liquids and nasals. Non-sonorants (obstruents) are stops, affricates and fricatives (Hayes 2009:76). The semantic content was coded at the highest level of schematicity possible following cognitive grammar – either a THING or a PROCESS. A thing is "any product of grouping and reification (Langacker 2008:105). A process is "a complex relationship that develops through conceived time and is scanned sequentially" (Langacker 2008:112).

Phonology	**Context**	**Token**
sonorant onset	"And split of a second [ja:l] and it burst open..."	[ja:l]
obstruent onset	"Not polite gypsy music, very [ʔmm]."	[ʔmm]
Semantic		
thing	(...)and more [ɛʔ], trumpet.	sharp delicateness
process	"Instead of going [wʰɑp], which would tend to..."	raising your hands quickly

TABLE 2. Coding examples.

Results from this study indicate that there was an interaction between the phonetic quality (obstruent/sonorant) of the onset and the quality of the meaning expressed by the sound effect (a thing/a process). See Table 3. A chi-square test of goodness-of-fit was performed to determine whether the type of onset was equally preferred for semantic category. Preference for the onset type was not equally distributed in the population, [$\chi 2$ (1, N = 30) = 8.48, $p < .01$]. Specifically,

sound effects coded as things were more likely to have obstruent onsets and sound effects coded as processes were more likely to have sonorant onsets.

	Obstruent Onset	**Sonorant Onset**	*Totals*
Thing	10	6	16
Process	3	11	14
Totals	13	17	30

TABLE 3. Study 1 – Sample of 30 sound effects.

4. STUDY 2. Are the patterns observed in Study 1 universal? If they are, we might expect to find them when looking at similar phenomena from other languages. Study 2 used a random sample of Japanese ideophones taken from a *Dictionary of Iconic Expressions in Japanese* (Kakehi et al. 1996). Fifteen tokens with first syllable sonorant onsets (last 5 entries under "A", "O" and "K") were selected. Classification of the meaning of these ideophones was performed in an identical manner to Study 1. Results showed a strong tendency for sonorant onsets to occur with items that had process type meanings. Items with obstruent onsets had a strong tendency to occur with thing type meanings. See Table 4. Examples 1-3 illustrate sonorant onsets and 4-6 illustrate obstruent onsets. 1 and 2 match the pattern of sonorant/process, but 3 does not. Likewise 4 and 5 match the obstruent/thing pattern, but 6 does not.

	Obstruent	**Sonorant**	*Totals*
Thing	12	3	15
Process	3	12	15
Totals	15	15	30

TABLE 4. Sample of 30 Japanese ideophones

(1) *ata-futa* | “in a flurry” | process

(2) *wasa-wasa* | “trees shaking violently” | process

(3) *on-on* | “sound of loud crying” | thing

(4) *byuun-byuun* | “whistling wind” | thing

(5) *tsuu-tsuu* | “sound of a dial-tone” | thing

(6) *kyoton* | “stare blankly” | process

A chi-square test of goodness-of-fit was performed to determine whether the type of onset was equally preferred for semantic category. Preference for the onset type was not equally distributed in the population, [$\chi 2$ (1, N = 30) = 33.75, $p < .001$]. These results indicate that the associative network of sonorant/process and obstruent/thing may not be unique to highly unconventional English sound effects but may extend to a broader range of related phenomena including more conventionalized items like ideophones.

5. STUDY 3. While Studies 1 and 2 identified a pattern of sound-meaning associations, all results were based solely on a single investigator’s intuitions. Study 3 aimed to test the thing/process classification schema against native speaker judgment using a simple Likert-scale of similarity. Participants were presented with pairs of the sound effect video-clips from Study 1 and asked to judge how similar the sounds were to each other and how similar the meanings were on a scale of 1 to 7. Eight pairs were presented. Four pairs constituted the critical alternation (shown in Table 5) and four additional pairs were crossed with the target conditions. The survey itself can be found by visiting: http://sites.google.com/site/soundeffectsurvey/welcome.

Sound match	**Sound 1**	**Sound 2**	**Meaning 1**	**Meaning 2**	**Token 1**	**Token 2**
matching	obstruent	obstruent	thing	thing	*dohp*	*bong*
matching	sonorant	sonorant	process	process	*wrn*	*wha*
mismatching	obstruent	sonorant	thing	thing	*dwi*	*yip*
mismatching	sonorant	obstruent	process	process	*ooo*	*digadigadig*

TABLE 5. Sound effect similarity survey items

Twenty-four participants completed the survey. The average meaning similarity scores for the pairs with matching onsets was higher [M=3.97, SD=2.09] than the average meaning similarity scores for pairs with mismatched onsets [M=3.0, SD=1.91]. The difference between the scores was significant [$t(93)$=2.38, $p < .01$].

In both conditions, each pair had equivalent meanings; things were matched with things and processes with processes. The four control items had mismatched meanings and matching sounds or mismatched meanings and matching sounds. There was a significant trend towards higher meaning similarity ratings for matching sonorant/sonorant or obstruent/obstruent pairs. This suggests that subjects were incorporating phonological information into their semantic judgments. The higher sound similarity ratings for the matched onsets is predictable since the inclusion of a given phone into either sonorant or obstruent categories is based on sound similarity. It also indicates that subjects considered the sonorant or obstruent examples selected to sound similar to each other. Figure 3 shows these values as well as the mean values for ratings of how similar the obstruents and sonorants pairs were rated.

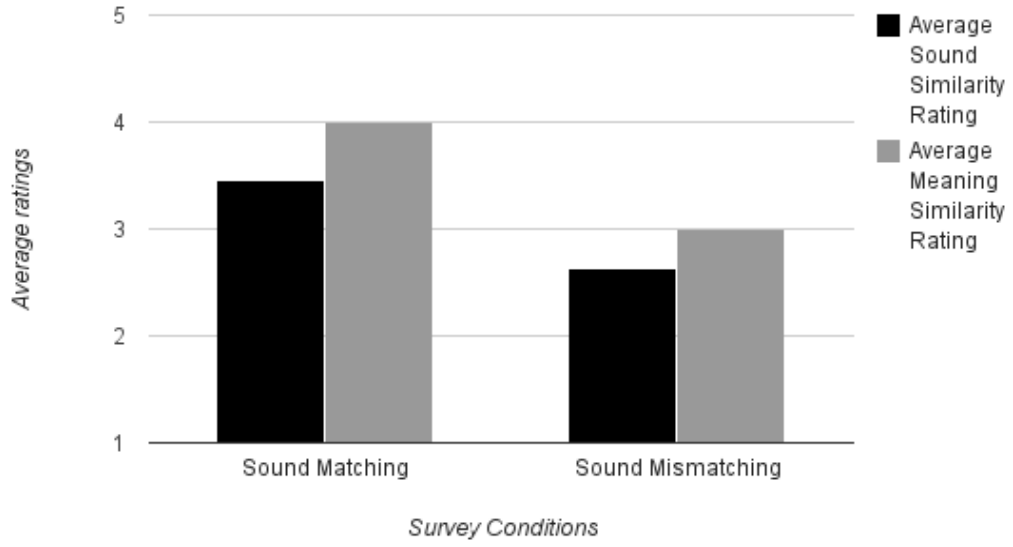

FIGURE 2. Mean agreement for Study 2 experimental conditions.

Participants were also asked to select their level of classical musical training at the end of the survey as either "little/none," "some," or "extensive." Subjects with more experience with the style and manner of music masterclasses might be better able to ascertain the semantic content of the types of sound effects presented in the survey. A one-way ANOVA revealed no significant difference in meaning similarity rating between the three groups for the sound matched condition [$F(2,18) = 1.45$, p = n.s.] nor for the sound mismatched condition [$F(2,18) = .009$, p = n.s.]. Table 6 shows the mean values for the two conditions based on the three groups.

	Sound matched average	***SD***	**Sound mismatched average**	***SD***
Extensive	4.08	2.24	3.17	1.58
Some	3.85	2.13	3.08	1.86
Little/None	4.50	1.80	3.20	1.47

TABLE 6. Average rating differences between musical training groups.

6. DISCUSSION. The studies presented in this paper make a case for an associative sound-meaning network that aids language users in the coherent production and perception of novel sound effects. See Figure 4 for a model of how this network might work. Example tokens are listed for both semantic and phonological interactions. Pairings of semantics and phonology are denoted by their parallel position to each other (such as the pairings of [conducting vigorously] with [ra:h]). Similarity in process-type meanings are shown by a vertical solid line between tokens, as with similarity in thing-type meanings. The activation of the semantic network is represented by the horizontal line between the networks of process and thing meanings. Likewise, the similarity between sonorant onsets is represented by the vertical line (as between [ra:h] and [wah]) and between obstruent onsets. The activation of the phonological network between these two types of onsets is represented by the horizontal lines connecting the separate sonorant and obstruent networks. This latticework is a schematic representation of the high-level exemplar cloud that is activated when a sound effect is perceived and a listener attempts to use their prior experience to determine possible meanings.

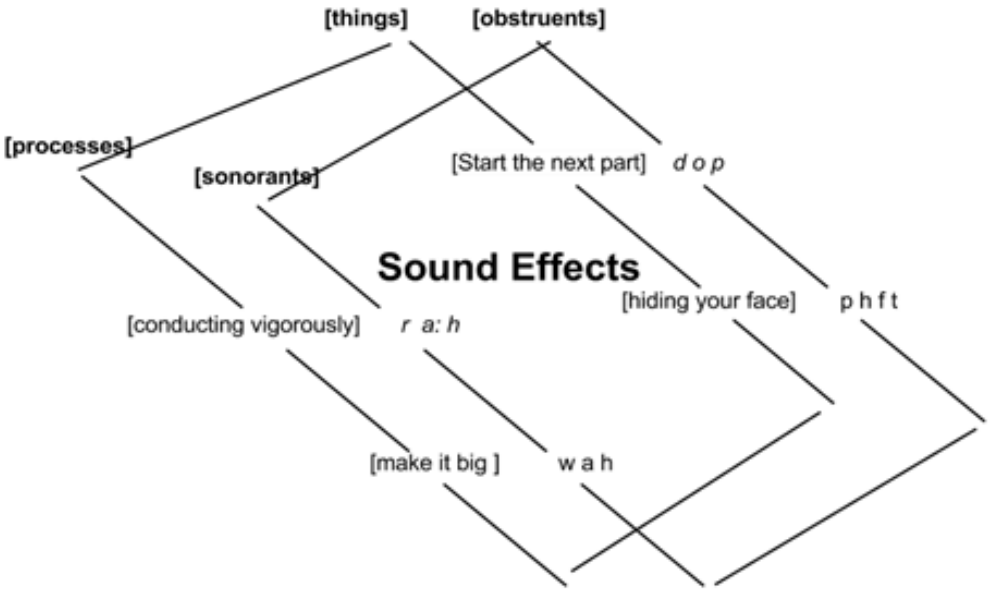

FIGURE 3. Associative network for sound effects.

The manual gestures that accompany sound effects have not been discussed in this analysis, but almost certainly play a role in decoding the meaning of a sound effect. Gestures were, however, coded using rubrics from Cienki's *Image schemas and gesture* (2005). Cienki categorizes gestures by their function. Broadly, there are referential gestures, and discursive/performative gestures. Discursive and performative gestures are viewed as accompanying a verbal utterance by illustrating a discourse level feature (like marking emphasis). Referential gestures are depictive of both concrete/abstract entities/ideas or relations. They are further classified as indexical of OBJECTS, PROPERTIES, BEHAVIORS/ACTIONS and RELATIVE LOCATION. Examples are "a picture frame," "the edge of a ruler," "the rolling of a tire," and "the space behind oneself," respectively.

Analysis of the gestures accompanying the sound effects from Study 1 found a very similar result to the sonorant-process, obstruent-thing pattern. Results show significant correlation between the meaning of the conductor's mimicked vocal gesture and the

accompanying manual gesture [$\chi 2(1, N = 28) = 11.81, p<.005$)]: thing meanings tend to be accompanied by object manual gestures, whereas process meanings are accompanied action manual gestures. This demonstrates cross-modal iconicity between the functions of the conductor's vocal and manual gestures. Also interesting is the observation that not all of the multimodal constructions coded were complementary. That is, a small portion of thing meanings were accompanied by action manual gestures, while some process meanings were accompanied by object manual gestures. Further study is warranted.

	Object gesture	**Behavior gesture**	*Totals*
Thing	11	3	14
Process	1	13	14
Totals	14	14	28

TABLE 5. Gesture analysis of items from Study 1

One possible criticism of this analysis is the perspective that the sound effects examined in this study are simply lexicalized – and this is why speakers are able to understand them. Lexicalized items in language are necessarily standardized, repeatable and shared across all language users. Sound effects are schemas that are shared but not standardized or repeatable. Essentially, lexicalized items are semantic entities with a retrievable phonetic realization. Critically, there is a fine grained one-to-one correspondence between form and meaning. While a usage-based perspective does require scalar, rather than categorical distinctions, the phenomena described in this paper are so coarse grained in their semantic/phonological correspondence it would be disingenuous to consider them as lexical items in the traditional sense.

7. CONCLUSION. The correlations between meaning and sound found for English sound effects in Study 1 combined with the correlation in the same direction found for Japanese ideophones in Study 2 suggests a robust network that may span different languages. The results of Study 3 confirm that English listeners show a tendency to use the quality of the onset in determine the meaning of a sound effect encountered for the very first time. The proposal put forward here is that the same cognitive apparatus that allows for the management of acoustic variation for conventionalized lexical items also applies to the production and perception of completely novel sound/meaning pairings. Moreover, this system should not be constrained by modality in any way – signed languages should have similar systems in so far as there are should be schematic handshapes, movements, and locations that are matched with schematic semantics. Sound effects, ideophones expressives, and other "non-standard" forms of sound-meaning pairings are in sore need of study and analysis, given their long estrangement from sanctified linguistic fields of study. Further exploration into the associative networks that speakers and signers alike have access to during comprehension and production will likely challenge many long standing assumptions about the relationship between form and meaning in the lexicon.

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[1] Thanks to Sherman Wilcox for the suggestion look for sound effect data in masterclasses on YouTube.

Phonetic annotation of signed languages as a tool in cognitive linguistics[1]

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ABSTRACT. In this paper, I argue that a conventionalized system of phonetic transcription will meet both the theoretical and practical needs of signed language researchers in the usage-based/cognitive linguistics field. I give a working definition of a cognitive linguistics framework of phonetics and phonology for signed language, and evaluate Sign Language Phonetic Annotation (SLPA), proposed in Johnson and Liddell (2010, 2011a, 2011b, 2012) under this definition. I assert that phonetic notation of signs in general is appropriate within and necessary for a usage-based understanding of signed language form. I advocate for the need for a gestural approach to language form transcendent of modality and assert that SLPA can facilitate such an approach. Characteristics of SLPA deemed incompatible with usage-based theory include binary feature specification and possibly the proposed sequential segments within signs.

Keywords: signed language, transcription, annotation, phonetics, phonology, gesture, articulatory phonology

1. INTRODUCTION: NOTATION AND THEORY. The field of signed language (henceforth SL) linguistics is replete with proposed notation systems. This profusion itself has direct negative consequences for researchers, such as the inaccessibility of transcription to those outside one's research team (Garcia & Sallandre 2012:1124). At the root of this diversity, however, lies a deep theoretical issue. Not only transcription but development of notation systems are inseparable from theory, as discussed, for example, by Miller (2001). Liddell and Johnson (1989:207) capture this dual nature of notation by stating that a system must represent both "the 'facts' of a language" and "the organization of the facts." Whether a system allows one to characterize this organization will first depend upon its descriptive adequacy according to the assumptions of one's theory. Among the most salient differences between the myriad of SL notation systems is the grain of detail they capture, thus revealing a lack of consensus regarding the mental representation of phonetic and phonological form and its relationship to produced form. In other words, assumptions regarding the relevance of various production phenomena to the cognitive structure of language will lead to either inclusion or omission of tools to transcribe these phenomena in notation systems.

I would like to reframe the problem of the lack of conventionalized SL notation as an opportunity for the field of USAGE-BASED LINGUISTICS and, more specifically, COGNITIVE LINGUISTICS (henceforth CL). Unfortunately, it seems the aforementioned theoretical disagreement is often overlooked, and researchers make no appeal to a particular stance in defense of adopting one system over another. This silence may reveal a failure to acknowledge notation's origin in theory. We must first acknowledge the inseparability of description and theory. Only then can we explore how to address each in SL linguistics, which is the goal of the present discussion. Thus we may set in motion a cycle of advancement: identifying usage-based

assumptions about produced form and mental representation allows us to develop appropriate notation for description within this framework, employment of this notation allows us to describe that which is relevant to the questions raised within this theory, the theory develops, notation can be refined, and so on.

Before presenting an overview of the present discussion, I will address a possible challenge to my point that a notation system may not exist independently of theory: that the International Phonetic Alphabet is used by spoken language linguists of diverse theoretical bents. My rebuttal stems from my advocacy for a phonetically based notation system for SL, which I address in Section 3. An understanding of various methods of measuring the phonetic detail of speech underlies the IPA. Thus even when linguists disagree, they have the tools to discuss both production and questions of phonetic detail in mental representation. Like when spoken language linguists use broad transcription, we of course may sometimes employ more language-specific phonemic notation. By building a notation system from the bottom up, however, (that is, by examining phonetic detail and allowing it to inform our understanding of higher-level units) we can gain a better understanding of phonemic categories within a given language, how categories differ cross-linguistically, etc.

In pursuit of descriptive and theoretical advancement, then, I make two proposals. The first is that both description and theory of SL within a CL framework necessitate phonetically detailed – as opposed to strictly phonemic – transcription. The second is that a notation system which describes signs in terms of their gestural basis facilitates an analysis of language form which unifies our understanding of the signed and spoken modalities and, thus, a deeper understanding of the human language capacity. In building my argument, I use Sign Language Phonetic Annotation (SLPA^2) as an example of such a tool. This model is a development of the

earlier Movement-Hold Model in Liddell and Johnson (1984, 1989) and is described in Johnson and Liddell (2010, 2011a, 2011b, 2012). Hochgesang (2014a, 2014b, 2014c) are lecture slides providing unpublished details of SLPA developed largely by Johnson and disseminated to his students (including Hochgesang). These slides contain both Hochgesang's explanations of the system and illustrations and descriptions taken from Johnson's own slides. I begin with a description of SLPA based upon both sources. I then address the issue of description generally by providing evidence of the need for a phonetically based notation system in areas which may be of interest to researchers of diverse theoretical leanings.[3]

Turning to the particular question of description within CL, I then address the role of phonetic detail in usage-based theories of mental representation and, therefore, the necessity of phonetic transcription within this framework. This portion of my discussion begins with a working definition of phonetics and phonology based upon Bybee (2001) and Langacker's (2008) tenets of Cognitive Grammar, providing criteria for evaluating a notation system's compatibility with usage-based claims.

Finally, following Bybee (2001), Wilcox (2012), Wilcox and Xavier (2013) and Armstrong et al. (1995), I adopt the assertion that an articulatory gesture view of language is the view most amenable to a usage-based framework and one which allows us to unify our understanding of language form independent of modality. I conclude that, in allowing for description of SL in terms of articulatory gestures to a much greater extent than phonemically focused systems, SLPA (or a similar system) is therefore beneficial to inquiries under this assumption and a necessary tool for the next step in understanding and describing human language in a way that transcends modality.

2. SIGN LANGUAGE PHONETIC ANNOTATION. SLPA is a featural, phonetic approach to both understanding the (proposed) segmental structure of signs and transcribing signs through notation (Johnson & Liddell 2010). Thus, like the IPA, SLPA assumes both a simultaneous (featural) and sequential (segmental) level of organization within signs. This distinguishes SLPA from other systems, which analogize hand configuration, movement, orientation, and nonmanual gestures to spoken language phonemes (e.g. Brentari 1998). This parameters-as-phonemes approach has led to an understanding of signs as essentially unanalyzable in terms of sequentially unfolding units. In section 3.2**,** I review Liddell and Johnson's (1989) justification for describing a sign sequentially, concluding that, regardless the grammatical status of syntagmatic units, sequential description is useful. In the next section, I provide the details of SLPA relevant to the present discussion. I do not provide the depth of description needed to apply the system but, rather, an outline of those characteristics representative of phonetic SL description generally.

Two points must be kept in mind throughout my discussion of SLPA. The first is that Johnson and Liddell claim not to present a finished product but a foundation for phonetic description of SL. The second is that my goal is not to argue for the adoption of SLPA *per se*. I argue, rather, for phonetic transcription of SL generally, given the assumptions of a usage-based approach, and to my knowledge, SLPA is the most phonetic, rather than phonological, notation system developed for SL. I thus employ it as a representative for this kind of notation, keeping in mind the larger goal of advancing usage-based analysis of SL form.

2.1. ARTICULATORY DESCRIPTION OF FEATURES. As I mentioned in section 2, most theories, and therefore notation systems, understand hand configuration, orientation, movement, location, and nonmanual gestures as phonemic units specified only once or twice per sign. In other words, the

hand configuration pictured in Figure 1, for example, is considered a phoneme or, in production, an allophone of ASL.

FIGURE 1. Production of an ASL allophonic handshape[4]

In Stokoe Notation (Stokoe 1960) and similar systems, the arrangement of the fingers and thumb shown above is labeled a '5 handshape'. Such a label is typically the most precise detail given systematically; should further detail be relevant, such as the degree of spreading between two specific fingers, it must be given in prose. The other parameters are similarly holistically described.

SLPA, on the other hand, proposes binary [+/-] features specifying muscle and joint activity, describing production rather than perception. Johnson and Liddell (2010, 2011a, 2011b, 2012) and Hochgesang (2014a, 2014b, 2014c) present the full inventory of features identified by Johnson and Liddell as descriptively adequate. A comprehensive list is beyond the scope of this paper, and Johnson and Liddell concede that additional evidence may call for increased detail. Instead, I will provide an overview of SLPA's articulatory descriptions of hand configuration, placement, facing, primary contact, and nonmanual grammatical gestures (NMG).

HAND CONFIGURATION. SLPA describes hand configuration in terms of degree of extension and flexion of each thumb and finger joint. Abduction and adduction at the metacarpophalangeal

joint (where the fingers connect to the palm) account for degree of spreading of the fingers and thumb. Contact between the thumb and a finger or fingers and where this contact occurs also contribute to hand configuration.

PLACEMENT. Placement describes the spatial relationship between the hands, hands and body, or hands and space. Changes in these relationships account for the movement parameter of other approaches, and path features produce the movement's shape. Defining a sign's placement requires identification of a focal site, a determinate (stable) spot in signing space or on the weak hand or body with respect to which the active articulator (usually the hand) is positioned. Hochgesang (2014a, 2014b, 2014c) presents the various points on the body and in space relative to the body which have thus far been determined as important for phonetic description.

FACING. Facing is a reconceptualization of orientation, described as a result of rotation, extension, and flexion of the wrist, elbow, and shoulder joints.

PRIMARY CONTACT. Primary contact describes contact between the hands and body, the values for which are defined similarly to possible focal sites. The point on the hand with which contact is made also constitutes primary contact.

NONMANUAL GRAMMATICAL SIGNALS. NMG include movements and configurations of the head, eyes, eyebrows, mouth, and body which contribute to a sign's form. Description of NMG is a forthcoming component of SLPA (Hochgesang 2014b) and is requisite to any complete phonetic notation for SL.

TIMING UNITS. Further departing from other approaches, SLPA theorizes that the features specifying SL articulation bundle horizontally to produce sequentially unfolding segments called TIMING UNITS within individual signs. These segments divide into the two major categories of TRANS-FORMING and POSTURAL segments. Trans-forming segments are characterized by a changing specification of one or more features. Postural segments are defined as (brief) points in the signing stream in which all features are aligned, that is, unchanging. A feature [+/- dynamic] is proposed to distinguish these two types of segments. The two categories are divided further based upon the manner of production (e.g. controlled vs. ballistic muscular activity).

Figures 2 and 3, reproduced with permission from Johnson and Liddell (2011), show an instance of the sign CHICAGO (plus several frames before and after the sign) and an illustration of its segmentation under SLPA, respectively. A frame's duration simply represents the finest grain of detail observable through the technology available to the authors (therefore holding no theoretical significance), and frame letters and numbers correspond to the boxes along the top of the image in Figure 3. The horizontally stacked boxes on the left signify hand configuration, placement, facing, and NMG. The solid gray boxes labeled 'changing' extend through frames during which the features defining these parameters are in transition, and the patterned boxes containing numbers stretch across frames during which the given feature remains static. The numbers in the patterned regions demonstrate the sequence of feature specifications: a change in number represents a change in specification between the current and previous postural segment. Frames during which at least one parameter is changing capture trans-forming segments (frames 2-6 and 8-11). Frames throughout which none of the four parameters exhibit changing featural specifications are identified as postural segments (frames 1, 7, and 12-15).

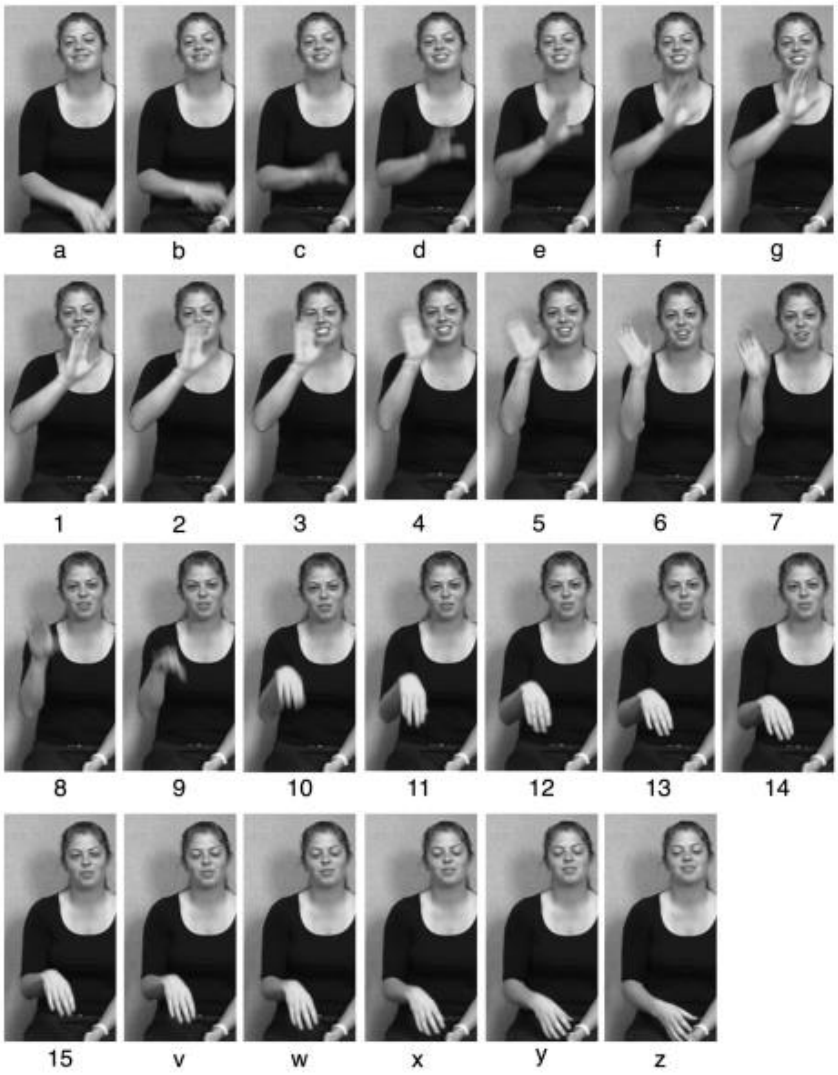

FIGURE 2. Frames capturing a demonstration of the sign CHICAGO

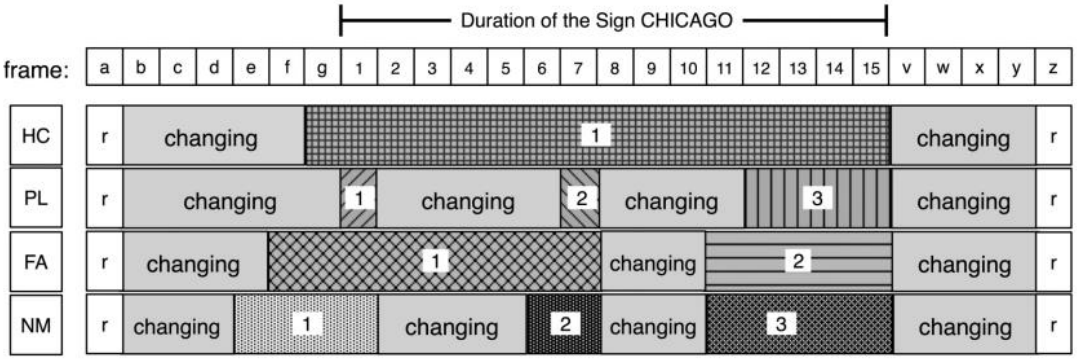

FIGURE 3. Segmentation of timing units in CHICAGO based upon feature alignment

Thus, rather than merely a configuration of handshape, location, orientation, and movement, the sign CHICAGO is transcribed in SLPA as containing five sequential segments. In section 3.2, I discuss this segmentation approach in light of usage-based theory. Table 1 offers a summary of the articulatory description of parameters in SLPA and, for comparison, rough equivalents under traditional phonemic approaches. NMG are omitted since their description is not yet provided in SLPA.

	Articulatory description, SLPA	Traditional equivalent
Hand configuration	extension, flexion, abduction, and adduction of finger and thumb joints thumb-finger contact	holistic handshape labels, such as ‘claw’ or ‘bent 5’
Placement	spatial relationship between the hands and focal site on the weak hand, body, or signing space	location, defined as regions identified in traditionally defined minimal pairs
Facing	rotation, extension, and flexion of wrist, elbow, and shoulder joints	orientation, described as direction faced by palm or extended fingers
Primary Contact	location and presence or absence of hand-body contact	location, defined as regions identified in traditionally defined minimal pairs, and presence or absence of hand-body contact
Timing Units	alignment of all features or changing of one or more features	-------

TABLE 1. Parameter definition in SLPA and traditional phonemic systems

SLPA exemplifies the characteristics of a phonetic notation system for SL. Its difference from traditional phonemic notation lies most saliently in its emphasis on the gestures producing configurations of the articulators and its description of signs as temporally structured units. Section 3 deals with the necessity of this type of notation.

3. NEED FOR PHONETIC NOTATION. I have followed others (e.g. Miller 2001) in asserting that our field requires a common system of notation. Some have argued against the need for SL

transcription at all, however, such as Armstrong and colleagues (1995), appealing to advancing technology and increasing video data access. However, photographs remain the primary means by which SL researchers display raw data, and these can never stand alone. As in spoken language research, not every property of an instance of SL will be relevant to a single research question (Miller 2001), and many aspects of signed production are not captured in photographs. Even if raw video data is presented, the researcher must still identify which characteristics they are examining, especially for audiences unfamiliar with SL.

In the absence of notation, prose accounts of data reveal something about our descriptive needs. The following example reveals what I believe to be true throughout the body of research: our analyses require a system, like SLPA, which describes signs articulatorily. Stokoe's (2001:436) description of the sign YES is strikingly similar to what is proposed by SLPA:

> L]ooked at from the physiological basis…[the sign] yes is the result of **flexing** the fingers, and…of **abducting** and **rotating** the upper arm outward at the shoulder, and of fully **pronating** the forearm, and of **flexing** the arm at the elbow (emphasis added).

We see here that configuration of the articulators and the gestures that produce it are central to an adequate description of a sign's form, even in prose. This description and the phonetic transcription made possible by SLPA differ only in systematicity. By providing a more succinct and standardizable approach, SLPA, or a similar system, will facilitate advancement in our field.

4. TRANSCRIPTION AND USAGE-BASED THEORY. As mentioned in Section 1, transcription, and even notation, cannot be theory-neutral. What notation captures must follow from at least broad assumptions of the nature of the linguistic system. In Section 4.1, I discuss ways usage-based and

CL theory will impact decisions made in the development of SL notation. Section 4.2 concludes that SLPA, as a tool for phonetic description, is precisely the kind of notation system this theory's understanding of language form demands.

4.1. USAGE-BASED PHONOLOGY. To evaluate the appropriateness of phonetic notation for SL within usage-based linguistics, we must first define our model of phonetics and phonology within this framework. For this purpose, I employ Bybee's (2001) usage-based understanding of form and principles laid out in Langacker (2008).

The major consequence of Bybee's (2001) model for a notation system is the significance of the phonetic rather than phonemic level only. Her work has emphasized the role of phonetic detail in reception and storage (Bybee 2010) and called for a 'model of phonetic categorization' (Bybee 2001:53). This model assumes 'that storage units are categorized tokens of use' and that 'mental representations contain considerable detail about phonetic variants…not just those [features] that determine phonemic contrast' (49, 52). As yet, we have no evidence to believe that this importance of phonetic distinctions for mental representation of spoken language differs for the perception and production of SL. To pursue a usage-based understanding of SL form, then, at least as Bybee (2001) conceives of this theory, we must describe phonetic detail.

Langacker's CONTENT REQUIREMENT also serves as a useful guide for what may constitute linguistic mental representation. Within his approach, linguistic 'units are limited to structures that arise from usage events through…schematization and categorization' (2008:220). With regard to language form specifically, 'phonological units [are abstracted] from apprehension of their phonetic properties' (220). Again, we find in the very definition of usage-

based and cognitive linguistics an emphasis upon phonetic detail as the foundation for phonemic categorization and, as such, essential to our understanding of mental representation.

4.2. SLPA AND USAGE-BASED THEORY. With this broad understanding of a usage-based theory of language form, we can now ask whether SLPA suits this perspective. A review of Section 2.1 reveals both characteristics which adhere to the stated goals of usage-based linguistics and characteristics which, adhering to a generative framework, are in conflict. I will first address the latter, namely SLPA's binary feature specification, which conflicts with the usage-based assumption of gradience and detail in mental representation. According to Bybee (2001), storage is not limited to phonemic contrast. Since identification of timing units within SLPA depends largely upon such binary specifications, their compatibility with CL is also questionable. I do not argue against a simultaneous level of representation in the SL grammar but assert, rather, that descriptive adequacy also requires understanding of signs as temporally unfolding articulations. Even for spoken language, however, considering segments as emerging from use requires us to rethink the nature of their stored representations. Thus, we should consider trans-forming and postural segments as a starting point for exploring the sequential nature of signs. Their status as psychologically real units requires further empirical (including experimental) evidence.[5]

On the other hand, the level of phonetic detail SLPA captures is precisely the level at which we must analyze form to develop a usage-based model of SL form. Moving beyond holistically perceived units, SLPA is a tool which allows us to explore SL production within the CL view of language use and its relationship to mental representation. Some have criticized the system's level of detail, however, and even Johnson and Liddell view it as a shortcoming. This

criticism is in fact an accusation of redundancy (or predictability), which is not a flaw from a usage-based perspective.

PREDICTABILITY. Johnson and Liddell (2011b:409) express their attempted avoidance of predictable features as follows: “The search for potential phonetic distinctions provides a means for determining which aspects of the sign are linguistically important and which are accidental or simply the result of how our bodies work.” They concede that, as yet, SLPA fails to accomplish this goal. As a demonstration, we can discuss how SLPA would treat the ASL sign WORK, pictured in Figure 4, in which the palms are oriented toward the ground the front of the active hand wrist contacts the back of the passive hand wrist.

FIGURE 4. Demonstration of a form of the ASL sign WORK

As is clear from Section 2.1, SLPA would capture both the location of contact between the two hands and their facing produced by rotation at the elbow. Such notation, however, involves redundancy. It would be physically impossible for the point of contact to be, for example, the sides of the hands if the palms were oriented toward the ground. But if our goal is to capture aspects of production of significance to the grammar, and if our theory of representation follows a usage-based perspective, this redundancy is acceptable. Consequences of ‘how our bodies work’ are legitimate observations within a model of language wherein language use plays a

crucial role in the developing the grammar. Bybee (2001), citing Ohala and Ohala (1995), explains that predictable features are a meaningful part of our linguistic perception and that redundancy of mental storage is not only not a problem within a usage-based framework but is in fact a major assumption of how language works.

5. THE GESTURAL VIEW OF LANGUAGE FORM. Thus far, I have attempted to demonstrate that phonetic notation, exemplified here by SLPA, is required for adequate description of SL data. I have argued that this is especially true if we are concerned with description that is informative to usage-based and CL theory. I now turn to my second and broader argument for developing phonetic notation for SL: that a unified analysis of signed and spoken language production follows necessarily from CL theory, that a gestural analysis allows for this unification, and that a tool of phonetic description is necessary for carrying out gestural analysis.

The notion that gesture, in the sense I have thus far applied the term, constitutes both the physical and cognitive substance of language emerged as the articulatory phonology theory of spoken language (Browman & Goldstein 1989). Browman and Goldstein write that "the basic 'atoms' out of which phonological structures are formed…are assumed to be primitive actions of the vocal tract articulators," or "articulatory gestures" (1989:201), also described as articulatory goals or targets. This articulatory approach provides a framework within which the measurement of gestures is considered linguistically relevant. In other words, this theory assumes that such measurements, including observations of overlap and interactions of gestures in use, are informative regarding mental representation. Thus, articulatory phonology facilitates exploration of the bridge between phonetic substance and phonological structure with which usage-based phonetics and phonology are, by definition, concerned.

Wilcox (2012) and Bybee (2001) assert that usage-based theory mandates this view of language. Wilcox (2012:129) characterizes the divergence of CL from other theories as follows: "[F]ormalist or abstractionist theories…sever language and our conceptual system from movement and perception." He also quotes Langacker's assertion that grammar "reflects our basic experience as moving, perceiving, and acting on the world" (2008:4). In this way, Wilcox juxtaposes the CL view of the relationship between the cognitive and physical substance of language with the generative competence-performance dichotomy. Similarly, Bybee rejects the exclusion of performance data in usage-based research on the grounds that "grammar is directly based on linguistic experience" (2010:20). Thus we find in articulatory gesture analysis the marriage of grammar and use which is central to usage-based inquiry.

5.1. UNIFIED ANALYSIS OF SIGN AND SPEECH. With a premium placed upon not only linguistic but world experience by CL, it follows that all human communication should exhibit deep and fundamental commonalities. Indeed, analysis of language form as gesture allows us to achieve an understanding of language that transcends modality. An alternative view of the modality distinction holds that, while theories of higher levels of the grammar easily apply to both speech and sign, the use of different articulators and receptive organs means that theories of form, and therefore tools for measuring it, must be distinct. Brentari articulates this view in her "hypothesis…that the closer our analyses are to the phonetics, the more apparent the differences are between sign language and spoken language, and that the closer our analyses are to grammatical function, the more apparent the similarities become" (1998:3). This perspective depends not only upon the dichotomous understanding of competence and performance addressed in Section 5, but also upon the assumption of linguistic modularity. In order to see a

modality distinction as more pronounced in some fundamental way at the phonetic and phonological levels than at the higher levels such as syntax and discourse, we must assume that these levels of the grammar exist in isolation from one another and operate according to different mechanisms.

The view Brentari expresses also contradicts a foundational tenet of CL, which is that these levels are gradiently and schematically distinguished, not modularly isolated (Langacker 2008). If we take this schematic model of the grammar as our foundation, we must also theorize that the phonetic substance of the two modalities, while using different articulators, is at a basic level amenable to a single analysis. Wilcox argues that "language is best understood as articulatory gestures" and that this approach "sees language in all of its modalities and channels – speech, sign, words, grammatical markers, intonation – and gesture within a unified framework," reconciling our understanding of the human communicative capacity as a whole (2012:128). Wilcox and Xavier also address the implication of CL that SL, spoken language, and gesture (in the sense of non-linguistic communicative symbols) can be understood within a unified framework in which all three are understood as "manifestations of the same embodied conceptual system" (2013:90). With this perspective, the difference between the use of the hands, arms, and face as articulators versus the use of the vocal tract as an even trivial distinction.

5.2. NOTATION FOR A GESTURAL ANALYSIS. It should be clear from the description of SLPA in Section 2.1 that, just as this system is suited for usage-based linguistics in its capturing of phonetic detail, it is appropriate for this articulatory gesture approach in its focus upon the processes of articulation. Researchers have already recognized the advantage of analyzing sign

production in terms of articulatory gestures (e.g. Tyrone et al. 2010). Given the descriptive requirements of such pursuits, it is no longer adequate to limit our notation to broadly defined perceptual units such as '5 handshape'. Our field requires not only description of more phonetic detail but also an attention to the physical processes of production, such as that provided in SLPA. Without such a tool, empirical testing of the theoretical assertion that embodied cognition and experience are central to the human language capacity remains out of reach.

6. CONCLUSION. After stating the problem in Section 1 that the field of SL linguistics has no conventionalized notation system, I posit that the root of the problem is a lack of theoretical consensus regarding SL form. I then propose, however, that this problem may also be viewed as an opportunity: the intimate link between notation and theory means that our pursuit of a notation system for SL can drive an effort for a more clearly defined theory of SL form within usage-based linguistics. This endeavor is crucial since, although usage-based and CL theories have contributed vast depth to our understanding of many aspects of SL, we continue to confine study of SL form within a generative framework.

The present discussion has taken as a model Johnson and Liddell's (2010, 2011a, 2011b, 2012) SLPA. This system's departure from traditional SL notation lies in its status as both an articulatory and a phonetic approach. Evaluation under usage-based assumptions reveals that its inclusion of phonetic detail is compatible with and necessary within this theory. Likewise, its focus upon the motor activity leading to various configurations of the articulators make it suitable for investigating articulatory gestures. Most important is this second advantage of SLPA or a similar system; in facilitating research which adopts a gestural view of language, such a notation system allows for exploration of language in a way which transcends modality. In this

way, a descriptive tool is relevant to our achievement of the highest goal of linguistic theory, particularly within CL: an understanding of the human communicative capacity.

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[2] The name Sign Language Phonetic Annotation was coined by Hochgesang (2013) in her dissertation, which compares the success of several transcription systems in describing hand configuration errors in child language acquisition.

[3] Unless otherwise specified, the signs referred to in this paper are from the lexicon of American Sign Language (ASL), and SLPA's development has been based largely upon analyses of ASL. However, the system is intended for transcription of any SL, with room for improvement following application to other languages. Likewise, I intend my discussion to apply to SL research generally, and I will occasionally reference both the known and less explored characteristics of other SLs in my argument for phonetic transcription.

[4] I am extremely grateful to Dr. Julie Hochgesang, a native signer of ASL, whose image appears in Figures 1, 4, 6, and 7.

[5] Although not part of SLPA per se, it is worth noting that Johnson and Liddell's discussion of rule-governed phonological alternations is also outside the bounds of CL, conflicting with the assertion that the linguistic system is composed only of representations of actual language use and their categorical relationships.

Y si hablabas en español, la mestra te pegaba – An oral history of linguistic repression in Nuevo México after statehood

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ABSTRACT. This paper examines linguistic policy in public education as it regards the use of the Spanish language in New Mexico. It is common knowledge that Nuevomexicano children were, for a time, punished for speaking their native Spanish at school. However, institutional histories such as the book *Public Education in New Mexico* (Mondragón & Stapleton 2005) do not cover these practices. Similar policies are well documented in the case of the American Indian boarding schools. Linguistic politics leading up to statehood and immediately after statehood have been described by Doris Meyer (1977), Robert Milk (1980) and Erlinda Gonzales-Berry (2000). For the period after around 1930, academic sources on the topic start to dry up. It is the aim of this paper to offer a reconstruction of linguistic policy and practice in New Mexico public schools throughout the 20th century. The data presented are taken from a corpus of sociolinguistic interviews collected by the author in the summer of 2011 and are known as Las Pláticas. The historical testimonies in these interviews provide evidence of corporal punishment for speaking Spanish in schools into the late 1950s, and a shift towards psychological techniques in later decades. They also offer an inside perspective on the effects of linguistic policy on the community. A secondary method of linguistic repression was the systematic denigration of the local dialect.

Keywords: linguistic repression, public education, Spanish, New Mexico, oral history

1. INTRODUCTION. This paper deals with linguistic practices in New Mexico schools in the twentieth century. Linguistic politics in the 19th and early 20th century are well studied (cf. Gonzales-Berry 2000, Meyer 1977, Milk 1980). For the period after 1930, however, I have found only two scholarly texts dealing with the issue (MacGregor-Mendoza 2000, Wilson 2006). Like MacGregor-Mendoza (2000), this essay will take the form of a series of narratives by Nuevomexicanos and Nuevomexicanas about their linguistic experience at school. These narratives provide insight into the evolution of educational practice during the twentieth century as it relates to the treatment of Spanish speaking children. The narratives come from my own corpus of sociolinguistic interviews, Las Pláticas. This corpus was collected in 2011 in the northern New Mexican communities of Albuquerque, Bernalillo, Santa Fe, Pecos and Abiquiú (Beké 2012).

I argue that until at least the 1960s there was a concerted effort on the part of schools to make children abandon Spanish in favor of English. Linguistic practice in many schools amounted to the linguistic repression of speakers of the subordinate language even in areas where those students represented a majority of the school population. This linguistic repression followed two distinct strategies, each linked with a dominant linguistic ideology (Bills & Vigil 2008). The first was to deny children the right to speak their native language while at school, often enforced by corporal punishment and humiliation. This is related to the English-only ideology. The decline of practices of corporal punishment for speaking Spanish in school can be interpreted optimistically as indicating a more positive attitude towards Spanish and bilingualism but also cynically as a sign that fewer children were learning Spanish at home. The second method of repression is the systematic denigration of the local dialect of Spanish as NOT PROPER,

SLANG and SPANGLISH. This seems to have been particularly prevalent in high school classes of Spanish, where foreign varieties were taken as correct and the model to strive for.

2. WHAT CAME BEFORE: LINGUISTIC POLITICS IN NEW MEXICO 1848-1930**.** The Treaty of Guadalupe Hidalgo, which ended the Mexican-American war, promised New Mexicans the same civil rights as other American citizens. However, it would take until 1912 for New Mexico to become a state. Meyer (1977: 99) writes that:

> It was evident […] that conditions for congressional approval included the curtailment of the influence of the Catholic Church in the territory and the replacement of Spanish with English as the dominant language (Meyer 1977: 99).

Development of the public school network in New Mexico started in 1891. The law ratified in 1891 stipulated that "in school districts where the only language spoken is Spanish, the teacher shall have knowledge of both English and Spanish" (New Mexico law as quoted in Milk 1980). This part of the law was never enforced. On the contrary, those teachers who used Spanish were scolded by their superiors. Milk (1980:218) includes the following quote, which is representative of the attitudes of Anglo officials towards Spanish:

> Drawbacks in some of the school districts are that some of the Spanish-American teachers are using the Spanish language a little too much in teaching... we need English-speaking teachers who do not use the Spanish (New Mexico School reports 1907-8, as quoted in Milk 1980).

The situation of Spanish in education did not improve after statehood despite enthusiastic promotion of Spanish nationwide as a means of capitalizing on the trade opportunities afforded by the then new Panama Canal. Gonzales-Berry (2000:177) observes "[there was] a space for

Spanish in the state's education policy, but there was no doubt that its status was that of a foreign language, always subordinate to English." She concludes:

> What [policy makers] failed to acknowledge was that Spanish in New Mexico was *not a foreign language*. However, its treatment as such finally forced Nuevomexicanos to give up the arduous struggle for native-language rights as they pertained to the education of their children (Gonzales-Berry 2000:184).

Milk (1980:212) notes "a failure of most historical accounts [about New Mexico] to deal with the issue of language policy in education." This essay helps fill this gap in the literature by providing first hand oral narratives that document the practice of linguistic repression of Nuevomexicano children.

3. LINGUISTIC REPRESSION IN NEW MEXICO PUBLIC SCHOOLS. The first method of linguistic repression that is reflected in these interviews is the denial of basic native language rights, which are encompassed under the right to freedom of speech in the First Amendment of the US Bill of Rights. Nuevomexicano students attending public school systems were often not allowed to speak Spanish at school. This practice was not universal throughout the state, however, and in more isolated areas it took a long time before it became common. The oldest consultant for this project grew up on the Cochití reservation in the 1920s and 1930s was educated in Spanish only. The transcriptions provided in this essay use nonstandard spelling to reflect dialectal phonology and morphology.

Interviewer: Dígame Lina uhm usted cuando iba a la escuela ¿les dejaron hablar español?

Lina[1]: Yeah, pus antonces hablamos puro'español. Yeah, la gente, toda, ya hablaba puro'español, nunca naiden sabía inglés.

[I: Tell me Lina when you went to school, did they let you talk Spanish?

L: Yeah, well then we talked purely Spanish. Yeah, the people, everybody, still spoke purely Spanish, nobody never knew English.]

Since everyone at the Pueblo spoke either Spanish, Keres or both and there were no English speakers there, Lina went through school speaking Spanish. Her daughter grew up in California and Santa Fe in the 1940s and 1950s and had a very different experience.

Juana: Primero el español, pero mi mamá dice cuando vivimos en California, no podía hablar con los amigos que tenía en California, y luego pensaron que yo aprendí hablar en inglés, y luego cuando fui a la iscuela no nos dejaron hablar en español, nos pegaban cuando platicamos en español […] Y luego la gente no más hablaban a los niños en inglés,

Interviewer: En inglés, sí.

Juana: Sí. Só se perdió, y ahora de vieja uh quiero hablar en español.

[J: First Spanish, but my mom says when- when uh we lived in California, I couldn't talk with the friends I had in California, and then they thought thatI learned to speak in English, and then when I went to school they didn't let us talk in Spanish, they would hit us when we spoke in Spanish [..] And then the people just talked to they kids in English,

I: In English, yes.

J: Yes. So it was lost, and now as an old woman uh I want to talk in Spanish.]

In this interaction, Juana talks about corporal punishment for speaking Spanish and sees a direct causal link with the loss of Spanish. Teachers would hit students for speaking Spanish and those students would later talk to their own children only in English in an effort to avoid them suffering similar treatment. From the narratives in the data, there appear to have been three major types of punishment for speaking Spanish: corporal punishment, public humiliation and confinement. José went to school in Pecos in the 1940s and 1950s and his story reflects the latter two types.

José: Hablo l'español porque esa jerga mi primer lengua.

Interviewer: Sí. Porque lo hablaron

José: En la casa

Interviewer: Sus papá-

José: Sí.

Interviewer: su- sus papás en la casa.

José: Sí, sí yo tuve que pedir permiso a ir al baño la primer vez en l'iscuela en español.

Interviewer: hm ¿Y qué le dijeron?

José: Pues eh dígalo en inglés. [J's wife and I laugh] Y nos sujetaban muncho cuando estaba yo en l'iscuela, a ella también, los castigaban si hablaban español.

Interviewer: ¿Qué tipo de castigos?

José: eh en ¿la hora de la comida? A mediodía. No íbanos a comer con los otros, los detenían. U los hacían escribir líneas diciendo I will speak English only. Y ahora no,

ahora'stá muy diferente, ahora. Hora conocemos la importancia del español y de otras lenguas.

[J: I speak Spanish because that slang [was] my first language

I: Yes. Because your parents spoke it

J: In the house

I: your parents

J: Yes.

I: your parents in the house.

J: Yes, yes I had to ask permission to go to the bathroom the first time in school in Spanish.

I: hm And what did they tell you?

J: Well eh say it in English. [J's wife and I laugh] And they would subject us a lot when I was in school, her too, they would punish us if we talked Spanish.

I: What type of punishment?

J: eh at lunchtime? At noon. We wouldn't go to eat with the others they detained us. Or they made us write lines saying I will speak English only. And now no, now it's very different, now. Now we know the importance of Spanish and of other languages.]

Around the same age as José and also from Pecos, Martha's story involves beatings and being sent home with a note on her forehead.

Martha: Primero aprendí 'español, y luego cuando comencé iscuela tenía uno que aprender en inglés. Y si hablabas en español la mestra te pegaba. [she slaps the palm of her hand]

Interviewer: Te pegaba en la mano.

Martha: Y te hacían uh hablar en inglés, y resultó que aprendí l'inglés y se me olvidó l'español. [...]

Interviewer: ¿Se recuerda alguna historia en particular de la iscuela que alguien había hablado en español y le dieron un castigo así, especialmente fuerte o algo así?

Martha: Pues a mí. Me daban con la jara en las manos si acaso no hablaba en inglés. Y luego no sabía hablar yo en inglés. Y luego me ponieron una nota aquí [indicating her forehead], y que le llevara a mi mamá, y cuando llegué a la casa lo leyó ella y me dice: ¿Cómo que no sabes cómo te llamas? Pues yo no sabía lo que me'staban preguntando. Só mis hermanos toa la noche tuvieron que enseñarme cómo responder: my name is Marta, my name is Marta. Porque así era mi nombre.

[M: First I learned Spanish and then I started school and you had to learn in English. And if you talked in Spanish the teacher would hit you. [she slaps the palm of her hand]

I: She would hit you on the hand.

M: And they made you talk in English and it turned out that I learnt English and I forgot my Spanish […]

I: Do you remember any stories in particular about the school that someone had talked in Spanish and they gave them a punishment, like, that was especially strong or something like that.

M: Well me. They would hit me with the willow switch on my hands if I happened to not be talking in English. And then I didn't know uh how to talk in English. And they gave me a note here [indicating her forehead], and I had to take it to my mom and when I got home she read it and she says to me: how is it you don't know what your name is? Well I

didn't know what they were asking me. So my brothers all night had to teach me how to respond: my name is Marta, my name is Marta. Because that was my name.]

Children speaking Spanish children were often beaten with young willow shoots, or *jaras*, that they usually had to gather themselves. It was not an uncommon practice to simply send children that didn't speak English home and exclude them from the education. It must be pointed out, however that the enforcement of English is not viewed as negative by all Nuevomexicanos. When I asked Nicolás, who went to school in Abiquiú in the 1930s and early 1940s, what language he used at school he answered as follows.

Nicolás: Inglés.

Interviewer: Inglés no más.

Nicolás: Oh yeah, no noj dejaban hablar español.

Interviewer: ¿Qué- qué pasó cuando hablaron español?

Nicolás: […] Se nojaba la maestra con nosotros, nos dicía que no- que no íbanos a l'iscuela a hablar inglés. Que íbanos a hablar inglés. Íbanos aprender inglés. Es que estuvo bien, estuvo bien. Yo agradezco eso 'hora, porque asina aprendimos inglés. Si nos hubieran dejado hablando español, pus español sabíanos, [he laughs] español sabíanos. Mi mamá no hablaba no más que puro español. Y y si nos hubieran dejado hablar español pus se hubiera complicado todas las cosas.

[N: English.

I: Just English.

N: Oh yeah, they didn't let us talk in Spanish.

I: What- What happened when you talked Spanish?

N: The teacher would get angry with us, she would tell us that we didn't- that we didn't go to school to talk English. [sic] That we went to talk English. We were going to learn English. And the thing is it was good, it was good. I am grateful for that now, because that way we learned English. If they had left us talking Spanish, well we knew Spanish [he laughs] we knew Spanish. My mom didn't talk but purely Spanish. And and if they had let us talk Spanish well everything would have gotten more complicated.]

The stories of beatings end with the generation of consultants born in the 1950s, after that the attitudes toward Spanish in education appear to become more ambiguous. Some factors that may have influenced this change include the emergence of civil rights movements, including the Chicano movement and the promotion of bilingual programs at a national level. Alberto grew up in Embudo during the 1950s and 1960s, and in his account, the teachers still wanted their students to only use English but did not enforce this behavior:

Interviewer: Y era una escuela, las clases eran todos en inglés ¿no?

Alberto: Eran todos en inglés ¿no? Verdad. En esos tiempos no- no no- no nos enseñaban, no querían quizás que habláranos español ¿no?

Interviewer: hm ¿Y por qué sería eso?

Alberto: No sé por qué sería, no querían quizáj que aprendiéranos español o pero no nos prohijiban ¿no? De hablar español en l'iscuela. Pero toavía creo que lo hablábanos ¿no? Pero los maestros también eran hispanos también y eh había anglos también. Y no, no

estaba muy malo ¿no? Yo creo que si nos oían hablar español no nos decían nada. Pero nos dicían que éranos de hablar inglés ¿no?

[I: And was it a school, the classes were all in English, no?

A: They were all in English, no? True. In those days they didn't teach us, they maybe didn't want us to talk Spanish, no?

I: hm And why would that be?

A: I don't know why that would be, perhaps they didn't want us to learn Spanish but they didn't prohibit us, no? From speaking Spanish in school. But still I believe that we spoke it, no? But the teachers as well, they were hispanos as well and eh there were Anglos too. And no, it wasn't very bad, no? I believed that if they heard us speaking Spanish they wouldn't tell us anything. But they said to us that we were supposed to speak English, no?]

The change in attitudes was not entirely positive, nor does it appear to have occurred with the same speed everywhere in the state. The narratives I have been able to collect suggest during the third quarter of the century, the position of Spanish in education was worse in the urban centers than in smaller villages and towns. A particularly potent counterpoint to the idea that linguistic policies and ideologies towards Nuevomexicano Spanish were simply changing for the better during this period is found in April's experience starting elementary school in Santa Fe around the year 1970.

April: Sí, hablé español hasta uh los años de cinco. Y luego cuando jui a l'iscuela las mestras dijo a mi mamá que ya no puedo hablar en español en l'iscuela, no más inglés.

Interviewer: Hm ¿y sus padres qué hacían?

April: Nada nomás hablo con mi con englés y luego con mi uh hermanos y m'hermanos nomás hablaron en inglés y no en español.

Interviewer: ¿Y sus hermanos no saben nada del español entonces?

April: No, no. 'hora hablan poquito

Interviewer: Hm van aprendiendo // pero

April: pero no lo 'prendió en la casa no.

Interviewer: Van aprendiendo de adultos.

April: Sí. Pero yo hablé hasta cinco con mis abuelos porque yo estuvo con todo mi abuelos cuando estando chiquita también. Porque mi papá 'staba trabajando construction. So mi mamá y yo estamos con mi abuelos.

Interviewer: Sí. Y con sus abuelos, ¿seguía hablando español después de eso?

April: Sí. Mi abuelita nomás habló en español. Ella en-tiendió inglés pero no quería ell-

Interviewer: No quería hablarlo.

April: No, nononono. Ella dijo: No. Me gusta español. Usted habla conmigo en español. Pero con mis hermanos no podían hablar con ella porque nomás habló en español.

[I: You said that the first language you learned to speak was Spanish, no?

A: Yes, I spoke Spanish until uh I was five. And then when I went to school the teachers said to my mom I can't talk Spanis in school, only English.

I: hm And your parents, what did they do?

A: Nothing, they just spoke with me with English and then with my brother and sisters they just spoke in English and not in Spanish.

I: And your siblings don't know any Spanish then?

A: No, no. Now they speak a little

I: hm They are learning but

A: but no, they didn't learn at home, no.

I: They are learning as adults.

A: Yes. But I spoke until I was five with my grandparents because I was with all my grandparents when I was a little girl too. Because my dad was working construction. So my mom and I were with my grandparents.

I: Yes. And with your uh with your grandparents, did you keep speaking in Spanish after that?

A: Yes, my grandma she just spoke Spanish. She understood English but she didn't want to-

I: She didn't want to speak it.

A: No, nononono. She said: No. I like Spanish. You talk with me in Spanish. But with my brothers and sisters couldn't talk to her because she only spoke Spanish.]

We see in this narrative the kinds of generational disconnect that were created by these educational practices. Children who were monolingual English speakers as a result of such practices became incapable of communicating with their monolingual Spanish speaking grandparents. Professor Neddy Vigil informs me that house visits such as the one described by April were common practice in the cities (personal communication). Taken together, the denial of Nuevomexicano native language rights in education that happened until at least the early 1970s fits the legal definition of child abuse, as taken from the US government's child welfare

website “Any recent act or failure to act on the part of a parent or caretaker which results in death, serious physical or emotional harm, sexual abuse or exploitation” (https://www.childwelfare.gov/topics/can/defining/federal/).

As such, it constitutes a government sponsored human rights violation which has been too long overlooked. These practices were informed by the English Only ideology, which holds that English is the only legitimate language of the United States. Since Spanish is not a legitimate language in New Mexico, under the terms of this ideology, its forced abandonment is not problematic. This ideology has to some extent found entry into the very speech communities that it harms, as Bills & Vigil (2008:17) identify the belief that English is good and Spanish is bad as one of five common linguistic myths threatening the continued survival of Nuevomexicano Spanish.

The second strategy of linguistic repression was denigration of local dialect forms. This happened at all levels of education, including the university level, but on the whole seems to have been most prevalent in high school Spanish classes. Rafaelita attended classes like this during the 1980s; her story shows the complex and contradictory impressions that many Nuevomexicano children had in these classes.

> Interviewer: Y en la escuela ¿le enseñaron en inglés? ¿o en español?
>
> Rafaelita: En inglés. [...] Tomé un- un curso de- de español pero n- [ridiculous voice] no aprendí nada. [...] No. Era raro. El español que me enseñaron en l’iscuela porque era the proper way I guess, to speak it [...] and I just knew [...] I knew the slang and, you know, what we spoke here at home.

> [I: And in the school, did they teach you in English? Or in Spanish.
>
> R: In English. […] I took a course of Spanish but [ridiculous voice] I didn't learn nothing. […] No. It was strange. The Spanish that they taught in school, because it was the proper way I guess, to speak it […] and I just knew […] I knew the slang and, you know, what we spoke here at home.]

After claiming that she learned nothing in Spanish class, Rafaelita reiterates the false belief that her home dialect of Spanish was not proper and slang. In other words, despite the class not improving her Spanish skills, it did result in her internalizing these self-deprecating beliefs about her language. That the classroom was indeed the place where she came in contact with these beliefs is ascertainable from another exchange, later in our conversation.

> Rafaelita: Cuando yo estaba en el high school, se requería […] para agarrar su diploma se requería tomar otro lenguaje. […] podía tomar French, I could've took in French or Spanish. So I preferred to take Spanish because I knew it better. [she laughs]
>
> Interviewer: Porque no sería trabajo.
>
> Rafaelita: Yeah, yeah. So that's why I took Spanish, because I knew the concept of it and I had taught myself to read and write Spanish myself, so.
>
> Interviewer: Y después los profesores, ¿le dijeron que hablaba mal? O
>
> Rafaelita: No, no me dijieron que hablaba mal pero again, hablaba el slang, hablaba las palabras que dicimos slang, no lo hablaba propialmente, I wasn't speaking it properly.

[R: When I was in high school […] to get your diploma it was required to take another language. […] I could've took in French or Spanish. So I preferred to take Spanish because I knew it better. [she laughs]

I: Because it wouldn't be work.

R: Yeah, yeah. So that's why I took Spanish, because I knew the concept of it and I had taught myself to read and write Spanish myself, so.

I: And after that the teachers, did they tell you you spoke badly? Or

R: No, they didn't tell me I spoke badly but again, I spoke the slang, I spoke the words that we call slang, that I didn't speak it *propialmente*, I wasn't speaking it properly.]

Despite her proficiency and having achieved literacy in Spanish without instruction, Rafaelita was still lead to believe that she wasn't speaking it properly. The choice of wording for this negative judgment is of particular interest both in terms of the language in which it is expressed, English, and because of the semantics of proper. Ramona fails to translate the adverb into Spanish as *apropiadamente*. This is echoed in the interview with Simón.

Simón: No comencé leer en español hasta que ya era joven, ya tenía trece, catorce años cuando

Interviewer: Cuando empezó a tener clases de español

Simón: Clases de español. Sí.

Interviewer: ¿Y cuántos de esos hizo?

Simón: Yo hice no más un año en middle school y luego in high school un año ahí también. So tomé dos años, pero a todos modos, viniendo de la casa de- mis padres hablaban mucho en español y sus amigos vinían españ- pos aprendí ahí.

Interviewer: Y en las clases que agarró uh pues ¿cuál era la actitud frente al español que usted hablaba

Simón: ¿Y que estaban enseñando?

Interviewer: y el que estaban enseñando ¿cuá- cuál era la diferencia y

Simón: Sí. Sí [he laughs] Pues, ¿sabes qué? La diferencia- es el español de del norte Nuevo México es diferente ¿no? Es diferente de lo que los mexicanos ¿sabe? Es diferente que lo que estaban enseñando. Lo que enseñaban era más como como d'España. Era el español asina. Uh Más uh ¿cómo se dice? Proper o pro- era hm yo no sé cómo se- era proper Spanish so no tenían las clases de- no tenían las palavras slang, slang words que teníamos nosotros, yo no sé cómo se dice en español.

[S: I didn't start to read in Spanish until I was already a young man, I was thirteen, fourteen years old when

I: When you started taking Spanish classes

S: Spanish classes. Yes.

I: And how many of those did you do?

S: I did just one year in middle school and then in high school, one year there too. So I took two years, but in any case coming from the house of- my parents spoke Spanish a lot and their friends came Span- so I learned there.

I: And in the classes you took, well, what was the attitude towards the Spanish you spoke?

S: and what they were teaching?

> I: and what they were teaching. What was the difference and
>
> S: Yes. Yes [he laughs] Well, you know what? The difference- the Spanish of northern New Mexico is different, no? It's different from what the Mexicans, you know? It's different from what they were teaching. What they were teaching was more like from Spain. It was the Spanish like that. Uh More uh what's the word? Proper or pro- it was hm I don't know the w= it was proper Spanish so it didn't have the kinds of- it didn't have the uh slang words that we had, I don't know how you say it in Spanish.]

Like Rafaelita, Simón is unable to express this negative evaluation of his own language use in Spanish. This suggests that the origin of this attitude is outside the Nuevomexicano speech community, in dominant standard language ideologies. As Bills and Vigil (2008:17) point out, these judgments are "based solely on social judgments, judgments not directed at the language but at the group who speak that language." These attitudes about Nuevomexicano are also often held by Spanish speakers from other countries (*ibid* 12) and form the basis of a linguistic inferiority complex among Nuevomexicanos. But what does it mean for a language to not be proper? The relevant parts of Merriam-Webster's definition of the word are "7a strictly accurate: correct […] 8 marked by suitability, rightness, or appropriateness" (Merriam Webster Online). It follows from these definitions that something which is not proper is both wrong and rude. When applied to a language, as in proper Spanish, it not only makes a statement about linguistic correctness but also about appropriateness and therefore about the ethics of language use. Such attitudes about Nuevomexicano were sometimes met with resistance, as illustrated by Guillermo's story about arguments with a professor from Spain while attending the University of New Mexico in the 1960s.

Guilermo: Que siempre salía: no, pus, no eso es un arqueísmo o ¡qué pintoresco! Eso es algo que dicían los españoles en el siglo dieciséis o ese es una palabr'inglés.Y yo me ponía a hablar con ellos y dicía pus'tedes les dicía: ¿y si nosotros nos esperamos en el estado de Nuevo México hasta que la que la [skeptic tone, pausing] Academia Real d'España

Interviewer: viniera pacá

Guillermo: viniera pacá y nos diga cómo vamos hablar [his wife laughs] se va acabar el mundo. [we laugh] Y se me enojaban, ¿ves? Se me enojaban. Y les dicía: miren, por ejemplo dijía al profesor español: aquí, en español, ¿cómo vas a nombrar un jet aircraft, un avión jet, un jet. Y luego me dijo: pus eso es un avión de propulsión de chorro [his wife laughs] y yo le dije: ya pa cuando diga eso va pasar el avión! [he laughs] Porque es un modo discriptivo muy largo de nombrar algo. Cordialmente, un jet es un jet, ¿no? Y ya, hoy en día se me hace que casi por to el mundo hispano ya dicen jet o'l jet, ¿no?

[G: He would always say: no, well, no that's an archaism or How picturesque! That is something the Spaniards said in the sixteenth century or that's an English word. And I got to talking with them and I said, well you I told them: and if we wait in the state of New Mexico until [skeptic tone] Royal Spanish Academy

I: Were to come here.

G: Were to come here and tell us how we are going to talk [his wife laughs] the world will end. [we laugh] And they got mad at me, you see? They got angry with me. And I told them: look, for example I said to the Spanish professor, I told him: here, in Spanish, what are you gonna a jet aircraft, *un avión jet, un jet.* And then he told me: well that is an

> *airplane with propulsion by jets* [his wife laughs] and I told him: by the time you've said that the airplane will have passed! [he laughs] Because it's a very long descriptive way of naming something. Honestly, a jet is a jet, no? And now, today I think almost in the entire Hispanic world people say jet or *el jet,* no?]

Guillermo's defiance of the stigmatization of his dialect is based on two basic arguments: that the people passing this judgment are not qualified to do so, since they do not belong to the community and that the purist forms they propose are communicatively inefficient. Despite this evidence of resistance, the more common response when presented with this stigmatization of Nuevomexicano dialect appears to have been to accept it as at least partially deserved. Alberto is a Nuevomexicano and was a high-school Spanish teacher from the 1980s to the 2000s. I asked him if he had noticed any changes in the Spanish dialect that his students brought to the classroom.

> Alberto: Sí se ha perdido ¿no? Creo que a lo mejor ¿no? Mejorando l'español y todo ese negocio.
>
> Interviewer: ¿Ah? ¿Usted cree que eso mejoró lo que habla la gente aquí.
>
> Alberto: Creo que sí. Creo que l'hablamos mejor ¿no? Porque el di- dailecto que tenemos aquí como por ejemplo dicemos aquí troca ¿no? Mejor que camioneta y pero toavía se usa, en eh bilingüelismo quizás ¿no? Que solamente ponemos una 'o' u una 'a' al último de la palabra ¿no?
>
> [A: Yes it's been lost, no? I believe for the better, no? Improving the Spanish and all that business.

> I: Ah? You believe that that improved what people here speak?
>
> A: I believe it did. I believe we speak better, no? Because the di *dailecto* that we have here, like for example we say here *troca*, no? Rather than camioneta and // but still we use it some, in eh bilingualism maybe, no? That we just put an 'o' or an 'a' at the end of the word, no?]

The loss of dialect features here is presented as a positive evolution. In addition, the problem with Nuevomexicano that this speaker identifies is the use of English loanwords, such as *troca* from 'truck' instead of the supposedly better *camioneta*, borrowed from French *camionette*. This is in line with García and Torres-Guevara's claim that:

> Language policies in education for the education of Latinas/os in the United States has focused on trying to make their English fit "native" standards, and their Spanish fit "foreign" standards. [This reflects] a monoglossic ideology, which values only monolingualism and ignores bilingualism (2010:182).

I will point out that if educators believe Nuevomexicano (or any US variety of Spanish for that matter) to be an inferior dialect of Spanish then this belief makes the denial of native language rights less problematic morally, since the language that is being repressed is viewed as illegitimate.

Despite all of this bad history, there is evidence that attitudes are changing. While previously no one thought twice about telling a student not to speak Spanish, nowadays this is perceived as an injustice and teachers who do so undergo investigation, as happened in August 2014 to a sixth grade art teacher at Rio Rancho Middle School who was accused of telling a student to only speak English in class (Rio Rancho Observer, 08/31/2014).

4. CONCLUSION. In this paper I have presented narratives from Nuevomexicanos and Nuevomexicanas that show that for much of the twentieth century there was a concerted effort on the part of schools to make children abandon Spanish in favor of English. These attempts at linguistic assimilation followed two main strategies. On the one hand, Nuevomexicano children were denied the right to speak their native language in schools, a prohibition that was enforced through corporal punishment, public humiliation and confinement. On the other hand, the local dialect forms were often the subject of ridicule and denigration, resulting in what appear to be subconscious feelings of linguistic inadequacy on the part of many Nuevomexicano speakers. The stories presented in this paper are just a few of the many that could be told, they do not represent the entire scope of experiences of Nuevomexicano children in the public education system. They do, however, represent real trauma. These events, and the linguistic ideologies which gave rise to them, should be discussed in New Mexico history classes at public schools in the state. In order to provide a more complete picture, future investigations of this issue could make use of the substantial body of historical narratives collected in Bills and Vigil's (2008) New Mexico and Southern Colorado Spanish Survey.

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[1]To protect the privacy of my consultants, all names provided in this essay are pseudonyms.

Code-switching as a resource for identity construction: The case of three Indian YouTube comedians

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ABSTRACT. In this paper, I look at three YouTube comedians of Indian heritage. What is interesting about these comedians is their use of code-switching (CS), deploying aspects of Punjabi English and Vernacular American English. These bilingual comedians switch codes as part of their "presentation of self" (Goffman 1959) as a means to present and preserve their 'Indian' selves, both in contrast to and in conjunction with their Canadian upbringing and urban environment. CS is an important component of constructing ethnic identity, as others have argued (cf. DeBose 1992 and De Fina 2007, among others). Switches between dialects are crucial to understanding the sociolinguistic "stance" of the speaker towards her audience and towards her own identity (Jaffe 2009). In this study I apply the idea of 'intra-linguistic' CS to the videos of these Indian-Canadian YouTube comedians. The comedians employ multiple codes in their videos as an important element of multi-faceted identity construction.

Keywords: code-switching, comedian, identity, Indian, presentation of self, stance, YouTube

1. INTRODUCTION. As video technology develops into an increasingly popular way to share thoughts with a wide international audience, a large number of YouTube personalities emerge. This 'celebrity' population includes YouTube performers of Indian heritage such as Jasmeet Singh, Amandeep Kang, and Lilly Singh, who make humorous YouTube videos incorporating different characterizations of Indian or 'brown' people.[1] What is interesting about these video bloggers (more commonly known as 'vloggers') is their use of code-switching (CS) within their videos, deploying an inventory of Punjabi English (PE), General American (GA) and aspects of Vernacular American English (VAE). This study investigates the extent to which these switches entail "language crossing" (Rampton 2009), along with other aspects of CS, in the context of comedic performances by Indian YouTube vloggers.

The most vital discussion of the CS in these videos goes beyond their performative aspect. As the data and discussion show, bilingual comedians such as Kang switch codes as part of their "presentation of self" (Goffman 1959) as a means to present and preserve their 'Indian' selves, both in contrast to and in conjunction with their Canadian upbringing and social context. CS is an important component of constructing ethnic identity, as others have amply argued (e.g. Bailey 2007, Chen 2008, De Fina 2007, Eppler 2013). Even, or perhaps especially, when the codes are within one language rather than multi-lingual, switches between dialects are crucial to understanding the sociolinguistic "stance" of the speaker towards his audience and towards his own identity as a speaker (Jaffe 2009). To clarify the significance of the choice to use a dialectal code in this speech event, I look at previous research on ethnic and social identity construction through linguistic performance. Subsequently, I apply these ideas to the videos of several Indian-Canadian YouTube comedians using various dialects in their videos for comical purposes but also as a part of their presentation of self.

My primary research question is the following: in what ways does purposive code-switching (focusing on switches among GA, PE and VAE) aid Indian YouTube performers in constructing and expressing a unique ethnic identity? As part of answering this question, the study attempts to ascertain what such an ethnic identity comprises, and the process by which the comedians construct this identity linguistically and extra-linguistically in their videos. A comparison and contrast of the various performance styles of these three comedians illuminates the relationship between ethnic identity and code-switching among multiple Englishes.

2. BACKGROUND. There is a wealth of literature regarding code-switching. Myers-Scotton defined it as "the use of two language varieties in the same conversation" (2009:473). The Markedness Model (MM) developed by Myers-Scotton described the two language varieties in use as follows: the 'unmarked' variety implying expected usage (here GA), and the 'marked' variety implying unexpected usage (here PE and sometimes VAE). There is a multitude of research on the active role of code-switching in society (e.g. Albirini 2011, Finlayson & Slabbert 1997) and its use as a tool for identity construction. Bailey (2007), for example, showed how CS allows Dominican-American teens to negotiate ethnic and social identity. Eppler (2013) discussed collaborative and individual identity formation by four Austrian Jewish refugee women in London. Chen (2008) looked at Cantonese-English speakers within one community in Hong Kong and their distinct use of code-switching to negotiate identity within the community. Additionally, De Fina's (2007) work on the Italian-American card-playing club and her discussion of code-switching in the context of identity construction and display is relevant to this study. These studies help to illuminate the notion of shaping identity through CS, which is relevant in this study of the three Indian YouTube performers.

Nevertheless, although these studies have been highly pertinent to the development of a code-switching framework and to this research, all of the above and most other studies focused on CS exclusively as a bilingual phenomenon. Some exceptions include DeBose's study of AAVE and Standard English code-switching (1992), Rampton's work with multiethnic adolescent friend groups (2009), and Barrett's observations on the mixed uses of AAVE and 'white woman style' by African-American drag queens in Texas (2009). Overall, however, little credence is given to CS as it relates to intra-linguistic dialect switches, as evidenced by Barrett's use of the word 'style' rather than 'code' or 'variety.'

Related to this idea of CS between dialects of one language rather than two separate languages is the concept of "dialect enregisterment," a process by which "distinct forms of speech come to be socially recognized (or enregistered) as indexical of speaker attributes by a population of language users" (Agha 2005:38). Johnstone's work on dialect enregisterment in performance (2011) is informative for this study as it discussed the deliberate use of a marked dialect ('Pittsburghese') in the context of "highly self-conscious broadcast performances of speech and social identity" (658). Johnstone's results showed that, in these performances, the radio DJs created multiple layered identities through their CS between Pittsburghese and GA.

There have been some studies on the relationship between performance and presentation of self, a concept first introduced by Goffman (1959), which shed light on different aspects of this relationship. Rahman (2007) looked extensively at narratives by African-American comedians. These comedians self-consciously employed phonological features to index both typical African-American and 'white' speech; as Rahman observes, "the self-consciousness results from the deliberate and purposeful attention they give to producing significant features of the dialect they are projecting" (89). Androutsopoulos (2013) discussed the deliberate use of

urban German dialects on YouTube, opening up discussion of CS for the purposes of identity construction on the YouTube stage.

Rampton's work on language crossing (2009) is also highly relevant to this research. Language crossing, or code crossing, "refers to the use of a language which isn't generally thought to 'belong' to the speaker" and "involves a sense of movement across quite sharply felt social or ethnic boundaries" (2009:287). Rampton's work centered around several multiethnic adolescent friendship groups in Britain who crossed codes by using Punjabi-, black-, or Creolized English with their friends when they were not necessarily 'licensed' to do so; i.e., boys of Indian descent did not restrict their CS to PE only, but also inserted aspects of black and Creole accents as well. Rampton's data also showed that boys of African, Caribbean, and Anglo descent mixed these codes together throughout their sociolingustic performances.

3. METHODOLOGY.

3.1. DATA COLLECTION. This study takes an ethnography of communication approach to data collection and analysis. The data comprises several of the comedians' top viewed videos in which the vlogger speaks directly to the audience rather than performing skits or singing songs; also included is at least one video in which 'brown' culture or stereotypes are discussed directly. Each of the YouTube comedians studied here was chosen because they are in a similar demographic. All of them are early-20s bilingual Punjabi/English speakers who were brought up and who currently live in the Greater Toronto Area (GTA). All of these comedians have a substantial viewership: J. Singh has 212,000+ viewers as of 21 Feb 2014, Kang has 118,000+, and L. Singh has the widest viewership at 2,173,000+, a rapidly growing figure. All three vloggers speak Punjabi and English, using unaccented English in their videos. Due to the nature

of the study, with data collection performed at a distance via the Internet, the comedians' Punjabi accuracy and fluency cannot be verified. However, all of the vloggers did grow up in Indian homes and live in communities with large numbers of native Punjabi speakers.

3.2. SOCIOLINGUISTIC SITUATION. YouTube comedians such as L. Singh do not interact with the audience in real time, and their use of the vernacular and dialectal CS is part of a video-recorded performance rather than a face-to-face conversation. The performative nature of the YouTube videos may affect the relationship between sociolinguistic performance and identity construction, although Rampton emphasized that the chasm between conversation and performance may not be as wide as linguists traditionally believe (2009:297). These questions are beyond the scope of this study, though, and I will leave them for future studies.

This study considers the CS behavior of Amandeep Kang, Lilly Singh and Jasmeet Singh in their humorous videos, particularly as it relates to the formation and display of a social identity 'presented' to YouTube viewers. L. Singh, 25 years old, and Kang, 24, demonstrate frequent switches among three distinct codes of English: PE, morphological and phonological aspects of AAVE or VAE, and what might be typified as an informal style of GA. The phonetic aspects of VAE featured include 'be'-dropping and pronunciation of the velar nasal [ŋ] as alveolar [n]. Some specific indicators of the PE code include unaspirated stops where GA uses aspiration as in word-initial [tʰ] and [pʰ] and word-final [kʰ], and [j] shift to [dʒ] such as GA [jogərt] pronounced as [dʒogərt]. Another distinct feature of the PE code is the alveolar trill [r] in place of the GA approximant [ɹ], as in the following intra-sentential example (L. Singh, "My Parents Do This – PART II")[2]:

(1) if your parents have standards, I can almost

(2) **guarantee**

ga[r]anti

(3) you that those standards (.) will be double ones (0.5) double standards for days

These phonological indicators, among others, distinguish PE from GA within Singh's and Kang's vlogs, such that the switch from one to the other is unmistakable. Interestingly, J. Singh, 22 years old, rarely switches into the PE code, and switches more infrequently into the VAE code than L. Singh or Kang. His primary dialect throughout the videos is GA, making the choice to code-switch into PE or VAE highly marked. In comparing and contrasting the CS of the three vloggers, I view the variation and different usage of dialects by the three comedians as informative to this study.

3.3. DATA ANALYSIS. As Myers-Scotton argued in her research on CS, a speaker with more than one code in his repertoire is free to make the choice between marked and unmarked codes based on various sociolinguistic factors, including the context of the specific interaction, the speaker's goals in relation to the audience, and various connotations she wants to bring into the utterances (2009:477, 483). This study centers on the hypothesis, as argued here, that Kang, L. Singh and J. Singh are all choosing various codes, whether consciously or unconsciously, throughout their videos to make a statement about their individual identities. This hypothesis is borne out by the data, as we will see in the results. Although the three vloggers are similar in age, geographic location and ethnicity, each of them distinguishes herself through different styles of code-switching in YouTube videos.

This study distinguishes among these three types of switches: intersentential, intra-sentential, and syntactically independent switching of tags (Pfaff 1997:344). Because these are acknowledged in the literature as three distinct types of CS behavior, it is important to differentiate them in this data analysis. Although the pattern may not be superficially apparent, these switches in and out of PE, VAE and GA are highly motivated and are related to identity construction. This study aims to find out the specific ways in which these switches contribute to the construction of ethnic and social identity for these performers.

4. RESULTS.

4.1. "IDENTITY" DEFINED. It is important first to examine the nature of the ethnic and social identity being constructed, as the three performers themselves understand it, in order to determine the role of CS in the construction of such an identity. Looking at the comedians' videos, in which they discuss their lives and perform skits featuring caricatures of 'brown' families, is the way in which we can access the performers' thoughts on their social identity. While the videos are not strictly serious depictions of the Indian community, the videos do give important insight into the Punjabi-Canadian identity as constructed by the three comedians.

For instance, the portrayal of Indian parent-child relationships by these performers (both in videos in this study and in many of their other videos) is noteworthy. All three comedians use the Punjabi language as well as PE to represent stereotypes of 'brown parents,' drawing on their cultural and linguistic repertoires to joke about the interaction between parents and children in Punjabi culture. The comedians use both direct narratives and short sketches (such as Kang's "Living in a Brown Fam" series) to spoof their parents' behavior. Given its centrality in the

comedians' videos, it seems clear that family is an important aspect of Punjabi identity for all of them, although they parody the annoying aspects of their families for comedic effect.

Another commonality among the comedians' is their tendency to pigeonhole various types of 'brown' people in comedic anecdotes or skits. Each performer frequently brings up stereotypes within the Indian community, such as J. Singh's 'brown house party' stereotypes ("SURVIVING Brown House Parties"), and Kang's discussion of the only three possible occupations for Indian children when they grow up: doctor, lawyer, or engineer ("Back to School"). Although these characterizations are intended as humor and are often emphasized as such in the descriptions of the videos and in the videos themselves, one thing that they make clear is that, as members of the Indian-Canadian community, these comedians have access to a coherent picture of the Punjabi community in the GTA.

The 2011 Canadian census shows that Punjabi is one of the top spoken mother tongues and home languages in Toronto, and ethnic Punjabi make up one of the largest immigration groups in the GTA. The population of this community is bound by "dense and multiplex network ties" (c.f. Milroy & Milroy 2009:92), and the comedians address the density of their networks directly through discussions of Indian weddings and other events they attend. The dense and multiplex nature of the Indian community in the GTA is also visible via the comedians' jokes about such events, for example in the following extract from Kang's "Back to School":

(1) it seems like every other week there's an <u>event</u> these days (.) you know how many
(2) <u>weddings</u> I've been to this year? <u>engagements</u>? ***akhand path***[3]? Preeti's sweet
(3) sixteen (.) baby showers (.) <u>Diya's</u> retirement party (.) <u>what</u>? (.) in a banquet hall?
(4) what the f:=Bindu's ***lohri***? mom it's called ladies ***sangeet*** for a reason!

[…]

(5) and the same people at Bindu's ***lohri*** are gonna be at Preeti's sweet sixteen

(6) (.) and all the people <u>there</u> (.) are gonna be at all the wedding functions (.)

(7) 'cause it's the <u>same</u> stuff with the <u>same</u> people (.) every single time!

As this excerpt reveals and other videos from the comedians confirm, the Punjabi community in Toronto and the GTA is dense. L. Singh, J. Singh and Kang come in frequent contact with other Indians with the same linguistic and ethnic background, making their experience as Punjabi-Canadians and their stereotypes of the community salient to a discussion of identity construction within such a community.

The strength of the Punjabi identity interwoven with culture and language is clear here. Through their comedic parodies of Indian parents and broad references to "brown guys" or other groups within the community, we can see how the comedians demonstrate their ethnic and linguistic identity and show that they are members of and active participants in the community, consistently using PE and Punjabi to substantiate their anecdotes.

4.2. ROLE OF CS.

4.2.1. PUNJABI ENGLISH. As mentioned in the discussion of the sociolinguistic situation, L. Singh and A. Kang employ the PE code frequently throughout their videos, whereas J. Singh limits his use of PE to one or, at most, two instantiations per video. All of his switches are exclusively intra-sentential phrases, as in the following phonological example from "Desi Parents and Money":

(1) I step in the store, find this wicked wicked shirt, nice-fitted,

(2) **tip top.**

[t]ɪp [tɔ]p

(3) everything, you know (.) man's gotta look fresh.

J. Singh's sparse use of the PE code is indicative of an interesting relationship between the PE code and its significance for identity construction in the context of this study. CS for these three comedians represents a resource for the 'presentation of self,' and we need to look into why one comedian uses this resource less frequently than the others and sees it as less valuable to the formation and presentation of his simultaneously Indian and Canadian identity.

The appearance of the vloggers has a clear correlation to the frequency at which they use the PE code. J. Singh wears a *pagh*, the Punjabi name for 'turban', a garment traditionally associated with Sikhism (with which J. Singh also identifies). While he does not often wear traditional Indian clothing such as *kurta* or *dhoti*, his Western-style shirts are typical of the kind adopted by young men in urban Indian areas. Contrarily, Kang and L. Singh have a distinctly "urban fashion" look (Sulmers 2012), wearing such iconic 'hip-hop' items as baseball caps, loose t-shirts, and brand names in shoes and jackets. J. Singh has an aesthetic connection to his Punjabi and Sikh identity via the turban, while L. Singh and Kang wear clothes more associated with Western (particularly American) urban youth. Given this dichotomy, it becomes clear why L. Singh and Kang switch to PE more frequently than J. Singh. Since the purpose of CS here is to construct an identity that has simultaneous Indian and Canadian elements, L. Singh and Kang use the PE code as a linguistic resource to incorporate aspects of their Indian identity and display their identity as Punjabi speakers and cultural participants.

If we consider the performances of the three comedians in the absence of PE as part of their linguistic repertoire, we can see that J. Singh is legitimized by the aesthetic addition of a

pagh to his attire, but Kang and L. Singh in their 'urban youth' attire have no external method of demonstrating their active participation in the Indian-Canadian community. Thus the PE code plays an important role for these comedians who construct and display their identities as members of this community, both in their direct dialogue to the online audience and in their portrayals of family members and 'typical' Indian behavior. We can look at the role of both Punjabi and PE codes in an excerpt from Kang's video "Living in a Brown Fam #2":

(1) y'all know what this video is about (.) the <u>shit</u> that happens in our fam.

(2) and I know <u>exactly</u> where to begin.

(3) **auntie**, ***bhabi***s, moms, ***nani***s, ***masi***, your ***bhua***, your ***didi***[4] (0.5)

[anʈ]i

(4) **every ladies in your *parivar***

ɛː[ʊr]i l[eɖis]

(5) talking mad shit about other cousins

Kang demonstrates here his ability to switch not only between PE and GA, but also into Punjabi, which he does frequently in the "Living in a Brown Fam" videos as well as other videos on his YouTube channel. The juxtaposition of the two codes shows the linguistic resources available to Kang on a regular basis; he is able to access various complex Indian kinship terms, and subsequently to take on the distinctive PE accent. L. Singh also exhibits similar CS behavior in her videos. J. Singh also speaks in Punjabi during his videos, but as mentioned he uses the PE code less frequently than do L. Singh and Kang. That the three comedians are able to tap into

these two related codes is an important aspect of their active identity construction, as conscious enactors of Indian culture as well as meaningful participants in the Indian-Canadian community.

It is clear, then, that PE is a resource for the comedians to construct an active identity as Indian-Canadians in their videos, to demonstrate their membership in the community. L. Singh and Kang particularly show the usefulness of the PE code as helpful in the toolbox of identity construction and display. PE is an important aspect of the presentation of self for the performers, as they relate their cultural experience to their YouTube audience.

4.2.2. VERNACULAR AMERICAN ENGLISH. These results on the PE code show an aspect of identity construction at work in the vloggers' code-switching, but do not tell the whole story; there are also aspects of "black English vernacular" (c.f. Labov 1973) in their speech. How does the use of this code fit into the concept of identity construction? Rampton's work on code crossing (2009) is useful in examining the three performers' CS behavior here. L. Singh, J. Singh and Kang all have Punjabi parents and speak Punjabi fluently according to their videos, so their use of PE is 'licensed' according to Rampton. But AAVE, or what I call VAE here, is not licensed, given that the vloggers are ethnically Punjabi. The comedians are thus using a dialect of English that does not 'belong' to them from a sociolinguistic perspective. Their use of VAE, much like the white boys' use of Creolized or Asian English in Rampton's account, is part of a renegotiation of social reality. In this sense, the construction of identity relates to code crossing, and how an individual's identity changes, both as a YouTube performer and a cultural participant, due to CS behavior.

The construction and projection of an identity, particularly cultural, social and linguistic, is important for these three comedians. It is therefore pertinent and significant to consider what

the performers' use of the VAE code represents as a part of this identity. Rampton (2009) brings up an important point regarding CS and ethnic identity as it relates to code crossing:

> In a great deal of code-switching research, participants are seen as having a rather limited choice in how they can use language to position themselves ethnically: either (a) they can maintain and/or embrace and cultivate the ethnicity they have inherited (by switching back and forwards), or (b) they can deemphasise or abandon it, so that ethnicity drops from the repertoire of identities available and meaningful to them (by not switching). The study of language crossing throws light on a further option: (c) exploring other people's ethnicities, embracing them and/or creating new ones (293).

We can see how the use of PE and VAE play a role in identity construction for the three comedians, then: PE speech follows the more traditional CS pattern, whereas VAE switches bring in the newer idea of language crossing and thus Rampton's concepts of exploring other ethnicities or "creating new ones" (ibid). This concept is useful in the context of the presentation of self in these comedians' YouTube videos. Let's consider, for example, L. Singh's excerpt from "Why I Can't Get Married" (featuring the opening line that she uses across all of her videos, introducing herself as 'Superwoman' in line 1):

(1) *what up everyone it's your gir::l Superwoman=*

(2) *=just chillin' here in my pajamas with my hair not done*

m[a] m[a:]

(3) *why? because I keeps it real*

w[a:] [a]

In this snippet we can see several aspects of VAE, primarily phonological (such as the reduction of /aɪ/ to [a:], as seen above) and morpho-syntactic (such as be-dropping in the phrase ‘what’s up’), that are common throughout videos by all three comedians.

To analyze the use of the VAE code, we incorporate a discussion of code crossing to understand its role in identity construction and display by L. Singh and the other performers. As Rampton suggests, using a code that it outside the ‘licensed’ repertoire for a given speaker opens new horizons in the study of CS. When employing VAE, the comedians are not using language to embrace or reject an ethnic identity that belongs to them already; instead, they are using the code to add new aspects to their identities as members of an urban, international community. They are not only Indians, but also Canadians, the fusion of which results in their identity as Indian Canadians. This juxtaposition of their cultural background and social setting as represented by the intermittent switches into PE and VAE demonstrate a complex identity that L. Singh, Kang and J. Singh express through both visual and linguistic avenues.

5. CONCLUSIONS. I have examined both PE and VAE here as part of the linguistic repertoire of three YouTube comedians. I hypothesize in this study that PE is a tool that Indian-Canadian comedians, particularly Kang and L. Singh, use to construct and display their identity as members of the Punjabi community in the GTA. Notably, J. Singh’s use of the PE code is much less frequent than that of the other two comedians discussed in this paper, and I suggest that such a disparity in frequency may be due the fact that J. Singh is able to use aesthetic means such as his turban to display his Punjabi identity, whereas Kang and L. Singh do not have such a visual connection to their Punjabi identities and must therefore rely more heavily on their linguistic repertoire, which includes both Punjabi and PE. I also view VAE as an important aspect of the

construction of the comedians' identities as Indian-Canadians. Just as PE connects them to their Indian heritage, VAE connects them to the urban language of the multi-cultural, multi-lingual metropolis of Toronto.

Language here is a powerful instrument used to construct identity as a Punjabi-Canadian, and to claim membership in the community as both heritage speakers of Punjabi and as members of an urban youth culture in the GTA. Using the multiple codes in their linguistic repertoire and switching among these codes as needed, the three comedians successfully construct an identity that encapsulates various aspects of their selves. Thus in their videos, the performers construct and present their identity to a wide digital audience around the world.

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[1.] A common term used by all three comedians, both for self-reference and to refer to the surrounding Indian Canadian community in general. Observable examples from this study include “Living in a Brown Fam” (Kang), “SURVIVING Brown House Parties” (J. Singh), and “Why Brown Girls like White Guys…” (L. Singh).

[2.] **Bold** used to indicate PE; *italics* used to indicate VAE. Text without emphasis indicates GA.

[3.] ***Bold-italicized*** text indicates Punjabi speech. Words in excerpt are traditional Punjabi events.

[4.] Words listed in line 3 are Indian (Punjabi and Gujarati) kinship terms for female relatives. *Parivar* means ‘family.’

Falling into the realization over time: A diachronic study of *caer en la cuenta*

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ABSTRACT. This study examines the evolution of the Spanish phrase *caer en la cuenta* 'to realize/be aware' from its first occurrence in the 1500s through the 1900s using the Mark Davies Corpus de Español. This research was inspired by a previous investigation (Healey 2012) into the changes that took place in another linguistic construction, *darse cuenta,* with the same meaning. The present study finds that *caer en la cuenta,* doesn't appear in the corpus till several centuries after the *darse cuenta* construction has already been in existence, and not till after the *darse cuenta* developed the 'realize/be aware' meaning. Additionally, *caer en la cuenta* only ever occurs with the 'realize/be aware' meaning. These findings, and the similar syntactic changes both constructions undergo, lead to the conclusion that *caer en la cuenta* has lexicalized and developed as a result of analogy with the *darse cuenta* construction.

Keywords: Language change, lexicalization, analogy, Spanish, diachronic, corpus-based

1. INTRODUCTION. By analyzing the semantic evolution of the construction [caer]+*en*+(*la*)+*cuenta* from the 1500s to the 1900s, this pilot study demonstrates that a particular semantic construal has developed for this construction based on the aggregate context of use and from analogy with the *darse cuenta* construction. The possible semantic readings of this construction over the last five centuries were all related to cognitive action, with the most common interpretations being 'understand', 'be aware', and 'realize.' Since these interpretations can all be seen as the same kind of mental action with the only difference being aspect, it was realized that all tokens really had the same meaning. This is different than the *darse cuenta* construction, which will be discussed in what follows. These examples show an early and late stage of the *caer en la cuenta* construction.

(1) Y entiendo cierto que ellos mismos, cuando se hallen reducidos y virtuosos, **han de caer en la cuenta de la perdición que tenían**, y quedar muy contentos y agradecidos de tanto bien como se les ha hecho; que tiene tanta fuerza la verdad y virtud como esto.
'And I certainly understand that they themselves, when they find themselves restricted and moral, **they have to realize the damnation they used to have**, and be very happy and grateful for all the good that's been done for them; that truth and righteousness have as much strength as this.'
(CdE, Pérez de Herrera, Cristóbal, *Discurso de amparo de los legítimos pobres y reducción de los fingidos,* 1500s)

(2) Trato entonces de reconstruir mentalmente el mobiliario de cada habitación y **caigo en la cuenta de que ese mueble podría ser el de Carlitos y Arturo**.
'I try then to mentally reconstruct the interior design of each room and **I realize that that furniture could be Carlitos and Arturo's**.'
(CdE, Simón, Carmen, *Cubo de Luz*, 1900s)

As can be seen in the above examples, the 'realize/be aware/understand' meaning has occurred throughout the construction's existence. The construction's occurrence with that meaning throughout its history was not the original hypothesis of the author. It was expected that the construction would have gone through periods of ambiguity like many evolving constructions (e.g. the development of English *going to* as a future marker). Possible reasons for this different evolutionary path will be discussed in the body of this article. A recent study of the *darse cuenta* construction (Healey 2012) will be referenced for comparison in this article, as it informs the current study's methodology and interpretation.

2. THEORETICAL FRAMEWORK. This section provides a cursory literature review of the theories necessary for understanding the approach to this investigation and interpreting the results. The theories and approaches called upon in this paper, discussed below, are: construction grammar (Croft 2001, Goldberg 2006, *inter alia*), lexicalization (Brinton & Traugott 2005, Himmelmann 2004, Lehmann 2002, *inter alia*), analogy (Hilpert 2013, Itkonen 2005), and exemplar theory (Bybee 2013, Pierrehumbert 2001).

2.1. CONSTRUCTION GRAMMAR. There are a variety of approaches to construction grammar, but they all share commonalities that unite the theory as one. The most important tenet, shared by construction grammar ideologies, is that language is made up of constructions, which are form-meaning pairings. These form-meaning pairings are the most primitive units of meaning. The form part of the pair includes morphosyntactic, lexical and phonological properties of the construction, and the meaning part includes its semantic, pragmatic, and discourse-functional properties. Because of this, in general, construction grammarians do not presuppose a division between lexicon and syntax. Instead, all constructions form part of a continuum from more to less schematic meanings. For example, the ditransitive *give* construction [give] + RECIPIENT + THEME (Malchukov et al. 2010) construction has a very schematic meaning with several open slots. The compound noun *fundraiser* (also a construction), on the other hand, is not schematic at all. It is completely lexically-filled, and the pattern is not productive, meaning that it can only be used in this one form with this particular meaning.

Categorization drives the mental organization of language in the mind of a speaker, and can take place at many levels of abstraction (Langacker 1987, Wilson 2014). The abovementioned continuum of schematicity is represented in the mind of a speaker as a network of constructions, and is shaped by the repeated exposure to specific utterances and domain-general cognitive processes such as categorization and cross-modal association (Hoffmann & Trousdale 2013:4). This study takes these principles as fundamental to the way analysis of the data is carried out and interpreted.

2.2. LEXICALIZATION. This study suggests that the *caer en la cuenta* construction has undergone lexicalization within the speech community. Brinton & Traugott (2005:96) define lexicalization as:

> A change where in certain linguistic contexts speakers use a syntactic construction or word formation as a new contentful form with formal and semantic properties not predictable from the constituents of the construction or the word formation pattern. Over time there may be further loss of internal constituency and the item may become more lexical.

Certain implications follow from this definition (Brinton & Traugott 2005:96-97), namely: (1) the result of this process is a new contentful form-meaning pairing (Himmelmann 2004), (2) the input to lexicalization can be a form-meaning pairing of any semantic or formal complexity (although in the view of Lehmann 2002 only complex units can lexicalize), (3) the same applies to the output, (4) additional morphological, phonological, and semantic changes may modify existing forms, (5) lexicalization is a gradual change (Trousdale 2008, Traugott 2012), (6) fusion/univerbation typically occur (Himmelmann 2004, Lehmann 2002), (7) idiomatization/demotivation tend to occur (where the semantic parts of the construction lose compositionality, e.g. *never, the,* and *less* in *nevertheless* don't mean what they would separately or even combine the way they would in basic syntax) (Bybee & Torres Cacoullos 2009, Lehmann 2002, Trousdale 2008), and (8) there is typically a decrease in pattern productivity (Himmelmann 2002).

A prototypical example of lexicalization is the development of the word *barn* from the combination of Old English words *bere* 'barley' and *ærn* 'house'(example from Brinton & Traugott 2005:97). First, speakers started to use the combination *bere ærn* to describe where they

kept their barley, then (gradually) these words became fixed in this order without intervening constituents, then they became morphologically fused together, and eventually the unit became phonologically eroded as the originally distinct words became demotivated. The lexeme + lexeme combination became just one lexeme. Semantic reanalysis occurred (first) to make speakers want to conceptualize this barley house as one construal, a separate idea than just a type of house. By the time speakers are calling this item a *barn*, it has generalized to be more than just a house for barley; it has become a place to store hay and tools as well. It is also possible that speakers named that concept 'barley house' in a metonymic fashion, even though they kept more than barley in it from the beginning. Some items which have been considered cases of lexicalization in the sense of the above definition are: fused syntactic phrases accompanied by idiomatization and sometimes undergoing morphosyntactic change, fused compounds, phonogenesis (the creation of new syntagmatic phonological segments out of old morphemes, e.g. *while-s- t* 'while + GEN + EXCRESCENT' > *whilst* 'during', *ibid*), phonologization (when a phonetic difference becomes a meaningful difference between phonemes, e.g. *drink, drench*), and the creation of semantic non-category changing affixes (Brinton & Traugott 2005:98).

2.3. ANALOGY. Analogy is another important process to this research because it is posited that the *caer en la cuenta* construction resulted from analogy with an earlier construction (*darse cuenta*) that has the same meaning and a very similar form. According to Itkonen (2005), analogy is generally defined as 'structural similarity,' meaning that both the wholes and the parts of items generally match up. For example, *off the hook*, meaning something is exciting and fun, is analogically related to *off the chain* which has the same meaning and a very similar form. Hilpert (2013) operationalizes analogy as "an increasing range of elements that occur within a

given constructional slot." The constructional slot which allows more elements over time in this study is the verb change between *darse cuenta* and *caer en la cuenta*, which will be discussed further in section 5.2.

2.4. USAGE-BASED EXEMPLAR THEORY. Humans are great categorizers, and our individual knowledge networks are organized in terms of exemplars based on similarity in form and meaning (Bybee 2003). An exemplar is a category which emerges from tokens of experience that are judged to be the same (Bybee & Beckner 2010, Bybee 2013). The one assumption that makes this understanding possible is that language emerges through use (Hopper 1998). The meanings of constructions are influenced by their surrounding discourse context and the actual situation in which they are used (Blank 2001, Heine 2002, Himmelmann 2004). The contexts of use contribute nuances and connotations to the meaning of a construction. A form-meaning pairing will become more entrenched with repeated use. Each particular token of use is represented (although these memories and pathways decay if not reinforced with repeated use). Therefore, even the individual token of, c*aí en la cuenta de que no fue al mercado* ('I realized that s/he didn't go to the grocery store'), makes a mark on the representation of the *caer en la cuenta* construction. Repeated exposure to *caer en la cuenta* with the meaning 'realize/be aware/understand,' lexicalizes that string as a set way to communicate that idea.

3. DATA. Two hundred and ninety-eight tokens of [caer]+*en*+(*la*)+*cuenta* from the 1500s to the 1900s were extracted exhaustively from the Mark Davies Corpus del Español (Davies 2002). This searchable online corpus contains 101,311,682 words from 13,926 different texts from the 1200s to the 1900s. All of the texts in the corpus come from written discourse except for around

2,040 oral interview transcripts in the 1900s (5,113,249 words). The same corpus is used for this study as was used in an earlier study of *darse cuenta* (Healey 2012) for comparability. The *caer en la cuenta* construction does not appear until the 1500s, although the corpus itself contains records all the way back to the 1200s.

4. METHODOLOGY. Exhaustive extraction of tokens was undertaken. The search method used was the lemma [caer], with *cuenta* within 5 words to the right of the verb in a single clause. This search method was deemed better than searching for the actual string *caer en la cuenta* because this way the tokens that had intervening constituents would be discovered as well. The tokens were then compiled in EXCEL with their surrounding discourse context and source information. Each token was then coded for the following factors: (1) semantic reading of the construction, (2) century, (3) complement type, (4) whether or not the noun phrase (NP) complement, if it has one, represents an event, and (5) the presence or absence of intervening constituents. Pivot tables in EXCEL were used for comparison, but no statistical tests were run due to the relatively small sample size, and the homogenous semantics of the tokens.

The reason for coding the semantics and century of occurrence for each token, is fairly obvious. We are able to see if any changes in speakers' interpretation of the phrase took place over time, and also when those changes took hold. Unfortunately for these data, no semantic change took place, so the results for that factor were not very interesting, but informative nonetheless. The third factor, complement type, was coded for based on the findings of a previous study on *darse cuenta* (Healey 2012). It was discovered that there is an increase in the variety of complements that the phrase took over time, and specifically an increase in noun phrase (NP) complements and predicate complements over time. This discovery demonstrates

that the phrase is being used more and more with the discourse function of introducing *what* someone is realizing, and also that the way speakers describe what they are realizing is accomplished in different syntactic ways at different points in time. Of course, multiple complement types occur with the construction at any point in time due to natural variation. The *darse cuenta* construction took complement types such as: noun phrase (e.g. *ellos* 'them,' *lo* 'it,' *su virtud* 'her virtue'), predicate (e.g. *que él está llorando* 'that he is crying'), *si* 'if' clause (e.g. *si va a venir o no* 'if she's coming or not'), relativizer (e.g. *lo que* 'it that/which'), and infinitive (e.g. *llegar* 'to arrive/arriving'). It was later decided that *si* 'if' clauses are really a type of predicate, so those categories were collapsed for the present study. Note that an infinitive is used in some cases where the English translation would use a gerund.

Another finding from the *darse cuenta* study (Healey 2012) was that within the tokens with a noun phrase complement there was an increase in the number of NP complements whose semantics represented events or more abstract ideas. An example of an event NP is given below.

(3) **No se dieron cuenta de** nuestra llegada; por esto no huyeron hasta que estuvimos próximos a su poblado y no pudieron escapar.
'**They were not aware of** our arrival; because of this they didn't flee until we were close to their village and they couldn't escape.'
(CdE, Schmidel, Ulrico, *Relatos de la conquista del Río de la Plata y Paraguay: 1534-1554*, 1500s)

The increase in abstract and event NPs was an important finding because a referent that semantically represents an action or intangible idea can be seen as semantically having the same

function as a predicate. It is just a matter of different ways of expressing something hard to describe, an abstract idea or something that happened. The abstract and event NPs are a bridging context for the *darse cuenta* construction as its function changes over time and the syntax catches up to match it. The last factor I coded for was the presence or absence of intervening constituents, that is, whether or not there are extra words in the phrase. It is expected that when a phrase is new it will be less fixed in form. Thus, as time goes on there should be less and less extra words intervening in the phrase.

After all of the tokens were coded for the above factors in EXCEL, pivot tables were used to discover tendencies for each factor as related to semantics and time. No statistical tests were run on these data because of the small sample size (298 tokens) and the uniformity in the dependent variable (semantics). Additionally, this is a pilot study for a larger project, so the level of investigation is not as deep as it could be.

5. RESULTS AND DISCUSSION. One of the major findings of this research is that the token frequency of NP complements that occur with [caer]+*en*+(*la*)+*cuenta* decreases over time, and the frequency of predicate complements increases. This shows that [caer]+*en*+(*la*)+*cuenta* is increasingly fulfilling the discourse function of introducing another clause, the clause that explains what someone is realizing, much like [PRO]+[dar]+*cuenta*. The [caer]+*en*+(*la*)+*cuenta* construction seems to have lexicalized with this discourse function. That is, the construction's form is fixed and meaning is constant. The data also reveal that the [caer]+*en*+(*la*)+*cuenta* construction, which does not appear in this corpus until the 1500s, patterns similarly to [PRO]+[dar]+*cuenta* from the 1500s onward in both semantics and the complement types it accepts. Since the [caer]+*en+la+cuenta* construction appears in the corpus at a later date, it is

posited that *caer en la cuenta* resulted via analogy with *darse cuenta.* In addition, it seems that [PRO]+[dar]+*cuenta* might be the type-leader for the pattern of Verb + *cuenta* with a semantic reading of cognitive action ('realizing') since the *darse cuenta* construction has been around longer and is more frequent than the *caer en la cuenta* construction. This is a question to be investigated further in a joint study of both constructions. The following two subsections will discuss how the results of the coding demonstrate that *caer en la cuenta* has lexicalized and why it seems to be a result of analogy with *darse cuenta.*

5.1. LEXICALIZATION. The most subtle, yet telling, finding of this study is that the *caer en la cuenta* tokens have relatively unvarying semantics over time. All of the tokens can be understood as 'realize/be aware/understand,' although it is possible to see some nuanced differences between tokens such as the tiny semantic difference between 'figure out' and 'discover.' Conventionalization of a phrase occurs when all the members of the speech community agree as to what the meaning of a particular construction is. This phrase has been conventionalized as a way to say 'realize' since all Spanish speakers can understand it that way. Any of the nuanced differences are suggested by the greater discourse context. Syntactically, there is a decrease in the occurrence of intervening constituents over time, thus the phrase is becoming fixed in form. The percentage of *caer en la cuenta* tokens occurring with intervening constituents in each century is given in table 1 below.

Century	**1500s**	**1600s**	**1700s**	**1800s**	**1900s**
%	17.5%	8.1%	15.3%	0.9%	6%
n intervening/total n for that century	14/80	5/61	4/26	1/106	3/50

TABLE 1. Percent of intervening constituents by century

There are in general two types of intervening constituents: subjects, because of the relatively free order of subject-verb in Spanish and temporal adverbs (e.g. *luego* 'later,' *ahora* 'now,' *tan tarde* 'so late,' *ya* 'already'). They are pieces that add slightly more information to the picture of 'realizing,' for example *when* someone realized something.

There is also a decrease in the number of complement types over time, skewing towards predicates, and to a lesser extent NPs. As can be seen in table 2 below, when the phrase does take a complement it is usually a predicate or a noun phrase (NP). Up until the 1900s, other complement types were possible, such as infinitives (e.g. *necesitar* 'to need'), relativizers (e.g. *lo que* 'it that'/'which'), and even one example of a comparative (*mejor* 'better') used in a less idiomatic fashion as in 4 below.

(4) y han de caer en la cuenta mejor que en el yerro, y conocer lo que es bien y mal.
'and they have to fall on the account better than on the error, and know what is good and bad.'
(CdE, Espinel, Vicente *Vida del escudero Marcos de Obregón*, 1500s)

The fact that the variety of complement types decreases over time shows that the way speakers express what they are realizing is becoming more conventionalized.

Complement	Inf.	NP	Relativizer	Predicate	Comparative	None	Total
Century							
1500s	2	26	8	24	0	20	80
1600s	0	11	5	15	1	29	61
1700s	0	4	1	11	0	10	26
1800s	3	19	6	56	0	23	106
1900s	0	11	0	35	0	4	50

TABLE 2. Complement types by century

Based on the decrease in the frequency of intervening constituents over time (fixation in form), the reduced variation in the complement types that the phrase occurs with (fixation in function), and the relatively unvarying semantics from token to token, it seems that these constructions are becoming specialized in function and fixed in form. The fixation in form and meaning demonstrates that this phrase has lexicalized.

5.2. ANALOGY. There are two reasons that the *caer en la cuenta* construction appears to have resulted from analogy with the *darse cuenta* construction. Firstly, the *caer en la cuenta* construction does not even appear in the Davies corpus until the 1500s. The *darse cuenta* construction first appears with the 'be aware/realize' construal in the 1500s. The extension from 'give someone an account' *dar**le** cuenta* to 'give yourself the account' ('realize') *dar**se** cuenta* is a logical path for the construction; syntactically, notice the change from the dative pronoun *le* to the reflexive pronoun *se*. However, *caer en la cuenta* appears in the 1500s with no apparent semantic bridging context, only the example of *darse cuenta*'s new meaning to follow. In the *darse cuenta* study (Healey 2012) it was posited that the abstract noun phrase and event nominalization complements were a bridging context that allowed speakers to imagine their "realizations" as predications. The NP complements that *caer en la cuenta* took during the

1500s-1900s were events or abstract ideas more often than concrete noun phrases consistently over time. Essentially, *caer en la cuenta* made its first appearance with all of the features that *darse cuenta* evolved to have, which is why it is a clear example of analogy.

6. CONCLUSION. In sum, the data reveal that the construction [caer]+*en*+*(la)*+*cuenta* firstly, appeared as a result of analogy with the extant construction *REFL*+[dar]+*cuenta,* and secondly, has lexicalized. The case for analogy with *darse cuenta* is evidenced by the fact that the *darse cuenta* construction existed for several centuries before the *caer en la cuenta* construction even appeared in the corpus, and also by the fact that when *caer en la cuenta* did appear, the *darse cuenta* construction had already developed the 'realize/be aware' meaning. *Darse cuenta* had a path of development that follows logically from the changing contexts in which it was used over time. *Caer en la cuenta,* on the other hand, simply appeared with this idiomatic meaning.

There are three pieces of evidence for the lexicalization of *caer en la cuenta:* (1) the relative homogeneity in meaning, (2) the decrease in complement types over time, and (3) the decrease in the number of intervening constituents over time. As mentioned earlier, all of the tokens in the corpus can be understood to mean something like 'realize/be aware/understand' with only slight variations in exact meaning due to the greater discourse context. This is evidence for lexicalization because one of the ways you can tell if something has lexicalized is if there is no variation in meaning. The other part of lexicalization is fixation in form, which is demonstrated by the decrease in the occurrence of intervening constituents over time and the decrease in the variety of complement types that occur with it over time. If less words can interrupt the phrase, it is understood by the speakers more as a single unit. The fact that only two complement types (noun phrases and predicates) can occur with the phrase by the 1900s shows

that the way speakers are expressing what they have “realized” has conventionalized as well. Thus, the *caer en la cuenta* construction has both lexicalized and is the result of analogy with the earlier *darse cuenta* construction.

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A typological rarity: The grammaticalization of Garifuna auxiliary verbs

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ABSTRACT. Garifuna is an Arawakan language that is unusual for placing its auxiliaries after verbs. Typologically, VO languages like Garifuna typically place auxiliaries before verbs (Aux V), and OV languages typically place them after (V Aux). This follows from the fact that auxiliaries often grammaticalize from verbs which take other verbs as complements. It is argued here that the Garifuna auxiliaries, though auxiliary-like in other respects, did not develop from such verbs, and so do not have the expected syntax. Cognates across the Arawakan family are identified, showing that the Garifuna auxiliaries are related to a range of morphemes that are mostly suffixes and postpositions, and which tend to follow verbs. The Garifuna auxiliaries are not unusual in comparison to their cognates. They only seem unusual because they have been labeled auxiliaries and this category comes with certain structural expectations.*

Keywords: Arawakan, auxiliary verbs, Garifuna, grammatical categories, grammaticalization, word order typology

1. INTRODUCTION. Garifuna is an Arawakan (Maipuran) language spoken primarily in Central America and among diaspora populations in the US. The language maintains an unexpected syntactic structure with respect to its auxiliary verbs. Although Garifuna is a VO language, it places auxiliaries after verbs rather than before them. Typologically, VO languages are expected to place auxiliaries before verbs, as summarized by Greenberg's 16th universal (1966): "In languages with dominant order VSO, an inflected auxiliary always precedes the main verb. In languages with dominant order SOV, an inflected auxiliary always follows the main verb." While claiming this is always the case overstates the situation, there is a strong statistical tendency supporting the correlation, as shown in table 1, adapted from Dryer (1992:83, 100). Numbers in table 1 represent groups of related languages, sorted by geographic distribution and their verb/object and verb/aux orderings. Garifuna belongs in the shaded row.

	Africa	Eurasia	SE Asia & Oceania	Australia & New Guinea	North America	South America	TOTAL
OV & V AUX	5	12	2	8	1	8	36
OV & AUX V	3	0	0	0	0	0	3
VO & V AUX	1	1	0	1	0	1	4
VO & AUX V	15	5	3	0	4	1	28

TABLE 1. Typological correlation of word order and auxiliary placement, Dryer 1992:100

This correlation is grounded in the diachronic development of auxiliaries. Auxiliaries commonly grammaticalize from verbs which take verb complements (Anderson 2006:11-12, Bybee 2010:111). In particular, they develop from phrasal heads with verb complements, henceforth 'head verbs', which follow the prototypical linear order for verbs and objects in their respective

languages (Anderson 2006:23). VO languages typically have Aux V ordering and OV languages typically have V Aux ordering because ‘Aux’ corresponds to ‘V’, and ‘V’ corresponds to ‘O’ historically, as shown in figure 1.

Figure 1: Typical structural development for auxiliaries

$V_{head}\ O_{comp.}:\ V_{head}\ V_{comp.} \rightarrow AUX_{head}\ V_{comp.}$

$O_{comp.}\ V_{head}:\ V_{comp.}\ V_{head} \rightarrow V_{comp.}\ AUX_{head}$

The Garifuna auxiliaries differ from most others in that they appear not to have their sources in head verbs. Cognates of the Garifuna auxiliaries identified here are mostly suffixes and adpositions, there is a tendency for them to come after verbs, and none of them are fully restricted to pre-verb positions. Garifuna auxiliaries are otherwise quite typical of the auxiliary category.[1] They encode tense and aspect, they occur adjacent to verbs, they carry inflection, and they are independent words rather than affixes. They have generally followed trajectories of semantic change that are common for auxiliaries and other tense-aspect marking morphology, and also happen to have grammaticalized in verb-adjacent position. Together, these factors allowed for the development of morphemes that meet most of the criteria by which the auxiliary category has been defined, though which do not meet the one that is responsible for their typical position relative to verbs; grammaticalization from head verbs.

It is notable that many cognates of the Garifuna auxiliaries are affixes. Auxiliaries in general can be considered ‘free grammatical’ morphemes, falling between syntactic expressions and inflectional morphology with regard to their degree of fusion (Bybee 1985:12). It may be that the Garifuna auxiliaries have not further grammaticalized into affixes because of Garifuna’s

system of inflectional morphology. The prefixes employed by the system not only affix to auxiliaries, but also to verbs, nouns, and prepositions, all of which can occur in the same position as the auxiliaries – immediately following verbs, as shown in 1.[2] If this system was in place before the auxiliaries began to grammaticalize, it could help explain why they have not further grammaticalized into verb affixes. A system of agreement which treated the grammaticalizing morphemes as stems could have afforded them a greater degree of independence relative to preceding verbs than they might otherwise have had.

(1) a. <u>auxiliary</u>
alíha na-gi-ru
read 1S-AUX.CNT-3SF
'I still read it'

b. <u>verb complement</u>
busíña-tina n-alíha-nu
want-1S 1S-read-3SF
'I want to read it (fem.)'

c. <u>possessive complement</u>
alíha-tibu nu-garúdia
read-2S 1S-book
'You read my book'

d. <u>preposition</u>
alíha-tibu n-úma
read-2S 1S-with
'You read with me'

On a purely synchronic view, there is no clear answer to why the Garifuna auxiliaries maintain their unusual syntax. Some have suggested that perhaps they are equivalent to tense suffixes, or are otherwise part of the verb complex (Kaufman 2010:14, Sheil 2013:4-5), though this is problematic because they can take prefixes themselves and appear to have their own lexical stress. On the view that grammatical categories are emergent rather than predetermined (Haspelmath 2007), their status as a member of the category 'auxiliary' is purely descriptive. The explanation for why the Garifuna auxiliaries are as they are will be found in how they have changed over time and what shaped this change, rather than how they have been labeled.

2. METHODOLOGY. In order to investigate where the Garifuna auxiliaries came from, texts describing several Arawakan languages were examined with the goal of identifying cognates and observing their structural distribution. In the following sections, the auxiliaries are considered individually and cognates are posited based on semantic and phonological comparison. Data comes from sources cited herein, including academic papers, descriptive grammars and accompanying texts. Identification of cognates draws on Arawakan lexical reconstructions proposed by Payne (1991),[3] and common pathways of grammaticalization established by Bybee and colleagues (1994), with one exception (see §3). The latter work was of particular importance for determining a reasonable semantic range for the cognates, as it presents evidence linking specific source semantics to specific types of tense-aspect-modality across languages. For some languages, a cognate could not be identified for a given Garifuna auxiliary, in which case that language is not discussed in the relevant section.

The majority of these cognates are affixes and adpositions, many being suffixes. With a few exceptions, these forms are not categorized as auxiliaries in their respective languages, and where they are I cannot distinguish between the author's conception of 'auxiliary' and a tense-aspect suffix. The Garifuna auxiliaries do not appear unusual when compared to their cognates. If cognates across the Arawakan family turned out to be mostly basic verbs, of the kind prone to grammaticalization (see Bybee et al. 1994), or tense-aspect affixes which align with the position of head verbs, then the placement of Garifuna's auxiliaries would be more mysterious. As it stands, it appears they are only unusual because they happen to be auxiliary-like even though they did not develop from head verbs. They most likely developed from morphemes that were frequently in post-verb positions, as many of their cognates apparently did.

Auxiliary	Transitivity	Affirmative pattern	Negative pattern
Ø immediate future	Intransitive	S-verb	
	Transitive	A-verb-O	
Ø non-future	Intransitive	verb-S	NEG-verb-S
umu non-future	Transitive	verb A-*umu*-O	NEG-verb A-*umu*-O
ba future	Intransitive	S-verb *ba*	NEG-verb *ba*-S
	Transitive	A-verb *ba*-O	NEG-verb A-*ba*-O
ña progressive	Intransitive	S-verb *ña*	NEG S-verb *ña*
	Transitive	A-verb *ña*-O	NEG A-verb *ña*-O
(h)a perfect	Intransitive	verb *(h)a*-S	NEG-verb *(h)a*-S
	Transitive	verb A-*(h)a*-(O)	NEG-verb A-*(h)a*-(O)
gi continuative	Intransitive	verb *gi*-S	NEG-verb *gi*-S
	Transitive	verb A-*gi*-O	NEG-verb A-*gi*-O

TABLE 2. Garifuna verb-aux agreement patterns

Table 2, adapted from Kaufman (2010:10), shows the structure of Garifuna auxiliary verb constructions. S, A and O denote the position of agreement affixes which themselves have a complex distribution, the description of which could fill an entire thesis of its own (Holmes 1987). There are seven different series of these affixes, and seven morphemes in each series. The selection of the series and the affix depends on gender, person, number, negation, and additional

complexities that, to my knowledge, have not been fully worked out. Ekulona (2000) provides more detailed information on the affixes and their distribution.

3. THE NON-FUTURE TRANSITIVE AUXILIARY. The auxiliary *umu* is only used in non-future transitive constructions. The analysis I present for this morpheme is different from the others in that there is no appeal to tense-aspect grammaticalization. Instead, I suggest the grammaticalization of *umu* relates to transitivity, probably deriving from *úma*, a preposition meaning 'with'. A form meaning 'with' is not a likely candidate for tense-aspect grammaticalization, but is potentially a good candidate for becoming a transitive marker. I suggest that *umu* is a relatively recent addition to the auxiliary series, and that it came to be used in non-future constructions by means of filling a gap. Existing auxiliaries encoded transitivity, though none in past or simple present tenses (see table 2). Because *úma* had no predisposition towards a particular tense-aspect itself, it came to encode non-future as it was incorporated into the auxiliary series. No other languages examined here had a morpheme marking transitivity that was a probable cognate for *umu*, suggesting that this is an innovation particular to Garifuna. Cognates for *umu* are mostly comitative and instrumental markers (see table 3).

Morphemes encoding transitivity tend to develop from verbs with meanings such as 'want', 'make/do', 'have', 'take', 'give', 'get', 'bring', 'hold', 'put', 'see', and 'consume' (Ninio 1999:639). What unifies these is that they employ a basic notion of transitivity; the connection of two entities. A form meaning 'with' fits this criteria well, even if it might not be categorized as a verb. It also fits the more general criteria that sources for grammaticalization embody basic, irreducible notions (Bybee et al. 1994:9-10), and that they occur with sufficient frequency in the relevant structural position. Both *umu* and *úma* commonly occur after verbs, as shown in 2 and 3.

An account of the suggested grammaticalization pathway from *úma* to *umu* is given in 4.

(2) a. subúdi b-umu-ti sán
know 2S-AUX.NF.TR-3SM INT
'Did you know him?'

b. m-a-súbudi-ru n-umu-ti
NEG-VBL-know-VBL 1S-AUX.NF.TR-3SM
'I did not know him'

(3) a. dúnguwa-tibu l-úma n-amúlei
meet.NF-2S 3SM-with 1S-brother
'Did you meet up with my brother?'

b. b-áiga n-úma
2S-eat.IF 1S-with
'Eat with me' (Taylor 1956a:31)

(4) Proposed grammaticalization pathway for *umu*

Stage 1 *úma* begins to be used outside of prepositional constructions, employing an agreement pattern typical of verb complements.

alíha-tina n-úma-tu
read.NF-1S 1S-with-3SF
'I read with her/it' (lit. 'I read, I with her/it')

Stage 2 *úma* increases in frequency in this type of construction and becomes more semantically bleached, maintaining only a basic notion of transitivity

alíha-tina n-úma-tu
read.NF-1S 1S-trans.-3SF
'I read it (fem.)'

Stage 3 *úma* diverges phonetically and the agreement suffix on the main verb is not used, matching existing auxiliary patterns.

alíha n-umu-tu
read 1S-AUX.NF.TR-3SF
'I read it (fem.)'

Proto-Arawakan	***-ɨma***	**with, husband, or spouse**
Garifuna doublet	*úma*	with
Arawak (Lokono)	*oma* *abo*	Comitative postposition. *de oma* 'with me' Instrumental postposition. *adadyna abo* 'with a branch'
Wayuu (Guajiro, Wayuunaiki)	*(a)maa*	Comitative postposition/suffix. *nü-maa* 'with him'. Wise (1990) suggests it may be cognate with *imo*, a Campa morpheme meaning 'in the presence of'.
	ümá, amá *huma*	Comitative. Takes person affixes. *p-ümá* 'with you'. Originally 'with'. Now used as a preposition in particular phrases. *huma pe'kera*, 'in order to search (for lost cattle)'.
Paraujano	*mo* *oomi*	Comitative. *wa-mo* 'with us'. Proximate. *nï-oomi* 'where he is'.
Bare	*ima, emã* *abi*	Comitative. *n-ima* 'with me' Comitative/proximate. *n-abi* 'with/by me'
Maipure	*tàmi* *(-)inà*	Comitative postposition. *Pero tami*, 'with Peter'. Comitative/instrumental postposition. *vi-inà*, 'with us'. *suvi inà*, 'with a stick'.
Tariana	*-ne*	Comitative/instrumental case suffix. *hipole-peri-ne*, green-COL-with, 'with the green ones'.
	-ine	Comitative/instrumental case suffix for pronouns. *nu-ine*, 'with me'

TABLE 3. Proposed cognates for *umu* [4]

4. THE FUTURE AUXILIARY. The auxiliary *ba* conveys future tense in Garifuna. Morphemes encoding future tense typically have sources with meanings of directional movement, desire, obligation or ability (Bybee et al. 1991, 1994:243-279). Payne (1991: 380) reconstructs proto-Arawakan *-*ape* or **abe* 'directional, arriving, approaching, motion', which is potentially the source for *ba*. However, Payne (1990:78) also notes that suffixes denoting directional movement and having a shape similar to *pa* are an areal feature for some South American languages. Payne cites *-pu, -pa, -op, -ap, -ahp,* and *–pe*, which mean 'arrival to here/there' in Quechua, Mapudungun, Terêna, Piro, Amuesh and Waurá respectively. It is unclear if Garifuna's *ba* derives from **abe* or a variant of the areal *pa,* or if perhaps these are related forms. It does not seem to be the case that *ba* developed from a head verb.

Several Garifuna constructions featuring *ba* are given in 5. Table 4 lists proposed cognates of *ba* from several Arawakan languages. Each cognate is described as a suffix or clitic in consulted texts, except for Garifuna where it has been called an auxiliary.

(5) a. n-arúmugu ba
1S-sleep AUX.FUT
'I will sleep'

b. m-alíha nu-bo-un
NEG-read 1S-AUX.FUT-3SF
'I will not read it'

c. t-afara be-i Mully wügüru
3SF-hit AUX.FUT-3SM Mully man
'Mully will hit the man' (Ekulona 2000:23)

Arawak (Lokono)	*-fa*	Future tense suffix. Pronounced [ɸɑ]. *li fara-fa*, he fight-FUT, 'he will fight'.
	-ba	Suffix indicating movement away from the speaker. *l-osa-ba*, 3S-go-away, 'He went away'.
Wayuu (Guajiro, Wayuunaiki)	*-pa, -pala*	Prospective 'auxiliary'. *ta-ahuta-pa*, 1S-throw-FUT, 'I'm going to throw (it).'
Paraujano	*-mi*	Allative suffix. hï-mi, 3F-towards, 'towards her'.
Maipure	*-mà*	Future tense suffix. nu-nava-mà, I-see-FUT, 'I will see'.
	-macùma	Irrealis suffix. Analyzed as *macù-ma* 'future + past'. *ua-mavà-macùma*, 1P-die-IRR, 'we might die'.
Tariana	*-mhade*	Future suffix, sometimes with sense of uncertainty. *wa-sape-mhade*, 1P-talk-FUT, 'we will talk'.
	-mha	Present non-visual evidential suffix. *di-nu-mha*, he-come-PNV, 'he is coming' (speaker cannot see him).
Resígaro	*-vá*	Future tense clitic. *xuukhoótsi-tshí-vá*, sunday-if-FUT, 'if it's Sunday'.

TABLE 4. Proposed cognates for *ba* [5]

5. THE PROGRESSIVE AUXILIARY. The Garifuna progressive auxiliary is *ña*, pronounced [ɲɑ]. Progressives regularly develop from sources such as locatives, verbs for 'live' or 'reside', and stative verbs such as 'sit', 'stand' or 'lie' (Bybee et al. 1994:129-130). For Garifuna, Bybee and colleagues have suggested that the progressive auxiliary developed from *ya* (in Taylor's transcription *ia*), meaning 'here' (Bybee et al. 1994:128).[6] Apparently, *ya* is also an iterative morpheme in modern Garifuna (see 6 below). Grammaticalization pathways for iteratives are

largely the same as those for progressives (Bybee et al. 1994:160-164), so it is reasonable to suggest that these *ya* morphemes share the same source, or are perhaps still the same word for Garifuna speakers. Examples of *ya* as an iterative stem, independent word, and suffix are given in 6a-c, respectively.

(6) a. nu-méisturu ya-dibu
1S-teacher ITR-2S
'You are my teacher again'

b. wéiri ya a-li
big ITR AUX.PRF-3MS
'He is grown up' (lit. 'he got bigger bit by bit')

c. m-áfarun-dügu-ya b-a-dina
NEG-hit-FRQ-ITR 2S-AUX.PRF-1S
'You're not hitting me anymore'

Payne (1991:381) reconstructs proto-Arawakan **-ena*, which is potentially the source for both *ya* and the progressive auxiliary *ña*. Payne glosses the form as 'continuative existential', which can be taken to mean 'remain here' or 'be here'. Some examples of auxiliary constructions using *ña* are given in 7. Table 5 lists proposed cognates and example phrases.

(7) a. n-alíha ña
1S-read AUX.PRG
'I am reading now'

b. n-a-báhüda-ha ña ába úruga
1S-VBL-tell-VBL AUX.PRG one story
'I'm telling a story'

c. m-arúmugu ña-dina
NEG-sleep AUX.PRG-1S
'I'm not sleeping these days'

Proto-Arawakan	**-ena*	progressive, gerund, continuative existential
Garifuna doublet	*ya* (*ia*)	'here', iterative
Arawak (Lokono)	*-ja*	Past tense suffix with continuative aspect. *tho-boka-ja*, she-cook-PST.CNT, 'she was cooking (a meal).'
	jaha, jadi, jara	Variants of 'here'. *jara-ka bo*, here-IND you, 'you are here'.
Wayuu (Guajiro, Wayuunaiki)	*ya(-), yaya, yala*	Variants of 'here'. *ya-haci*, here-MS, 'a man who was here'.
	ia / ya [8]	Stem of pronouns. *p-ia*, 2S-here, 'you'. *ta-ya*, 1s-here, 'I'.
Paraujano	*-naa*	Iterative suffix. *na-po-naa-i*, 3P-dig-ITR-SUB, 'they dig repeatedly (cultivate)'.
	ye, aye	Variants of 'here'. *a-mi ye*, ATR-to here, 'come here'
Wapishana	*-'naa*	Suffix denoting action already in progress. *pakiz umako-'naa*, cowboy go-already, 'The cowboy is already going'.
Bare	*-ni*	Imperfective suffix. *u-dumá-ka-ni*, 3sf-sleep-THM-IMP, 'she was sleeping'.
Palikur	*-ye, -yo*	Durative suffix. *hiyeg barew-ye*, person beautiful-DUR.M, 'an utterly beautiful person'.
	-ne, -no	Continuative suffix. *ig hakis-ota-ne*, he rub-eye-CNT.M, 'he continued rubbing his eye'.
	ay	'here'. *ay-ne-wa*, here-same-EMP, 'immediately'.
Maipure	*-ina*	Continuatve suffix. ua-kinana-ri-ina, 1P-forgive-REL-CNT, 'we are forgiving (them)'
	ia / ja [9]	Stems of pronouns. *nu-ja*, 1S-here, 'I'. *p-ia*, 2S-here, 'you'.
Tariana	*yã*	'stay, live, or be inside'. na-yã, 3p-stay/live, 'they live (in a place)'.
	ema	Verb meaning 'stand' or indicating a prolonged action when following another verb. *di-ema*, 3SM-stand, 'he was standing'.

TABLE 5. Proposed cognates of *ña* [7]

6. THE PERFECT AUXILIARY. The auxiliary *(h)a* conveys perfect aspect in Garifuna. Morphemes encoding perfect, perfective, passive, resultative or completive aspect, as well as past tense,

develop largely from verbs of two types; stative verbs such as *have, remain,* and *wait*, and dynamic verbs indicating a change of state, such as *finish* (Bybee et al. 1994:55-56).[10] Comparative work by Wise (1990) on valence-changing affixes in Arawakan languages may shed light on how this applies to Garifuna and its relatives. Wise presents a set of cognate morphemes found in many Arawakan languages, which she describes as "perfective / verbalizing / causative / thematic suffixes" (1990:96). These are proposed to derive from **k^{h}a-*, a root meaning 'make' or 'do' (Wise 1990:102, 105). This meaning could be called dynamic in that acts of making and doing result in something created, changed or completed. Separately, Payne reconstructs proto-Arawakan **-k^{h}a* 'perfect (perfective, habitual)' (1991:381), but also, **-ka* or **k^{h}a* 'passive' (1991:379). These may represent the same form that Wise suggests.

Some of Garifuna's relatives offer evidence of transition from a morpheme meaning 'to make' or 'to do', to another, more generalized morpheme with a resultative or verbalizing meaning. In Resígaro, for example, *khú* exists simultaneously as a verb meaning 'to make or do' and a verbalizing suffix (Allin 1976b:425). Also to note is Eherman's description of Wayuu *-ka* as a 'logical contingent' (1972:73-74), which often attaches to verbs in subordinate clauses indicating a logical relationship to another clause, but also to non-subordinate clauses where it can indicate something akin to perfect aspect.

Examples of constructions using *(h)a* are given in 8. Table 6 lists proposed cognates and provides some examples of their usage. It is unlikely that *(h)a* developed from a head verb, though it is possible that the proposed source morpheme **k^{h}a* could be labeled a verb, or that it behaved as a verb in Proto-Arawakan. These morphemes should not have occurred with regularity in pre-verb positions, as they are typically post-verbal across the Arawakan family.

Proto-Arawakan	**-k^ha*	passive, perfect, to make or do
Garifuna doublet	*-ha*	verbalizer
Arawak (Lokono)	*-ka*	Present perfect or perfective suffix. *kawa-ka-i*, absent-PRF-3SM, 'he is gone'.
Wayuu (Guajiro, Wayuunaiki)	*-ka, -kala, -kaka*	Variants of a 'logical contingent' marker. *emira-kaka taya*, be.full-LC I 'But I'm full' (in response to a command to eat)
Wapishana	*-kao*	Passive suffix. *u-bo'ti-t-kao*, he-lasso-TR-PSV, ‘he is lassoed’.
Palikur	*-ka*	Passive suffix. *keh-kis-ka paxnik payt ri-t*, make-cause-PSV four house by-3M 'four houses were made by him.'
	-ha	Verbalizing suffix.
Maipure	*-à*	Verbalizing suffix. *capi-à*, hand-VBL, 'bring, take'.
Tariana	*ka- ... -kana ... -a*	Passive circumfix, often accompanied by an auxiliary meaning 'go, do, give'. *hane ka-ñha-kana-mhade di-a*, this.one REL-eat-PSV-FUT 3SM-AUX 'this one will be getting eaten up'.
Resígaro	*khú*	Verb meaning 'to make or do. Verbalizing suffix. *mapíitsí* 'bad omen', *mapíitsí-khú* 'to presage, forebode'.

TABLE 6. Proposed cognates for *(h)a* [11]

(8) a. alíha n-a-ru garúdia to
read 1S-AUX.PRF-3SF book 3SF.this
'I have read this book'

b. ma-sándi ha-ru
NEG-sick AUX.PRF-3FS
'She's not sick anymore'

c. dará n-a funédere
open 1S-AUX.PRF window
'I have opened the window'

7. THE CONTINUATIVE AUXILIARY. The Garifuna auxiliary *gi* conveys continuative aspect. Continuative morphemes have sources similar to those for iteratives, frequentives, progressives, habituals, and imperfectives, with meanings of sustained location, such as 'sit', 'remain', or 'be' in a place (Bybee et al. 1994:164-165). Payne (1991:81) reconstructs proto-Arawakan *-*kɨ* 'imperfective, durative, habitual, progressive', but this gloss does not give a clear idea of what the original meaning may have been. These aspectual types all involve the association of an event or state in the past with an identical event or state in the present or future. Based on this observation and cross-linguistic comparison, I suggest that *gi* developed from a morpheme meaning 'again', 'in this way' or 'thusly', though I follow Payne in his phonological reconstruction, *-*kɨ*. Several constructions using *gi* are given in 9. Table 7 lists proposed cognates and example phrases. It seems unlikely that *gi* developed from a head verb. In fact, Payne seems to reconstruct the form as a suffix or post-positioned morpheme (1991:81).

(9) a. alíha gi-dina
read AUX.CNT-1S
'I still read'

b. alíha na-gi-ru
read 1S-AUX.CNT-3SF
'I still read it'

c. ma-sándi gi-ru
NEG-sick AUX.CNT-3SF
'She's not sick yet' (lit. She continues not to be sick)

Proto-Arawakan	***-ki***	**again, in this way**
Arawak (Lokono)	*khi*	'thusly', 'same', references a previously mentioned situation
	khi ... ba	'thusly, again'. *da-jonto-fa balhinia khi ba* 1S-pay-FUT though thusly again 'I will pay you back again the same way'.
	khidin	'same action'
Wayuu (Guajiro, Wayuunaiki)	*-ku*	'incessant-incomplete auxiliary'. Denotes repetition and continual attempt. *ta-ala.aha-ku*, 1S-return-AUX 'I've been coming back and forth'.
	-kú má	Suffix indicating repeated, continual or poorly timed action. *ánta-kú má*, 'arrive at a bad time, repeatedly, or in many locations.'
	akuaippa	'manner, way, form, conduct, custom'. Likely a reference to repeated actions or states, ways of being. Possible doublet with *-kú má* and cognate to Arawak *khi ba*.
Palikur	*akiw*	'again'. *ir tipik akiw*, he went again, 'he left again'.
	ke	'similar, like'. *ir tipik ke mayrbetite*, he went like wind, 'he went like the wind'.
Tariana	*ka:*	'just like this'. Rarely used. Appears in idiomatic expressions. *ka: di-ka*, 'despise', lit. 'look like this'.
	kayu, kayi	'like, like so, thusly'. *kayi-na-ki-ka*, so-3P-do-SUB, 'they do like so'.
	ke:, ki:	Contraction of *kayu, kayi*
	khi	'having a form like this', deictic accompanied by a manual gesture.
Resígaro	*-ké*	Habitual suffix. *hipáphavée-ké no-khú*, wash.oneself-HAB 1S-do, 'I used to wash myself.'

TABLE 7. Proposed cognates for *gi* [12]

9. CONCLUSION. The Garifuna auxiliaries have been considered typologically unusual because they are placed after verbs even though Garifuna is a VO language. However, when cognates across the Arawakan family are examined, the Garifuna auxiliaries do not seem so unusual. These cognates look much like the Garifuna auxiliaries in their shape and morphosyntatic distribution, though many are less independent, being affixes. It seems that the Garifuna auxiliaries are considered unusual primarily because they are labeled auxiliaries, and not because they are especially aberrant, at least from a diachronic perspective.

Grammatical categories like 'auxiliary' are abstractions rather than predetermined categories (Hasplemath 2007), and membership in any given category is gradient. The Garifuna auxiliaries are particularly interesting because they followed expected grammaticalization trajectories for auxiliaries along semantic criteria, but have only partly developed as expected along syntactic criteria, being verb adjacent but on the 'wrong' side of the verb. This is a direct result of the structural distribution of their sources historically, which appear not to have been head verbs or morphemes otherwise restricted to pre-verb positions. Their unexpected positioning is unproblematic, so long as the auxiliary category is taken as a descriptive abstraction rather than an innate or universal category in itself. On this view, the label 'auxiliary' is of little theoretical consequence. Although the label is a reasonable descriptor in many ways, it does not explain why the Garifuna auxiliaries are as they are. Considering the probable diachronic development of the Garifuna auxiliaries offers an explanation for their unexpected syntactic position.

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[1] See Heine (1993:22-24) for a discussion on how the auxiliary category has been defined.

[2] Glosses in tables and numbered examples have been adapted to fit analyses proposed here. Where no source for a Garifuna example is cited, examples are from fieldwork conducted over the summer of 2012, in the Bronx, New York. Abbreviations include:1 'first person', 2 'second person', 3 'third person', ATR 'attributive', AUX 'auxiliary', CNT 'continuative', COL 'collective', DUR 'durative', EMP 'emphatic', F 'feminine', FUT 'future', FRQ 'frequentive', HAB 'habitual', IF 'immediate future', IMP 'imperfect', IND 'indicative', IRR 'irrealis', ITR 'iterative', LC 'logical contingent', M 'masculine', NEG 'negative', NF 'non-future', NM 'non-masculine', P 'plural', PNV 'present non-visual', PRF 'perfect', PRG 'progressive', PST 'past', PSV 'passive', REL 'relative', S 'singular', SUB 'subordinate', THM 'thematic', TR 'transitive', VBL 'verbalizer'.

[3] Payne uses the name Maipuran to refer to the Arawakan language family. The names Arawakan, Arawak, Maipuran, and Maipurean have been used by various authors to refer to the same language group.

[4] In this and other tables, Arawakan languages more closely related to Garifuna appear nearer the top, and ones more distantly related appear nearer the bottom. For more details on the structure of the Arawkan family, see Kaufman (1994) and Aikhenvald (1999). Examples and references for table 3 can be found in the following sources: Proto-Arawakan (Payne 1991:409), Garifuna (Hadel 1975b:397), Arawak (Pet 2011:27, 53, 208), Wayuu (Captain and Captain 2005:18; Ehrman 1972; Holmer 1949c:151, 155; Wise 1990:101; Zubiri and Jusayu 1986:165, 178),

Paraujano (Patte 1989:65-66, 92), Bare (Aikhenvald 1995:7, 13), Maipure (Zamponi 2003:34-35, 60), Tariana (Aikhenvald 2006:140, 142).

[5] Examples and references can be found in the following sources: Proto-Arawakan (Payne 1991:380), Arawak (Pet 2011:8, 24, 30-31, 34, 36, 112), Wayuu (Ehrman 1972:95, Holmer 1949c:149), Paraujano (Patte 1989:62, 108), Bare (Aikhenvald 1995:7, 13), Maipure (Zamponi 2003:39, 41), Tariana (Aikhenvald 2006:43, 216), Resígaro (Allin 1976a:261).

[6] Following work by Douglas Taylor (1956a-b, 1958a-b), Bybee and colleagues (1994) call Garifuna 'Island Carib'. Taylor referred to Garifuna as the Central American dialect of Island Carib, though Island Carib proper is Garifuna's linguistic predecessor, spoken on the Caribbean island of St. Vincent until around 1920 (Taylor 1977:89).

[7] Examples and references can be found in the following sources: Proto-Arawakan (Payne 1991:381), Garifuna (Bybee et al. 1994:140, Cayetano 1993:89), Arawak (Pet 2011:35, 40, 137, 208-209), Wayuu (Ehrman 1972:108, 112, Holmer 1949c:152, 154), Paraujano (Patte 1989:47-48, 50, 63-64, 66, 83, 87, 117, 129), Wapishana (Tracy 1974:121), Bare (Aikhenvald 1995:30), Palikur (Aikhenvald and Green 1998:438, 449, 452, Valadares 2006, Wise and Green 1971:261, 272, 277), Maipure (Zamponi 2003:21, 40), Tariana (Aikhenvald 2006:117, 431, 433, 609)

[8] Wayuu pronouns consist of a person/number prefix and the stem *-ia* / *-ya*. They may have derived from a morpheme meaning 'here'. For example *pia* 'you' (Captain and Captain 2005:41) could be analyzed as *p-ia* '2S-here'. This pattern holds throughout all the pronouns, and is further supported by the structure of Wayuu demonstrative nouns: (i) *ci-ya*, S.M-here, 'this one (mas.)'; (ii) *tI-ya*, S.NM-here, 'this one (non-mas.)' (Ehrman 1972:215).

[9] Note the similarity to Wayuu pronouns, discussed in footnote 8.

[10] Bybee et al. (1994:54-55) uses the term ‘anterior’ rather than ‘perfect’, to avoid confusion between the terms ‘perfect’ and ‘perfective’.

[11] Examples and references can be found in the following sources:Proto-Arawakan (Payne 1991:379-81, Wise 1990:105), Arawak (Pet 2011:34-35, Wise 1990:105), Wayuu (Ehrman 1972:73-74, 89, 93), Wapishana (Tracy 1974:123), Palikur (Wise 1990:105, 107, Wise and Green 1971:266), Maipure (Zamponi 2003:44), Tariana (Aikhenvald 2006:235, 258-259, 452), Resígaro (Allin 1976a:61, 97, 1976b:320, 425, 1976b:389-427).

[12] Examples and references can be found in the following sources:Proto-Arawakan (Payne 1991:381), Arawak (Pet 2011:108, 139, 143-144, 205-206, 211), Wayuu (Captain and Captain 2005:76, Ehrman 1972:82, Zubiri and Jasayu 1986:229), Palikur (Wise and Green 1971:266, 269, 275), Tariana (Aikhenvald 2006:52-53, 174, 195, 213, 231, 603, 608), Resígaro (Allin 1976a:214-215, Payne 1991:381).

Independent of change or constitutive of change: Event construal of unstable recipient role in prototypical ditransitive events

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ABSTRACT. Korean and Central Alaskan Yup'ik (CAY) exhibit an apparent case alternation in the marking of the recipient in prototypical ditransitive events encoded in their verb for 'give': between the dative and the accusative in Korean, and between the absolutive and the allative in CAY. This paper shows that the choices for the case marking are dependent on the conceptual distinction of whether or not the participant in the recipient role is part of a fictive change. Korean encodes the change-constitutive recipient in the structural case and the change-independent one in the semantic case, whereas CAY encodes each one the other way around.*

Keywords: fictive change, participant role, structural case, semantic case, discourse, event conception

1. INTRODUCTION. The present study analyzes typical ditransitive constructions in Korean and Central Alaskan Yup'ik (henceforth CAY) from a perspective of cognitive typology (Croft 2001, Talmy 2000), and demonstrates that they make a distinction between the recipient construed as constitutive of a FICTIVE CHANGE and the recipient construed as independent of the change. This distinction in construal has opposite grammatical manifestations in the two languages: Korean puts change-independent recipients in a semantic case (i.e. dative) and change-constitutive recipients in a structural case (i.e. accusative), while CAY marks the former with a structural case (i.e. absolutive) and the latter with a semantic case (i.e. allative). The two languages are also analyzable as dividing ditransitive events into TRANSFER and CAUSE-CHANGE-STATE (Croft 2001:164), expressing each in distinct constructions.

Typical three-participant (ditransitive) events described in sentences like 'She gave him a book' or 'John has brought the book to Miren' are encoded diversely in different languages. In languages like Japanese, the agent, recipient, and theme are invariably encoded in the nominative, dative, and accusative NPs, respectively, as illustrated in 1a. In languages like Basque, the three participant roles are constantly marked as ergative, dative, and absolutive, respectively, as exemplified in 1b.[1]

(1) a. Kanozyo-ga kare-ni hon-o age-ta. (JAPANESE)
she-NOM he-DAT book-ACC give-PST
'She gave him a book.'

b. Jon-ek Miren-i liburu-a ekarr-i dio. (BASQUE)
Jon-ERG Miren-DAT book-ABS.DEF bring-PERF A3S-AUX(present)-D3S-E3S
'Jo[h]n has brought a/the book to Miren.' (Aske 1987:5)

These two types of languages contrast each other in accusativity and ergativity but are similar in not exhibiting case alternations in encoding the participants.

Some languages, however, manifest case alternations in the coding of participants. In colloquial Korean, the agent and theme roles are usually encoded in the nominative and the accusative, respectively, but the recipient role can either be marked as dative or accusative, as shown in 2.

(2) a. John-i Mary-**ege** chaeg-eul jueo-ss-dae. (KOREAN)
John-NOM Mary-**DAT** book-ACC give-PST-EVD
'(I hear) John gave Mary a book.'

b. John-i Mary-**reul** chaeg-eul jueo-ss-dae. (KOREAN)
John-NOM Mary-**ACC** book-ACC give-PST-EVD
'(I hear) John gave a book to Mary.' (Yongtaek Kim, p.c.)

In CAY, the recipient role of the ditransitive construction can appear in either the absolutive or the allative depending on the choice of ditransitive verbs; when *cikir-* 'give' is chosen, the recipient role is marked with the absolutive as in 3a, while when *tune-* 'give' is employed, it is marked with the allative case as in 3b.

(3) a. Arna-m angun cikir-a-a aki-nek. (CAY)
woman-ERG man.**ABS** give-IND.TRANS-3S/3S money-ABL.PL
'The woman gave the man some money.' (Jacobson 1995:138)

b. Tun-a-a naca-a angut-**mun**. (CAY)
give-IND.TRANS-3S/3S hat-3S/3S.ABS man-**ALL.S**
'She is giving her hat to someone.' (Caan Toopetlook, p.c.)

The present study demonstrates that the prima facie case alternations in Korean and CAY ditransitives are attributable to the unstable status of the recipient role (and possibly some other roles as well) in those languages. Unlike the way Japanese and Basque consistently encode the role in the dative, the two languages mark the role with different cases according to whether the participant in the role is construed as independent of the fictive change involved in the relevant event conceptualization or whether it is construed as constitutive of the fictive change. In general terms, Korean encodes the change-constitutive participants in the accusative case and CAY encodes them in the ablative or allative case.

2. FICTIVE CHANGE. We will argue below that the case alternations in the recipient marking can be accounted for in terms of Talmy's (2000:101) FICTIVE CHANGE. As he puts it, "[o]f the two discrepant representations of the same object, we will characterize the representation accessed to be more veridical as **factive** and the representation assessed to be less veridical as **fictive**" (2000:100; emphasis added). Accordingly, the conception of change can either be factive or fictive. Talmy exemplifies fictive change by sentences like those in 4.

(4) a. The soil reddens toward the east.
b. The road disappears for a while by the lake and then reappears toward the border.
c. The entering freshmen keep getting younger. (Talmy 2000:170)

In these examples, none of the entities referred to in the subjects are assumed to change in the real world; 4a describes "a spatially distributed difference," 4b "the spatial arrangement of two sections of road with no road between them," and 4c the situation in which "the students on average stay the same in age" (Talmy 2000:170). All these situations are presumed to be "factively static." However, they are assumed to change fictively rather than factively; they are taken to change "in color" in 4a, "from being present, to being absent, to being present again" in 4b, and "downward in age" in 4c, respectively, "as one's attention fictively moves across the space" or "as one fictively moves one's attention along this entity" (*ibid*).

Fictive change manifests more broadly in linguistic meaning and function. For example, the change involved in time conceptions can be viewed as one manifestation of fictive change, more specifically fictive motion. Moore (2011:773) points out that the "visually scanned path" relevant to the temporal conceptualization of *nayra* 'front' and *qhipa* 'back/behind' in Aymara "would involve something akin to fictive motion." The motion involved in time conceptions represented by the "Moving Time" and "Moving Observer" metaphors (Lakoff and Johnson 1999:Ch.10) can generally be understood as a manifestation of fictive change.

Some notions commonly used in functional and cognitive approaches to grammar and lexicon can also be seen as instantiating a kind of fictive change: "modify" or "introduce". When grammarians talk of things like "an adjective as something that modifies a noun, and an adverb as something that modifies a verb, adjective, or another adverb" (Langacker 1987:242), they do not claim that the adjective makes a factive change in the noun. They refer to the adjectival function as producing a fictive change of the nominal conception in the conceptualization of the composite expression. Likewise, when linguists say something like "the form in question serves to introduce a participant into the discourse" (Hopper and Thompson 1984:708), the participant

is not necessarily assumed to appear factively in the real world event recounted. Rather, it fictively changes from being absent to being present in the relevant event conception.

We maintain that the appearance of an event participant in the discourse representation can be treated as a manifestation of the fictive change conception. An indefinite, unidentified, unexpected, or contrasted participant can readily be seen as changing from being absent to being present in the discourse, as one fictively moves one's attention along or through the relevant event conception. It should be noted, however, that languages may differ in which participants they treat grammatically or pragmatically as a fictive change entity. CAY has seemingly grammaticalized a distinction between the participants already present in discourse (definite or identified) and those newly introduced into the discourse by the current utterance (indefinite or unidentified), treating the latter as fictive-change entities. In contrast, Korean is grammatically indifferent to such a distinction. Colloquial Korean, however, is somehow heedful of the difference between the unexpected or contrasted event participants and those that are not so.

As the next section will demonstrate, the Korean accusative prototypically serves to mark an event participant construed as constitutive of a factive change in location or of state, but it has been extended to marking an event participant that is construed as constitutive of a fictive change. One example is the accusative marking of the recipient in a benefactive/adversative construction (Izutsu & Koguma 2014). A further example is what we deal with in this study, the accusative marking of an unexpected or contrasted recipient. Korean is sensitive to the distinction between event participants construed as independent of such a fictive change and those construed as constitutive of the change.

A comparable analysis is possible of ditransitive clauses in CAY. The case marking in the recipient encoding is analyzable as being sensitive to a type of fictive change conception, not the

Korean type, as pointed out above. Earlier studies have revealed that in prototypical ditransitives, definite recipients are marked morphologically with the absolutive, whereas indefinite recipients are marked with the allative (Jacobson 1995:118, 137).[2] As demonstrated in Section 4, those descriptions can be captured anew in terms of whether the recipient is independent of or constitutive of, a fictive change: appearance in the discourse. Definite recipients can be regarded as participants independent of the fictive change. Contrastively, indefinite recipients can be viewed as event participants constitutive of the fictive change.

The independent/constitutive distinction of the recipient entity is instantiated in 3, given in section 1. In 3a, the recipient NP *angun* is definite, and its referent is a discourse-given or identified entity. This entity is construed as independent of the fictive change, i.e. appearance in the discourse; accordingly, the NP is marked as absolutive. In 3b, however, the recipient NP *angut-mun* is indefinite and thus its referent is newly introduced into the discourse along with the relevant event conception. This newly introduced entity is constitutive of the fictive change, and the NP is marked with a semantic case, allative. These two distinct conceptualizations of ditransitive events are based on whether the participant is independent of or constitutive of the relevant fictive change.

3. DITRANSITIVE EVENT CONCEPTION IN KOREAN. In written or non-colloquial Korean, ditransitive clauses normally mark the agent, theme, and recipient roles with the nominative, accusative, and dative cases, respectively, although the agent is often marked with the topic marker *-(n)eun* as illustrated in 5. The accusative case typically serves to mark an event participant that is affected or constitutive of a **factive** change. In typical ditransitive clauses like

5, the theme entity counts as such a participant because it is understood to undergo a factive change in location; it is accordingly encoded in the accusative NP.

(5) John-eun Mary-ege geu chaeg-eul jueo-ss-da.
John-TOP Mary-DAT that book-ACC give-PST-DECL
'John gave Mary that book.' (Yongtaek Kim, p.c.)

In spoken Korean as well, the case marking basically adheres to the same assignment pattern but occasionally can allow the recipient to be encoded in the accusative rather than dative, which amounts to an apparent alternation between the dative and accusative, as illustrated in 2a and 2b above. We will below show that the recipient in examples such as 2b is construed as a participant constitutive of a fictive change: a participant that appears in the event conception unexpectedly or contrastively.

The event conception of sentence 5 can be diagramed as in Figure 1.[3] The agent 'John,' the theme 'that book,' and the recipient 'Mary,' are all given in discourse, in other words they are already introduced and identified, as represented in Figure 1(I). This given status is indicated by the green color in the diagram. Along with the event conception, the theme undergoes a change in location and thus constitutes a factive change, as shown in Figure 1(II), where the yellow ellipse circumscribes the scope of the change.

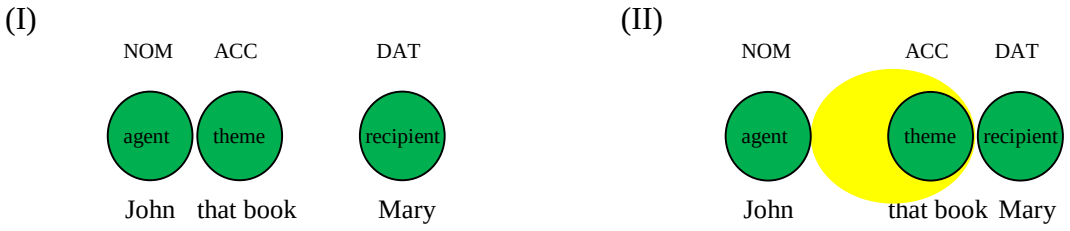

FIGURE 1. Event conception of 5

In this event conception, therefore, the theme is marked with the accusative that primarily serves to mark an event participant constitutive of a factive change. As far as the written language instantiated in 5 is concerned, the recipient ordinarily cannot be marked with the accusative.

In spoken Korean as well, the theme participant in typical ditransitive clauses like 2a above is viewed as constitutive of a factive change in location, while the recipient is seen as independent of the change. Notice, here, that the theme is also constitutive of a fictive change in that it is newly introduced into discourse. The NP for the change-constitutive theme is marked with the accusative, and the NP for the change-independent recipient, with the dative. In 2b, however, the recipient as well as the theme is marked as accusative. This sentence can have at least two interpretations: (i) the speaker did not expect John to give a book to Mary; (ii) the speaker expected John to give a book to someone else, for instance, the speaker himself or herself. In other words, the recipient is treated as an unexpected participant or a contrastive participant here. This participant is introduced into the discourse alongside the relevant event conception, which amounts to a realization of fictive change and is responsible for the accusative marking of the recipient NP in 2b.[4]

The event conceptualization of sentence 2a can be visualized as in Figure 2. First, the agent and the recipient, represented by green circles, are already introduced and identified in discourse. And then the theme entity, represented by orange circles, is newly introduced into the discourse in Figure 2(I), in which the orange color indicates this new-participant status. The appearance in the discourse can be viewed as a fictive rather than factive change, the scope of which is specified by the dotted-line ellipse. The theme constitutes a fictive change as well as a factive change in location, as represented by both the yellow and dotted-line ellipses in Figure 2(II).

(I) (II)

FIGURE 2. Event conception of 2a

Here the accusative serves to mark an event participant that is constitutive of a fictive as well as factive change.

On the other hand, the two possible readings of sentence 2b can be visualized in Figures 3 and 4, respectively. In the first reading 'John unexpectedly gave a book to Mary,' the agent 'John' is given or already present in discourse, and the theme and recipient are (unexpectedly) brought into the discourse along with the event conception. In Figure 3, accordingly, the given agent is represented by green circles, while the newly-introduced theme and recipient are represented by orange circles. Both the theme and recipient are constitutive of a fictive change, i.e. appearance in the discourse or event conceptualization, as specified by the dotted-line ellipse; they are encoded in the two accusative NPs. The theme is also part of factive change in location, as specified by the yellow ellipse in Figure 3(II).

(I) (II)

FIGURE 3. Event conception of the first reading of 2b

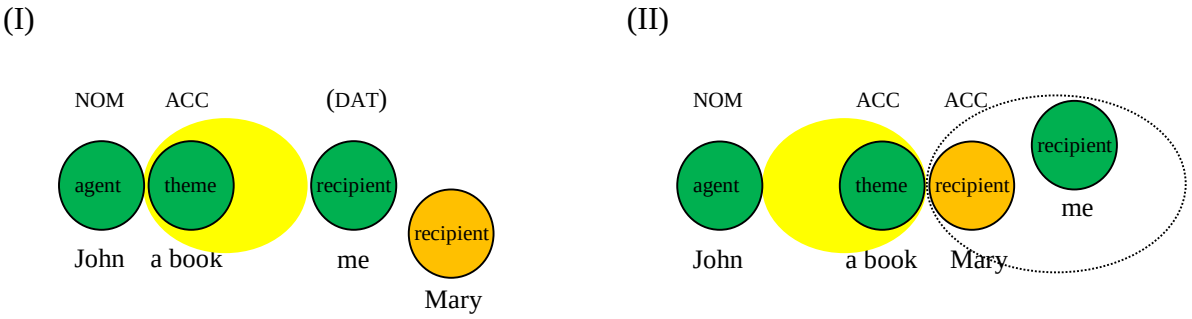

FIGURE 4. Event conception of the second reading of 2b

In the second reading ‘John gave a book to Mary, not to me!,’ as diagramed in Figure 4, the expected recipient ‘me!’ as well as the agent and the theme is somehow given or already present in discourse, represented by green circles, and the unexpected or contrasted recipient (‘Mary’) is introduced into the discourse, represented by orange circles. In the discourse-based event conception, the expected recipient is replaced by the unexpected recipient. This participant replacement amounts to a fictive change; the unexpected recipient that is constitutive of the change is accordingly encoded in the accusative NP.

In both of the two readings, the recipient ‘Mary’ is very likely understood to have enjoyed an unexpected benefit or favoritism from ‘John.’ This benefactive understanding also accounts for a fictive rather than factive change interpretation.

4. DITRANSITIVE EVENT CONCEPTION IN CENTRAL ALASKA YUP’IK. Typical ditransitive events like the ones expressed by *give* in English divide themselves into two distinct classes in CAY. Such events with a definite theme are denoted by *tune-* ‘(he/she/they) give (it/them to),’ while such events with an indefinite theme are designated by *cikir-* ‘(he/she/they) give (him/her/them)’

(Jacobson 1995:138). The case-marking patterns of the agent, theme, and recipient roles and the verb roots used are tabulated in Table 1.

	ERGATIVE	ABSOLUTIVE	ALLATIVE	ABLATIVE	VERB ROOT USED
(a)	**agent**	**recipient**		theme	*cikir-*
(b)	**agent**	**theme**	recipient		*tune-*
(c)	**agent**	**theme**	**recipient**		*tune-*
(d)	agent	**theme**	**recipient**		*tune-*
(e)		**agent**	recipient	theme	*cikir-*
(f)	**agent**	theme	**recipient**		-
(g)	agent	theme	**recipient**		-
(h)		**agent**	recipient	**theme**	-
(i)	**agent**	**recipient**		**theme**	-
(j)	agent	**recipient**		**theme**	-

N.B. boldfaced roles are encoded in definite NPs)

TABLE 1. Case marking of agent, theme, and recipient in CAY ditransitive events

Here, the boldface indicates that the NP for the participant role is definite. The patterns in (a) through (e) are possible but those in (f) through (i) are not. Both *tune-* and *cikir-* require two definite event participants, only one of which must be in the absolutive, which accounts for the unattested patterns. The two verb roots in patterns (d) and (e) take only one definite participant; they must be put in the antipassive as will be seen below.

These case-marking patterns and the verb root distinction speak eloquently of the CAY's dichotomous categorization of ditransitive events. The events encoded in *tune-* primarily involve a human agent and an inanimate theme that are given or already identified in discourse, whereas those encoded in *cikir-* concern an agent and recipient, both human, that are given or already identified in discourse. The two event types correspond to Tuggy's (1998:38) "manipulation" and "human interaction," respectively. They should be understood to be maximally distinguished in the linguistic and conceptual categorization of CAY.

Clauses headed by *tune*- with a definite agent and theme, illustrated in 3b above, will be taken to describe the theme's factive change in location: its transfer from the agent to the recipient. They could also be understood to portray the agent's change in possession: her relinquishment of the theme. In contrast, clauses headed by *cikir*- with a definite agent and recipient, illustrated in 3a above, could be interpreted as depicting the recipient's fictive change in possession: his acquisition of the theme.

(6) a. Arnaq cikir-i-u-q **aki-nek** angut-**mun**.
woman-**ABS** give-ANTI.PASS-IND.INTRANS-3S **money-ABL** man-**ALL.S**
'The woman is giving some money to a man.'

b. Arnaq **aki**-kir-u-q angut-**nun**.
woman-**ABS** **money**-give-IND.INTRANS-3S man-**ALL.PL**
'The woman is giving some money to people.' (Caan Toopetlook, p.c.)

On the other hand, clauses headed by *cikir*- but with a definite agent and an indefinite recipient and theme, as illustrated in 6 above, would be seen as involving all the changes: the agent's change in possession, the theme's change in location, and the recipient's change in possession. However, CAY is not sensitive to the factive (event-internal or 'affectedness" type of) change but to the fictive change involved in the discoursed-based event conception.

As shown in section 3, the appearance in discourse of an "unexpected or contrasted" event participant is responsible for the apparent alternation in the case marking of the recipient in spoken Korean. In CAY, the fictive change pertinent to a similar case alternation in the recipient marking is the appearance of an event participant per se in the current event conception grounded on the discourse. We can thus hypothesize that CAY makes a case distinction between event

participants construed as independent of the discourse-based fictive change and those construed as constitutive of the change.

The distinct event conceptions denoted by *cikir-* and *tune-*, each exemplified in 3a and 3b, can be visualized as in Figures 5 and 6, respectively. In 3a, the agent and the recipient are given or already present in discourse and thus represented with green circles in Figure 5(I). The theme entity is later introduced into the discourse together with the event conception as seen in Figure 5(II). The theme undergoes a further factive change in location in Figure 5(III). Here the theme does not only constitute a factive change in location (represented with the yellow ellipse) but also a fictive change in the sense of appearance in the discourse (specified with the dotted-line ellipse); hence, it is encoded in an ablative NP (*aki-nek*). By contrast, the recipient is seen as independent of the change, and it is thus encoded in an absolutive NP (*angun*).

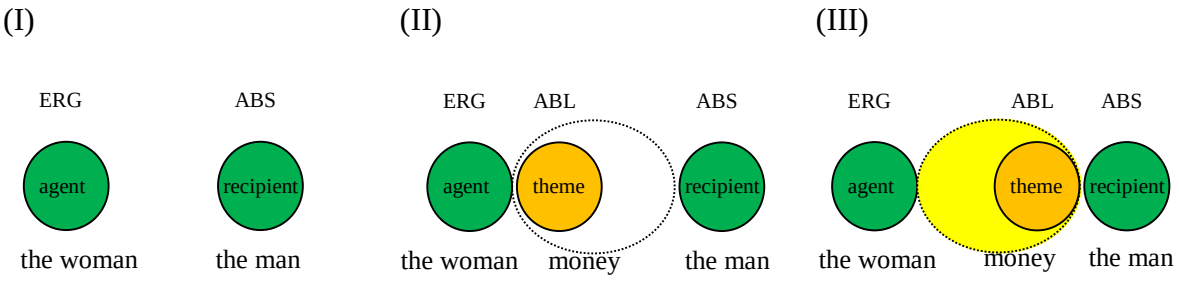

FIGURE 5. Event conception of the second reading of 3a

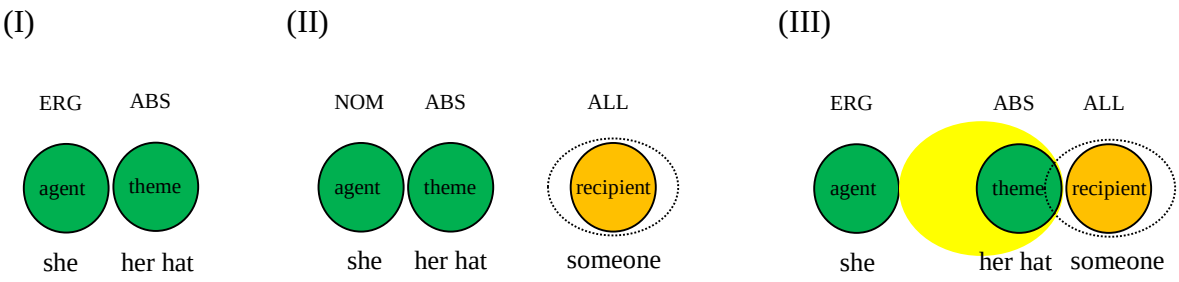

FIGURE 6. Event conception of the second reading of 3b

In 3b instead, the agent and the theme are given or already present in discourse as in Figure 6(I) and the recipient is newly introduced alongside the event conception as in Figure 6(II). Subsequently, the theme undergoes a factive change in location as shown in Figure 6(III). This time, the recipient is constitutive of the fictive change in the sense of appearance in the discourse, and therefore it is encoded in an allative NP (*angut-mun*).

Our hypothesis is supported by further evidence from the language. In 6 above, the agent alone is a definite entity, given or already present in the discourse. Hence, it is construed as independent of the fictive change and is encoded in an absolutive NP (*arnaq*). Contrastively, both the recipient and the theme are indefinite or unidentified rather than definite or identified entities. They are newly introduced into the discourse by the sentence together with the event conception; therefore, they are constitutive of the fictive change. One linguistic manifestation of those participants is the encoding with semantic cases such as the allative for the recipient and the ablative for the theme, as seen in 6a. Interestingly, the change-constitutive theme can also manifest in the noun incorporation instead of the ablative NP, as instantiated by *aki-kir-u-q* in 6b. These examples also corroborate our hypothesis that CAY exhibits a case distinction between event participants construed as independent of a fictive change (encoded in the absolutive) and those construed as constitutive of the change (encoded otherwise).

5. STRUCTURAL/SEMANTIC CASE DISTRIBUTION IN THE MARKING OF CHANGE-CONSTITUTIVE/INDEPENDENT PARTICIPANTS. The present discussion reveals both the similarity and difference between (spoken) Korean and CAY. Both are similarly sensitive to a comparable distinction between change-independent and change-constitutive event participants. Korean prefers to encode the change-constitutive participants in the accusative (structural case), whereas

CAY prefers to encode the change-constitutive participants in the ablative or allative (semantic case).

What we have demonstrated so far can be summarized as in Table 2. Korean typically encodes participants constitutive of a factive change in accusative NPs, as in 2a and 5. Spoken Korean tends to encode an unexpected or contrasted event participant, recipient in 2b, as well in an accusative NP, although it ordinarily encodes expected or topical participants in dative or topic-marked NPs, as in 2a and 5.

	EVENT PARTICIPANT CONSTRUED AS **CONSTITUTIVE** OF A FICTIVE CHANGE	EVENT PARTICIPANT CONSTRUED AS **INDEPENDENT** OF A FICTIVE CHANGE
Korean	unexpected or contrasted participant (just like factive-change participant) **accusative case** (e.g. 2b)	expected or topical participant **dative case or topic marker** (e.g. 5)
CAY	unspecified or unidentified participant **allative/ablative case** (e.g. 6a)	specified or identified participant **absolutive case** (e.g. 3a)

TABLE 2. Case marking in spoken Korean and CAY ditransitive clauses

Meanwhile, CAY encodes unspecified or unidentified (indefinite) participants in allative/ablative NPs, whereas it encodes specified or identified (definite) participants in absolutive NPs. The middle column in the table corresponds to event participants construed as constitutive of a fictive change, while the right column amounts to event participants construed as independent of a fictive change.

The accusative (and nominative) in Korean and the absolutive (and ergative) in CAY can be regarded as structural cases, while the dative, allative, (and ablative) can be safely identified as semantic cases. Tables 3 and 4 are, respectively, the recapitulations of how the recipient and the theme manifest themselves grammatically in Korean and CAY ditransitive clauses.

	RECIPIENT ENTITY CONSTRUED AS **CONSTITUTIVE** OF A FICTIVE CHANGE	RECIPIENT ENTITY CONSTRUED AS **INDEPENDENT** OF A FICTIVE CHANGE
Korean	**accusative (structural) case**	dative (semantic) case
Yup'ik	allative (semantic) case	**absolutive (structural) case**

TABLE 3. Structural/semantic-case distribution in the recipient marking

	THEME ENTITY CONSTRUED AS **CONSTITUTIVE** OF A FICTIVE CHANGE	THEME ENTITY CONSTRUED AS **INDEPENDENT** OF A FICTIVE CHANGE
Korean	**accusative (structural) case**	accusative (semantic) case or topic marker
Yup'ik	ablative (semantic) case or noun in corporation	**absolutive (structural) case**

TABLE 4. Structural/semantic-case distribution in the theme marking

The languages are both sensitive to the distinction between the event participants constitutive of a fictive change and those independent of the change, but they have opposite manifestations of this distinction in addition to the difference in what constitutes the relevant fictive change. Korean puts change-independent participants in semantic cases like dative or topic marking and change-constitutive ones in structural cases like accusative. CAY marks the former with

structural cases like absolutive and the latter with semantic cases like allative and ablative, otherwise noun incorporation.

A brief comparison between Korean sentence 2b (the first reading) and the CAY sentences in 6 will further clarify how the two languages are similar and how they differ. In the context of those sentences, the agent is the only entity that is obviously present in discourse prior to the utterance, while the theme and recipient are newly introduced into the discourse. In Korean sentence 2b, the NPs for 'Mary' and 'a book' are both marked as accusative, **structural** rather than semantic case, because the theme and recipient are interpreted as constitutive of a factive (change in location) or fictive (unexpected or contrasted appearance) change. Contrastively, CAY sentence 6a marks both of the NPs for 'money' and 'a man' with **semantic** rather than structural cases, ablative and allative. 6b makes a further contrast in that the theme NP is encoded as part of the verb for 'give.' In 6a-b, the theme and recipient are construed as constitutive of a fictive change in which they appear in the discourse together with the current event conception.

6. CONCLUSION. The present study showed that the alternation between the structural and the semantic cases in Korean and Central Alaskan Yup'ik ditransitives is attributable to the unstable status of the recipient role in those languages. Unlike languages such as Japanese and Basque, which stably encode the role in the dative, languages like Korean and CAY give the recipient entity different treatments according to whether it is viewed as independent of, or constitutive of, the fictive change involved in the relevant event conceptualization.

Although "the ditransitive events are events of various types of transfer, while transitive events are prototypically cause-change-states" (Croft 2001:164), recipients in transfer events can

by nature be either the goals of transferred themes (independent of change) or the patients affected by the transfer (constitutive of change). Korean and CAY differ remarkably from other languages like Japanese and Basque in that they are both sensitive to the fictive change: the appearance of an event participant in the discourse conception.

In Korean, recipients are encoded in accusative NPs when viewed as patients constitutive of a fictive as well as factive change but in other oblique NPs when viewed as goals independent of such a change. In CAY, recipients are marked as absolutive when construed as change-independent participants, while they are marked as allative when the theme participant serves as a focal participant encoded in the absolutive. Although Korean and CAY are both sensitive to a similar change-independent/constitutive distinction of event participants, Korean encodes the change-constitutive participants in a structural case (accusative) and CAY encodes them in a semantic case (ablative or allative).

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[1] The following abbreviations are used in glosses of example sentences below: ABL: ablative, ABS: absolutive, ACC: accusative, ALL: allative, AUX: auxiliary, DAT: dative, DEC: declarative, DEF: definite, ERG: ergative, EVD: evidential, IND: indicative, NOM: nominative, PERF: perfective, PL: plural, PST: past, TOP: topic, TRANS: transitive, S: singular. What is referred to as ablative in CAY examples corresponds to Jacobson's (1995:32) "ablative-modalis case." Notice that it seems to have been so named because it marks the entities in a modal (indefinite) status as well as those viewed as sources or origins of some kind ('from ...' or 'of ...').

[2] This bifurcation is comparable with Dryer's (1987) distinction between the primary/secondary objects and the direct/indirect objects.

[3] The representations of event conceptions adopted in this study are somewhat congruous with those in Langacker's (2008, 2009) Cognitive Grammar analysis but are different in a number of respects because of our intent to accommodate the accompanying discourse factors.

[4] Unlike Korean, Japanese does not allow the accusative to mark such an unexpected recipient, as shown in (i) below. However, the unexpectedness status can be pragmatically marked by means of a discourse marker such as *nanto*, as in (ii).

(i) *John-ga Mary-**o** hon-o age-ta-nda-tte.
John-NOM Mary-**ACC** book-ACC give-PST-EVD-EVD
'(I hear) John gave Mary a book.' (Constructed sentence)

(ii) John-ga **nanto** Mary-**ni** hon-o age-ta-nda-tte.
John-NOM **what** Mary-**DAT** book-ACC give-PST-EVD-EVD
'(I hear) John unexpectedly gave a book to Mary.' (Constructed sentence)

On the other hand, Basque seemingly “uses word (constituent) order” to mark the status (Aske1987:4), as illustrated in (iii).

(iii) Miren-i ekarr-i dio Jon-ek liburu-a.
Miren-DAT (FOC) bring-PERF A3S-AUX-D3S-E3S Jon-ERG book-ABS.DEF
‘It is to Miren that John has brought a/the book.’ (Aske 1987:5)

Japanese particle *Wa* and other particles: A multiplicity

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ABSTRACT. As Akira Mikami states in his book (*Bunpô shôronshû* 1979), "the heart of making meaning" in Japanese lies in the ability effectively to wield its postpositions. This paper examines the characteristics and varied, context-dependent meanings of the Japanese postpositional particle *wa* (topic marker) in relation to other particles in Japanese. The particle *wa* generally is regarded as a topic or thematic marker that relates to a known or contrastive connotation, or to some other referent. The Japanese morpheme *wa* is used as a marker denoting or connoting the immediately preceding expression as a marker of focus, contrastive and/or shared information. Proper use of the particle *wa* is quite challenging for many students of Japanese as a foreign language.[1] It is challenging for a beginning Japanese language teacher to clearly and effectively explain when and how to use the particle *wa* correctly. This is because it often is used where another particle remains a grammatically correct choice, while *wa*, nonetheless, remains the "better" choice and the one that would be used naturally by any native speaker. When content and desired nuance are considered, "effective communication" calls for *wa*'s proper employment. Such particle-dependent semantic choices do not have a ready correlate in English. Though imprecise, perhaps an analogy may be made to a native English speaker's strategic use of 'a' vs. 'the' in cases such as:

(1) I still have an old book on Japanese linguistics.

(2) I still have the old book on Japanese linguistics.

At one's first encounter, usage of *wa* does not appear to be very complicated. The simplest case is when the topic marker *wa* simply replaces the subject marker *ga* (the

nominative case-marker). The second relatively simple case is when *wa* replaces the accusative maker *wo*. Challenges begin to arise when attempting to deconstruct the different uses of *wa* in relation to other particles since it often entails psychological aspects of the speaker including minute nuances and emotions of his or her perceived or actual mental state. It connotes the speaker's attitude.

Keywords: topicalization, topic marker, particle *wa*, focus, case-marker, Japanese postposition, Akira Mikami.

The following abbreviations and symbols are used as needed throughout the remainder of this paper:

ACC	=	accusative (direct object marker)
ADJ	=	adjective; adjectival; adjectival predicate
ADV	=	adverb
COMP	=	complimentizer
CONJ	=	conjunctive
COP	=	copula
GEN	=	genitive case marker
LOC	=	locative
NEG	=	negation
NOM	=	nominative
NP	=	noun phrase
PAST	=	past tense
PLN	=	plain
POL	=	polite form
PP	=	postpositional particle
PRED	=	predicate. A part of a clause that indicates what is said about the subject.
QM	=	question marker
S	=	sentence
STAT	=	stative
TE	=	*te*-form
TEMP	=	temporal
TOP	=	topic marker

1. INTRODUCTION. Academic discourse regarding 'the subject' (*shugo*) and 'the topic' (*daimokugo*) in relation to the Japanese postpositional particle *wa* has been conducted for almost a century. It still is a hot topic because the relationship(s) between 'the topic' and other particles in Japanese is yet to be fully understood, defined and agreed upon. Questions surrounding the particle *wa* have become more clearly defined since the Japanese language started to be learned more commonly as a foreign language after World War II. Scholarly pursuit of these questions also has been encouraged by the growth of sociolinguistics as an independent academic discipline over the last 50 years. The concept of 'the topic marker' has been debated by many scholars in Japan and abroad. Until recently, consensus surrounding the particle *wa* was largely relegated to its role as 'the topic marker' or the contrastive marker and the elucidation of its function in these two roles.[2] Here, concentration on the characteristics of *wa* in relation to other particles within the same sentence or clause will offer readers a deeper understanding of the nature of *wa* than commonly is provided to non-native speakers. *Wa* is perhaps best understood first as a morphemic vehicle, the function of which is more significant in its paralinguistic richness than its superficially syntactic function may suggest. *Wa* may contain within it an anxious pregnant pause, an eye roll, or the staccato intonation of a Valley Girl's OMG. Thus, the very notion of defining *wa* is misguided.

1.1. TOWARD A GRAMMATICAL DEFINITION OF PARTICLE *WA* (は). Japanese particles can be divided into case markers and postpositions.[3] Japanese uses the morphological device *wa* (written は in Hiragana script), often referred to in the Western literature, as the topic marker. Here is a brief, if reductionist, grammatical definition of the particle *wa* before we proceed with the discussion. TOPICALIZATION in linguistics refers to a grammatical usage that establishes a part of a sentence

as the topic of the sentence by means of morphology, grammar, or speech sound. Topicalization is a phenomenon we can observe in many languages throughout the world. Sentences exhibiting such characteristics are called 'topicalized' sentences. By highlighting a topic within the commonly acceptable position or form in the sentence, the topicalized expression followed by *wa* often moves to the sentence-initial position (or left-dislocation). It is not unusual to topicalize more than one constituent element.[4]

The topic is understood to be information 'shared' (*kichi-jôhô* in Japanese) between the speaker and listener(s). There is a pragmatic principle in any language that known (assumed) information is placed on the left and the new on the right. In general, the topic is placed at the beginning of a sentence. In some languages, topicalization is achieved by way of speech sound (i.e. intonation). For example, sound variation such as weakening the pronunciation of the topic can be used to indicate topicalization. This approach is said to make it more difficult for listeners to determine what is being topicalized.

A well-regarded Japanese dictionary, *Kadokawa kokugo chûjiten* (Kadokawa 1979), defines the particle *wa*.[5] A summary of the definition is as follows. The particle *wa* is placed next to a nominal, a declinable (conjugated) word, an adverb, an auxiliary verb, and other particles except the case markers *ga* or *wo*. It limits and defines the topic of a sentence.

Understanding of Japanese postposition *wa* is very important insofar as it appears more frequently than other words except the genitive marker *no*. It also has important functions in connecting words and phrases in Japanese sentences. Japanese postpositional particles establish the relationship among the words in a sentence. Many Japanese sentences are composed with one or more postpositional phrases and a verb phrase. The *wa* is extremely intricate. Thus, coming to a robust understanding of *wa* is one of the most stubborn but essential challenges for learners of

Japanese as a second language. For native speakers of Japanese, proper usage of postpositional particle *wa* is intuitive. Native Japanese speakers do not consciously 'choose' one as they may with other words or expressions. To the Japanese ear, there is indeed a 'right' answer when it comes to *wa*.

In Japanese, a noun and noun phrases generally are followed by particles. Aside from functioning as a topic marker, the particle *wa* also functions to highlight some type of a contrast. *Wa*'s contrastive connotation also distinguishes it from *ga*, in cases where their grammatical function is otherwise indistinguishable.

A typical sentence in Japanese has topic-predicate relationship that starts with X[nominal] *wa* followed by a predicate. As mentioned earlier, in general, an expression is said to be 'topicalized' when a sentence/clause is marked by *wa* and is brought to the sentence initial position. The following sentences are typical examples of this structure.

2. CO-APPEARANCE OF TOPIC MARKER AND SUBJECT MARKER

(2.1)	Nihon wa	yama ga	ooi	desu.
	Nihon-TOP	yama-NOM	plentiful	COP

'*There are many mountains in Japan.' Lit. 'As for Japan, mountains are plentiful.*'

(2.2)	Kono mise wa	yasai ga	yasui	desu.
	this store-TOP	vegetable-NOM	cheap	COP

'*As for this store, vegetables are cheap*. '

In the above sentence 2.2.2, the expression *kono mise* is the topic of the sentence. The particle *wa* is a bound morpheme that is attached to various speech parts. *Wa* is one of the postpositional particles that once were used for reading *kanbun* (sentences written in classical Chinese) with Japanese grammar. That is why the particle *wa* is written は, but it is always pronounced as [wa]. Traditionally, the notion is explained to non-native speakers of Japanese as something equivalent to the meaning of an English sentence in which the sentence's subject is highlighted by way of preceding it with a modifier such as 'as for', 'with regard to', or 'regarding'. Japanese particles are roughly equivalent in function to English prepositions except that Japanese particles are placed after the word/phrase to be attached. *Wa* does not have an English equivalent as a grammatical element, although, in some cases, there is some functional similarity to the English article 'the' placed before a noun (or noun phrase). Unlike 'the', however, *wa* can be attached to more than just nominal expressions.[6] When used in this capacity, *wa* almost always is used for the contrastive connotation it provides.

Language students' natural tendency is to seek the native language L1 correlates when attempting to acquire new concepts and structures in the second language L2. The *wa* often entails some abstract relationship in the 'universe' of the topicalized word, and other expression(s) in the sentence, or with some idea of the speaker. It leaves room for the listener's imagination and interpretation of the sentence.

Wa is used with other postpositions, and it is necessary to know when we may safely delete other particles when followed by *wa*.[7] As you will see, the subject marker, *ga,* and the object marker *wo* (that is, the nominative and accusative case marker respectively) are not used together with *wa,* and these makers (*ga* and *wo*) are omitted when the subject or object is topicalized by *wa*.[8]

3. PREVIOUS RESEARCH. Among the numerous scholarly works that deal with Japanese linguistics, the most seminal work on Japanese particles was written in Japanese: *Zô wa hana ga nagai* by Akira Mikami (Kuroshio 1980). In the preface of this book, Mikami writes:

> Among the grammatical devices of the Japanese language, the most important is '*te-ni-wo-ha*'. Among those four, *ha* (pronounced as [wa]) is the most important. . . . Being the substituting agent (*daikô*) is one of the central concepts. The *wa* substitutes for *ga, no, ni, wo*.

The following topicalization is offered as an example by Mikami (1980).

Zô wa	hana ga	nagai.
elephant-TOP	trunk-NOM	long-PRED

'*Elephants have long trunks.*'

[Regarding elephants, their trunks are long.]

This seemingly simple sentence highlights the semantic importance of the effective teaching and learning of the proper topic marker usage for L2 learners. Mikami introduces the notion of *daikô* 'agent' as a tool for clarifying the semantic import of *wa* topicalization. *Daikô* is the notion that there are ideas or information that are shared between the speaker and the hearer(s). While Mikami and many others have made significant contributions to our understanding of *wa,* there remains much more to explore, to understand and develop effective teaching strategies.

Another distinguished scholar, Susumu Kuno, described the issue surrounding *wa* in detail. Kuno (1973) offers the following example:

Bunmeikoku ga	dansei ga	heikin	zyumyô ga	mijikai.
civilized countries-NOM	male-NOM	on average	life-span-NOM	short

'*It is [in] civilized countries that men's average life-span is short*.'[9]

This example is intended to sit in contrast to:

Bunmeikoku **wa**	dansei ga	heikin	zyumyô ga	mijikai.
civilized countries-TOP	male-NOM	average	life-span-NOM	short

'As far as civilized countries (are concerned), men's average life-spans are short.'

It is extremely helpful to read S.-Y. Kuroda's *Japanese Syntax and Semantics: Collected Papers*. It explains, in great detail, commonly accepted terms of grammar such as subject, object, and predicate. For teachers of Japanese, what Kuroda says in this work is very important in understanding Japanese postpositions.

4. A BRIEF EXPLANATION OF TOPICALIZATION. Topicalization itself is not unique to Japanese. It is a characteristic shared by many languages. It is most frequently done by bringing the topicalized sentence element to the sentence-initial position. In English, as well, topicalization is used for emphasis. Emphasis can be placed on the topic or focus of a sentence by placing an expression at the beginning part of the sentence. In Japanese, however, topicalization is less straightforward. You will see that, in Japanese, topicalization can occur without movement to the sentence-initial position although this placement can and often does occur. Furthermore, *wa* may be dropped entirely when the topicalized expression is semantically obvious as the topic in informal

discourse. The example a of each pair below is a non-topicalized sentence; and the second b example is topicalized.

(a) I like Sushi. I don't like Sashimi.

(b) Sushi, I like (it). Sashimi, I don’t.

(a) My car is still running nicely.

(b) Still running nicely, my car is.

Here is an example from Mikami (1979:15):

Watashi no	ie e wa	kuru hito ga	nai.
I-GEN	house to-TOP	come person-NOM	not exist-PRED

‘*There is nobody who is coming to my house*.’

The effect of the particle *wa* in the above sentence can be thought of as having a ripple effect. That is, here, use of the postpositional *wa* has two consequences: (1) It topicalizes the sentence object (*i.e.,* ‘house’), and (2) it, in turn, deemphasizes the importance of the directional particle *e* ‘to’, allowing particle *e* to be deleted without sacrificing the basic meaning of the sentence. Let’s once again consider Mikami’s example analogized to English:

Watashi no ie wa kuru hito ga nai.

(a) Preceding Interrogative: Whom have you seen?

(b) My house: there’s nobody who comes.

Topicalization is context-dependent. The topicalized expression must be the focus or the already-understood in a discourse and is assumed to be some shared idea or information (through past experience).

The following is an example of the characteristics. The Japanese language is a head-final language in its syntax.[10] And, when a Japanese sentence has particles, the word order is relatively free before the verb phrase as in the sentence below.

(2) (a) Koko kara **wa** Tôkyô made hikôki de nanji-kan kakari-mas-u ka. [11]
this place from-TOP Tokyo to airplane by how many hours take-POL QM
'*From here, how many hours does it take to (get to) Tokyo by airplane?*'

Here, *kara* is a case marker that describes where something is or whence it starts.[12]

(b) Tôkyô made **wa** koko kara hikôki de nanjikan kakarimasu ka.
Tokyo to-TOP this place fromairplane by how many hours take-POL QM

(c) Hikôki de **wa** koko kara Tôkyô made nanjikan kakarimasu ka.
airplane by-TOP this place from Tokyo to how many hours take-POL QM

(d) Nanjikan koko kara Tôkyô made hikôki de kakari-mas-u ka.
how many hours this place from Tokyo to airplane by take-POL QM

An adverbial phrase *nanjikan* ‘how many hours’ expressing duration can be placed anywhere before the final verb phrase, but an interrogative expression or phrase [*nan*(*i*) ‘what’ + time] cannot be topicalized as in 2d.

It appears that a *wa*-topicalized phrase can be treated as a quasi-adverbial in that the topicalized phrases, generally speaking, can take various places before the predicate. The sentences above essentially have the same *basic* meaning, however, their distinctive word order allows different connotations to be communicated. In general, speakers determine word order in accordance with what sentence element they want to emphasize vs. deemphasize. That is, on what the speakers themselves may be focusing on and/or on what they, in turn, intend the listener to focus.

5. PARTICLE *NI* AND TOPICALIZATION. Topicalization has practical communicative functions insofar as it is used in fixed expressions such as *konnichi-wa* ‘Good afternoon!’, *konban-wa* ‘Good evening!’, and the like. In general, however, Japanese topicalized sentences employ the sentence-initial position (or clause-initial position) at the beginning of a sentence. In the following example 5.1, there are no case markers before the topic marker *wa*.

(5.1)	Ohiru **wa**	dô	shimasu	ka.
	lunch-TOP	what	do-POL	QM

‘*What are you going to about lunch?*’

One of *wa*’s characteristic functions is to link the topic to the rest of the sentence. The following sentence 5.2 is not as common as 5.1 above since the circumstances in which the particle *ni* is

used are rather limited. The topic marker *wa* may be used [after particle *ni* ‘to/at’] when one's intended focus for the listener (and his/her response) has something to do with the lunch or the lunch time (vis-à-vis the lunch [i.e. meal] in and of itself).

(5.2)	Ohiru ni **wa**	do	shi-masu	ka.
	lunch at-TOP	how/what	do-POL	QM
	‘*What are you going to do at/for lunch*? ’			

An adverbial phrase *ohiru ni* ‘at/for lunch’ can be topicalized as in 5.2, but the connotation of the topicalized phrase *ohiru ni wa* is not clear without further context. If this *ni* phrase is interpreted as a temporal expression, *ni* can be optionally deleted (and generally is for the sake of brevity). Thus, *wa* topicalization of adverbial phrases contributes to the context-dependence (for meaning) and introduces the opportunity for possible deletion of other particles, depending on the communicative intention (intended focus emphasis) of the speaker without compromising basic meaning. In other sentences, dropping particle *ni* may lead to unintended and (usually) undesired semantic ambiguity.

(5.3)	Ashita ni **wa**	repôto ga	deki-masu.
	tomorrow by-TOP	report-NOM	be done-POL
	‘*The report will be done by tomorrow*.’		

In 5.3, temporal particle *ni* can not be replaced by the topic marker *wa* because the meaning of the particular temporal concept of ‘on/by time X’ is the focus here. Here again, the word order

becomes freer when the particles are present. Observe the following 5.4 and 5.5:

(5.4) Repôto ga ashita ni **wa** deki-masu.
report-NOM tomorrow-TOP be done-POL
'*As for the report, by tomorrow, it will be done.*'

Here, so-called "double topicalization" is possible, as in the following example:[13]

(5.5) Repôto **wa** ashita ni **wa** deki-masu.
report-TOP tomorrow within -TOP be done-POL
'*As for the report [is concerned], by tomorrow, it will be done.*'

In 5.5 above, two topic markers are used. In a sentence such as this, both topicalized phrases may become contrastive, and they compare with some other ideas.

6. *WA* REPLACING THE SUBJECT MARKER *GA*. The subject marker *ga* can be replaced with *wa*:

(6.1) Kore **wa** hon desu.[14]
this-TOP book COP-POL
'*This is a book.*'

As in 6.1 above, *wa* may come after a nominal expression. The topic *kore* ‘this’ is a concept shared between the speaker and the hearer. The demonstrative *kore* with particle *ga* in 6.2 below is the subject, and *kore* is referring to new information.

(6.2) Kore ga hon desu.
this-NOM book COP-POL
‘*This is the book* [*and not referring to another thing*].’

What comes between *ga* and *desu* here describes what *kore* ‘this’ is. With *ga*, it can imply the exclusion of other things in the sentence. When a sentence has an adjective or nominal predicate, the subject often is topicalized with *wa* as mentioned by Shigeyuki Suzuki's *Nihongo bunpô keitairon* (1972).[15] In Japanese, an adjective can become the predicate of a sentence by itself.

(6.3) Chūgoku **wa** ookii.
China-TOP big
‘*China is big*.’

When the adjective is used as a predicate, such as *ookii* in above 6.3, it appears in the conclusive form such as *chiisai* ‘small’ or *chiisakatta* ‘was small’ in the past or non-past tense. An adjective as a predicate must be placed at the end of a clause although the conclusive form of the adjective may be followed by copula *desu* or a sentence-ending particle such as an interjection *yo* [for emphasis] or *na*(*a*) [for emotion].[16]

7. NP + *WA* + ADJECTIVAL PREDICATE. The copula *desu* often is affixed to the preceding adjectival predicate in a polite or formal discourse in today's Japanese.[17] The sentence final adjective may be followed by *-des-* for politeness, as seen in 7.1 below.

(7.1) Kono kuruma **wa** chiisai desu.
this car-TOP small-PRED COP-POL
'*This car is small*.'

In 7.2 below, see the plain past tense of the adjective placed before the copula *desu*:

(7.2) Ano kutsu **wa** takakat-ta desu.[18]
those shoes-TOP expensive-PAST COP-POL
'*Those shoes were expensive*.'

A Japanese *i*-adjective can modify nouns as with other languages, but also can function as a predicate without a copula. The pronoun *kare* 'he' followed by *ga* generally is regarded as 'focus':

(7.3) Kare **wa** se ga takai desu.
he-TOP height-NOM tall-COP-POL
'*He is tall*.'

The above sentence is equivalent to the often-quoted sentence in Mikami's *Zô wa hana ga nagai*. The adjectival sentence similar to 7.2 is 7.4. The *desu* is optionally placed for politeness.

(7.4) Kyô **wa** suzushii desu.
today-TOP cool COP-POL
'*It is cool today.*'

In a context such as in folktales, a sentence with a verbal predicate at the opening of a story generally will take particle *ga* since something new is going to be introduced:

(7.5) Mukashi mukashi, ojii-san to obaa-san *ga*
once upon a time old man and old woman-NOM
chiisana mura ni sunde i-mashi-ta.[19]
small village at-PP live being-POL-PAST
'*There were an old man and an old woman living in a small village*.'

In the above sentence, you will see the use of the subject marker *ga* since the subject *ojii-san to obaa-san* 'an old man and an old woman' is new information in the story to be told.

(7.6) Obâ-san ga kawa de sentaku wo shiteiru to,
old women-NOM a river at-LOC washing-ACC do being when-PP
kawakami kara ookina momo ga nagarete ki-mashi-ta.
upstream from big peach-NOM flowing-CONJ come-PAST

'*When the old woman was washing the laundry at a river, a big peach came floating from upstream*.'

In most sentences like 7.6 above, the subject of a dependent clause generally is not topicalized with *wa*. The subject *ookina momo* 'big peach' in the main clause is newly introduced information. Therefore, particle *ga* is used for the subject of the main clause as well. A conditional conjunction *to* 'while' is used to combine two clauses. Here, the predicate with the conjunction *to* preceding the main clause must be in the non-past form. The eventuality manifested in the main clause is treated as a natural consequence of the adverbial dependent clause.

The locative *de* in 7.6 is the action locative particle that appears with action verbs, and the *de* cannot be replaced by locative *ni* used for stative verbs. This distinction is sometimes confusing to English-speaking learners of Japanese because the equivalent for both *de* and *ni* are associated with the English locative preposition 'in' in the cross-linguistic interpretation. This action-locative *de* refers to the place at which some action/activity takes place. This *de* here is topicalized for a contrastive purpose. The following is another example of the action locative postposition *de*:

(7.7) Mizuumi no soba de e wo kakimasu.
lake-GEN vicinity-LOC picture-ACC draw-POL
'*I paint a picture near a lake*.'

8. SUBJECT MARKER *GA* AND TOPICALIZATION IN AN ADJECTIVAL SENTENCE. Here is a second look at the adjectival predicate in other relevant sentences. In an adjectival sentence, the subject

describing nature or natural phenomena generally will take the NOM marker *ga* although *wa* is generally used when the speaker connotes certain contrast.

(8.1) Kaze ga tsuyoi (desu).
wind-NOM strong (COP-POL)
'*The wind is strong*.'

(8.2) Tsuki ga kirei da.
moon-NOM prettiness-NOM COP
'*The moon is pretty*.'

Here 8.2, since *kirei* is an adjectival noun (a loan word from Chinese), a copula is required to be grammatical. The following sentence 8.3 is not topicalized since the speaker wants simply to express what the 'water' (*mizu*) is like.

(8.3) Mizu ga tsumetai (desu).
water-NOM cold-ADJ (COP)
'*The water is cold.*'

(8.4) Kyô **wa** kaze ga tsuyoi (desu).
today-TOP wind-NOM strong (COP)
'*The wind is strong today.*'

As in 8.4 above, if the subject *kaze* ‘wind’ becomes topicalized, the sense of contrast for *kaze* becomes overt.

When the subjects of the sentences such as 8.5 below are modified by a demonstrative adjective such as *kono* ‘this’ or [nominal]+*no* like 8.6, the subject marker often is replaced by *wa*:

(8.5) Kono kawa no mizu **wa** tsumetai (desu).
this river-GEN water-TOP cold (COP)
‘*This river's water is cold*.’

(8.6) Natsu no yoru **wa** nagai (desu).
summer's night-TOP long (COP-POL)
‘*Summer's night is long*.’

9. TOPICALIZED EXPRESSION WITH REGULAR VERBS. The distinction between *ga* and *wa* also is used with a regular verb predicate as in the following:

(9.1) Tanaka-san ga kesa ki-mashi-ta.
Tanaka-san-NOM this morning come-POL-PAST
‘*Mr. Tanaka came this morning*.’

In 9.1 above, the subject (the noun that precedes *ga*) can be topicalized as in 9.2 below.

(9.2) Tanaka-san **wa** kesa ki-mashi-ta.
Tanaka-san-TOP this morning come-POL-PAST
'*As for Mr. Tanaka, (he) came this morning.*'

The *wa* here gives a nuance of contrastive sense although the nuance may not be easily perceived by an L2 learner of Japanese. A double topicalization such as 9.3 can be used.

(9.3) Kesa **wa** Tanaka-san **wa** ki-mashi-ta.
this morning-TOP Tanaka-san-TOP come-POL-PAST
'*This morning Tanaka-san came!*'

10. PARTICLE *WA* PLACED BEFORE AN INTERROGATIVE EXPRESSION. In the pattern {NP *wa* INTERROGATIVE *desu ka*} such as 10.1 below, the copula *desu* cannot be replaced by the copula *da* as a main clause (or sentence).

(10.1) Kore **wa** nan desu ka.
this-TOP what COP QM
'*What is this?*' (Lit. As for this, what is [it]?) [20]

But, in an embedded clause, the use of the copula *da* is grammatical such as in the following sentence:

(10.2)	Ano hito **wa**	nani-jin da	ka	shiri-mas-en.
	that person-TOP	what nationality-COP	QM	know-POL-NEG
	'*I don't know that person's nationality is.*'			

In 10.2 above, the embedded sentence has the same word order. The word order does not change even if the question (interrogative sentence) contains interrogative pronouns such as *dare* 'who', *nan/nani* 'what', *doko* 'what place', *itsu* 'what time', *donata* 'who' [honorific], etc. When an interrogative appears after the topic [initial] position in the adjective or nominal predicate sentence, the subject generally will take *wa* as in 10.3.

(10.3)	Koko **wa**	doko	desu	ka.
	this place-TOP	what place	COP	QM
	'*What place is this?'*			

Sentences such as 10.4 below do not take *ga*. They are treated as {X *wa* Y *desu*} pattern.

(10.4)	Ano hito **wa**	dare	desu	ka.
	that person-TOP	who	COP-POL	QM
	'*Who is that person?*'			

But, as in 10.5 below, the use of copula *da* in an embedded sentence is grammatical. Note here that ～*ka shirimasen* 'do not know [if]' can be preceded by a clause or a nominal.

(10.5) Ano hito wa dare da ka shiri-mas-en.
that person-TOP who COP QM know-POL-NEG
'*I don't know who that person is*?'

The particle after *ano hito* can be *ga* (non-topicalized) instead of *wa*.

(10.6) (Are wa) nan desu ka.
(that-TOP) what COP QM
'*What is that?*'

(10.7) (Sore wa) itsu desu ka.
(It-TOP) when COP QM
'*When is it?*'

As in 10.8 below, we may have an interrogative adverbial in the predicate after particle *wa*. The object of the verb *shimasu* is topicalized.

(10.8) Kore **wa** dô shi-masu ka.
this-TOP how do-POL QM
'*What will you do with this?*'

11. TOPICALIZATION OF THE SUBJECT. The subject marker *ga* of 11.1 is replaced by the topic marker *wa* if the constituent of the subject is shared information:

(11.1)	Ani ga	kinô	ki-ta.
	My older brother-NOM	yesterday-ADV	come-PAST
	'*My older brother came yesterday.*'		

(11.2)	Ani **wa**	kinô	ki-ta.
	My older brother-TOP	yesterday-ADV	come-PAST
	'*My older brother came yesterday.*'		

In 11.2, the phrase 'my older brother' is shared information to the hearer. The topicalized phrase generally is not used for starting a conversation because particle ***wa*** expects a referent (*ani* in the sentence above).[21] However, this does not apply to the topicalization of temporal expressions. See:

(11.3)	Kinô **wa**	ani ga	kita.
	yesterday-TOP	older-brother-NOM	come-PAST
	'*Yesterday my older brother came.*'		

The expression *kinô* 'yesterday' is an adverbial and is topicalized. A common descriptive statement such as the sentence 11.4 below belongs to a basic Japanese sentence pattern {X *wa* Y *desu*}.

(11.4) Sakura no hana **wa** kirei desu.
Cherry blossom-GEN flower-TOP prettiness-NOM COP-POL
'*Cherry blossoms are pretty.*'

The expression *shûmatsu* 'weekend' in 11.5 below is a temporal adverbial and topicalized. The particle *wa* in the phrase *shuumatsu wa* is highlighting the time and/or contrasting with other days, and the directional particle *e* gives an overt sense of directionality.

(11.5) Shûmatsu **wa** doko e iki-mashi-ta ka.
weekend-TOP what place-LOC go-POL-PAST QM
'*Where did you go on the weekend?*'

12. CONCLUSION. *Wa* can indicate both topic and contrast. In most cases, when a certain focus in a sentence is placed before the predicate, the particle *ga* is used. On the other hand, when the center of the focus is placed in the predicate, *wa* is used. *Wa* directs one's attention to what follows, such as *Kyô wa ikimasen* ('Today, I am not going!'). It is used to elicit a contrast to an expected or anticipated idea, such as *Ashita wa dô suru no?* ('What are you going to do, tomorrow?') When an interrogative expression (such as *doko*, *nani*, and *itsu*) is in the predicate, the subject will take *wa*.

This study demonstrates that whenever a word, phrase, or clause is topicalized, the expression becomes a quasi-adverbial expression. Therefore, as with Japanese adverbs, if a word or a phrase is topicalized in a clause or a sentence, the topicalized expression is relatively free to

be placed anywhere before the predicate. There still is a certain hierarchy in ordering the position since the meaning ultimately dictates the word order as well. There is a great deal more to learn about how particle *wa* works with other postpositions that are not addressed in this paper. The relationships with other postpositions in a sentence should be further investigated.

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[1] The exception is the native speakers of Korean since there is significant grammatical similarity even in use of particles. This is my experience in learning elementary Korean in Korea.

[2] The general understanding about Japanese topicalization is that the topic marker marks both or either topics and contrasts. The particle *wa* makes both contrastive topic and non-contrastive topic. The contrastive *wa* carries a tone distinction, and it can be optionally brought to the sentence- or clause-initial position. Kuno (1973) explains that the non-contrastive topic needs to be brought to the sentence-initial position.

[3] There is a clear contrast between case markers and postpositions in Japanese. Japanese native speakers know through L1 Japanese language acquisition that postpositions can be immediately followed by *wa/mo*, but case markers cannot take those postpositions. The case markers includes nominative *ga* (subject marker) and accusative *wo* (object marker). The postpositions include *e* 'to', *de* 'in', *ni* 'at', *to* 'with', *kara* 'from', *made* 'through, till', and *yori* 'than'.

[4] A Japanese topic marker does not represent any grammatical case such as subject or object.

[5] p. 1649.

[6] As mentioned above, what precedes particle *wa* may be a noun, an adverb, or a form of verb, a verb phrase, etc.

[7] The dropping of *wa* (i.e., topic marker deletion) is common in casual conversation in Japanese. Ex. *Tanaka-san, mô iki-mashi-ta yo*. ("Mr. Tanaka went already.")

[8] The accusative case-marker is presented as /*wo*/ in Romanization rather than simply /*o*/ to emphasize its pronunciation and distinction from the non-particle Japanese vowel お /o/.

[9] Kuno Susumu (1933-) is Professor Emeritus of Linguistics at Harvard University. As mentioned by other researchers, Japanese phrases are exclusive head-final, and sentences are exclusively left-branching.

[10] The term 'head-final', here, refers to a language in which sentence predicates are located at the end of a sentence.

[11] The politeness marker POL *-mas-* is infixed in the verb phrase.

[12] Particle *kara* is also used for temporal starting point (ex. *Kaigi wa san-ji kara hajimarimasu.* 'The conference starts from 3 o'clock.') or reason and cause (*Sake wa kome kara dekimasu*. 'Sake is made from'.

[13] Japanese double topicalization refers to the highlighting and/or contrasting two elements by topic marker *wa* before the predicate.

[14] The word *desu* is a copula like English copula *be* and is used to predicate sentences.

[15] Suzuki, Shigeyuki. *Nihongo bunpô keitairon* (Mugi Shobô 1972:236).

[16] A copula is a word used to link the subject of a sentence with the predicate, such as *desu* 'be' in the sentence *Kore wa hon desu* "This is a book". The word copula derives from the Latin for "link" that connects two different things.

[17] In a very formal conversation and communication, the expression *degozaimasu* or *dearimasu* is used for the copula in place of *desu*.

[18] The *-des-* in *takakatta desu* is a polite speech marker. The speaker is being polite to the listener by adding *-desu*.

[19] The *-ta* in *-mas(h) i-ta* is the past tense maker in colloquial speech.

[20] Note that an interrogative sentence in English grammar places the interrogative [noun or adverb] at the sentence-initial position although it may be preceded by an adverb.

[21] A referent refers to a specific idea or entity in the world that a word or phrase identifies or denotes.

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The great ASL compound hoax

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ABSTRACT. In many descriptions of ASL, signs like SISTER and TOMATO are analyzed as compounds. These are signs which were once created through the concatenation of two separate signs, but whose constituent parts have since fused together to form a single, opaque sign. I suggest that many of these well-known examples are not compounds at all, in a synchronic sense. Because the earliest analyses of compounding defined compounds according to primarily phonological and diachronic criteria, subsequent studies of compounding have been unnecessarily restricted. Presenting examples collected primarily from ASL videos on public YouTube channels, I argue that true examples of compounding in ASL are constructions like NAME SIGN and DEAF COMMUNITY, which contain two identifiable signs.

Keywords: compounding, lexicalization, reduction, ASL, morphology

1. THE HOAX. This paper's title is inspired by the eponymous essay in Geoff Pullum's book, *The Great Eskimo Vocabulary Hoax and Other Irreverent Essays on the Study of Language* (Pullum 1989, 1991). In the essay, Pullum provides a characteristically glib assessment of Laura Martin's (1986) efforts to track the provenance and implications of the widespread, patently false myth regarding the prodigious number of 'Eskimo words for snow'. Hoax is a loaded term; however, the hoax Pullum describes is not intentionally deceptive or fraudulent. Instead, it refers to a resilient misconception which, having been subject to "the processes of folklorization that can remove scholarly statements from their rightful context and cause misinterpretation," serves "to remind us of the intellectual protection to be found in the careful use of sources, the clear presentation of evidence, and, above all, the constant evaluation of our assumptions" (Martin 1986:421). The 'Eskimo vocabulary hoax', then, is a linguistic misconception that has become disassociated from its original context and incorrectly disseminated as common knowledge.

In this paper, I challenge the 'ASL compound hoax', a misconception that has, for the most part, been uncritically circulated within sign language linguistics (although Perlmutter 1996 is a notable exception). In its strongest formulation, the hoax suggests that compounds in ASL (American Sign Language) are all and only those signs that have been created by fusing parts of two other signs together to create a single sign. These fused constructions include examples like SISTER and TOMATO, which are single signs, but within which we can identify phonological remnants of the signs GIRL#ALIKE and the signs RED#SLICE, respectively.[1] However, this is a mistaken view of compounding, stemming from the way that LEXICALIZED COMPOUNDS were analyzed in early generative treatments of ASL phonology, and in particular from the way that not only generalizations about compounds, but also specific compound examples, have been preserved and recycled within sign linguistics.

Interestingly, the ASL compound hoax also has an English counterpart: Giegerich demonstrates that many analyses of compounding in English associate leftward stress with compounds, and rightward stress with phrases, a generalization that has similarly "been handed down from author to author, from theory to theory, from the research literature to textbook treatments" (2004:2). As a result, leftward stress is often considered a diagnostic for identifying English compounds. However, while the stress criterion distinguishes *blackboard*, a compound, from *black bóard*, a phrase, there are also numerous counterexamples. Two-word units like *apple píe, aluminum fóil,* and *Pennsylvania státion* all have rightward stress (see Plag 2006 for discussion of phonetic measurements of compound stress and for additional examples), and so demonstrate that stress patterns cannot reliably distinguish compounds from phrases in a non-circular way: either they are compounds, and invalidate the generalization that all compounds are left-stressed, or they are to be considered phrases, by virtue of being right-stressed, thus rendering the stress criterion unfalsifiable.

In this paper, looking at novel examples of ASL compounds, we will see that just as leftward stress is not a sufficient criterion for identifying all and only English compounds, neither is phonological fusion a sufficient criterion for identifying all and only ASL compounds. However, compounding and reduction are not independent, either. Recognizing that lexicalized compounds are overrepresented in the literature leads to the realization that compounding, lexicalization, and reduction are separate yet interrelated processes. Rather than diagnostics of compounding, lexicalization and reduction can be viewed as general processes that affect any frequently occurring constructions.

2. IDENTIFYING COMPOUNDS. Here we will define COMPOUNDS as lexical constructions which contain two (or more) identifiable content words, and whose meanings can typically be understood or paraphrased in terms of a relationship between their constituent words (see Bauer et al. 2013:431). Many languages combine words to create phrases and compounds alike, and accordingly, many studies of compounding begin by defining compounds in opposition to phrases. Indeed, in some languages, phrases and compounds are discriminable through overt morphosyntactic markers; German *schwarze Drossel* 'black thrush', a phrase, and *Schwarzdrossel* 'blackbird', a compound, differ in that the first element of the phrase is inflectionally marked, while the corresponding first element of the compound is not (Giegerich 2009). Other languages also use an overt linking element to mark compounds, as in Greek *kuklóspito* 'doll house', a compound of *kúkla* 'doll' and *spíti* 'house' (Ralli 2013).

In yet other languages, however, compounds and phrases are not canonically marked in these ways, and so are not as easily distinguished. The criteria that have traditionally been proposed for separating compounds and phrases in English, for example semantic idiosyncrasy or differing intonation patterns, can often account for a range of examples, but also sometimes conflict with one another or encounter exceptions (see Bauer 1998, Giegerich 2004, Plag 2006). Moreover, the division between compounds and phrases often aligns with a theoretical perspective which insists on a strict division between morphology and syntax, such that compounds are made in 'the lexicon', and phrases are made by 'the grammar'. Here we will not assume such a strict divide *a priori*, and so will not be primarily concerned with whether or how compounds can be distinguished from phrases. Instead, we will seek to understand the nature of the structure that can be observed in compounds as sign-sign constructions in ASL.

2.1. CANONICAL COMPOUNDS. If asked for an example of a compound in English, a typical linguist might provide something similar to the words in 1. These constructions can be considered compounds because they can all be analyzed as words that have been created through the combination of two other English words:

(1) Examples of English compounds

Compound	Word 1	Word 2
chalkboard	*chalk*	*board*
textbook	*text*	*book*
football	*foot*	*ball*
silk tie	*silk*	*tie*
term paper	*term*	*paper*

In contrast, fewer linguists would offer the words in 2 as canonical examples of English compounds. Though they too can be seen as having once been created through the combination of two independent words, these 'compounds', many of them originating in Old English, have reduced and fused together to the point that their original meaningful structure can only be analyzed etymologically.

(2) Less canonical examples of English compounds (cf. Oxford English Dictionary online)

Compound	Word 1		Word 2	
cupboard	*cup*	'cup'	*borde*	'board'
holiday	*hálig*	'holy'	*dæg*	'day'
gospel	*god*	'good'	*spel*	'spell'
nostril	*nos*	'nose'	*thirl*	'hole'
lord	*hláf*	'loaf'	*weard*	'ward'

One way that the English examples in 1 and 2 can be distinguished is by the degree to which the

sub-lexical structure of a given construction can be considered transparent. For example, the relationship between the words *chalk, board,* and *chalkboard* is quite transparent: both *chalk* and *board* are identifiable within the form of the word *chalkboard,* and the compound *chalkboard* can be said to denote 'a board which can be written on with chalk'.

However, the relationship between the words *cup*, *board*, and *cupboard* is not transparent, but rather translucent: the pronunciation /kʌbərd/ obscures the *cup* in *cupboard*, and moreover, a *cupboard* is not merely a 'board on which cups are stored', but is a kind of cabinet with shelves that can accommodate a wide variety of objects. In still other cases, the relationship between a compound and its former constituents is actually quite opaque: though speakers may accept the explanation that a *lord* once meant 'the warden of those who eat his bread', these etymological facts are not available to naïve speakers of English, nor are the words *loaf* and *ward* recoverable within the word *lord*.

2.2. LEXICALIZED COMPOUNDS. Curiously, within sign language linguistics, this pattern is reversed. If asked for an example of a compound in ASL, a typical sign linguist would likely provide something like the following lexicalized compound signs in 3, taken from *The Signs of Language* (Klima & Bellugi 1979).[2] Though none of these examples are anywhere near as old as the English compounds in 2, they are similar in that the relationship between a given compound and its constituent signs is actually somewhat opaque, and the phonological form of these compounds obscures their relationship to their former constituent signs:

(3) Examples of ASL compounds (Klima & Bellugi 1979:205)

Meaning in ASL	Sign 1	Sign 2
'lunch'	EAT	NOON
'to resemble'	FACE	STRONG
'to oversleep'	SLEEP	SUNRISE
'at the same time'	TIME	SAME
'to agree'	THINK	ALIKE

The signs in 3 were once created through the concatenation of two separate signs, but, as has been well-documented, their parts have since fused together to varying degrees to form a single sign (e.g. Brentari 1993, 1998, Frishberg 1975, Liddell & Johnson 1986, Sandler 1989). Indeed, this reduction and fusion has come to serve as one of the primary means for identifying compounds in ASL. As a consequence, very few sign linguists would offer the constructions in 4 as examples of ASL compounds. This is precisely because, unlike the signs in 3, in each of the constructions in 4, two signs are produced, and the relationship between the independent signs and the whole compound remains relatively transparent.

(4) Less canonical examples of ASL compounds

Meaning in ASL	Sign 1	Sign 2
'name sign'	NAME	SIGN
'living room'	FORMAL	ROOM
'ASL class'	#ASL	CLASS
'number story'	NUMBER	STORY
'Deaf culture'	DEAF	CULTURE

This mismatch between canonical English compounds and canonical ASL compounds can be seen, for example, in treatments of ASL compounds in structural overviews, handbooks, and edited volumes of sign linguistics, in which discussions of individual lexicalized compounds routinely overshadow discussions of more transparent compounds, and of the lexical mechanism

of compounding (e.g. Emmorey 2001, Meir et al. 2010, Meir 2012, Sandler & Lillo-Martin 2006). The compounding data and generalizations these sources discuss typically come from early phonological treatments of lexicalized compounds, particularly Klima and Bellugi (1979) and Liddell and Johnson (1986). Even studies that seek to go beyond Klima and Bellugi's original compounding dataset are often biased toward lexicalized compounds in some way: for example, a recent study endeavors to present "a complete survey" of compound types in ASL (Vercellotti & Mortensen 2012:547). However, Vercellotti and Mortensen's survey draws exclusively on compounds collected from an ASL dictionary. By definition, the dictionary compounds they study are conventional pairings of form and meaning, and thus, are also already lexicalized to some degree (see Hohenhaus 2005, Johnston & Schembri 1999 for discussions of the term lexicalization). In order to complement these previous studies then, and to examine the nature of the structure in a fuller range of ASL compounds, we must turn to other sources of data, from which examples of novel and conventional compounds alike can be extracted (cf. Downing 1977).

3. ASL COMPOUND DATABASE. Putting aside the well-known examples of lexicalized compounds that dominate the ASL compound literature, this section focuses on three compounding sub-types in which the structure of the compound is quite transparent. There are no large, annotated, publicly available corpora of ASL, and so in order to examine ASL as it is used, sign linguists must first make their own, smaller corpora (cf. Lucas et al. 2001, Morford & MacFarlane 2003). For the current study, I collected examples of compounds from ASL videos posted to public YouTube channels. With any methodology, there are drawbacks; here, given the way in which the data was collected, no demographic data was collected beyond what could be inferred from

the videos themselves. Accordingly, though many of the examples discussed in this section are taken from videos discussing Deafness and ASL, and some signers self-identified as native ASL signers in their videos, no strong claims are made about individual signers' backgrounds here. These drawbacks are offset, however, by the fact that these videos can provide a realistic picture of ASL as it is actually used, by a variety of people and in a variety of contexts.

3.1. DATA CODING. In total, 87 minutes and 45 seconds of video data were analyzed, from 15 public channels. Though many signers used lexicalized compound signs like INFORM (from KNOW#OFFER) and LOOK-LIKE (from LOOK#SAME), these signs were not counted as compounds of interest for the purposes of the current study. Instead, broadly defined, the criteria for identifying compounds were that the construction must involve two distinct signs which together act as a single lexical constituent in the larger signed utterance. Three compound types were coded, according to their formal and functional properties:

The first type, FINGERSPELLED COMPOUNDS, are two-sign loan translations, or calques, of English compounds, such that one element of the calque is an ASL sign, and the other element is a fingerspelled word. Padden (1998) presents the first analysis of fingerspelled compounds, arguing that they are part of ASL, despite the fact that they are borrowed from English. Padden identifies fingerspelled compounds in which a sign is followed by a fingerspelled word, as in 5, as well as compounds in which a fingerspelled word is followed by a sign, as in 6.

(5)	SUN B-U-R-N	'sunburn'
	PAY R-O-L-L	'payroll'
(6)	P-R-O-O-F READ	'proofread'
	S-T-O-C-K MARKET	'stock market'

Padden suggests that the determining factor for whether an English word will be fingerspelled within a borrowed compound has to do with lexical semantics and polysemy: the meaning of the borrowed English word must not conflict with the meaning of the ASL sign that is typically used to translate that word. For example, the *roll* in *payroll*, when borrowed to ASL from English, is fingerspelled. This is likely because the ASL sign most commonly glossed as ROLL refers to circular movement, and not to a list, as *roll* does in English. Similarly, the *proof* in *proofread* is fingerspelled because the ASL sign most commonly glossed as PROOF refers to evidence, but not a printed document to be examined for errors, as *proof* does in English.

The second compound type, also resulting from ASL's extensive contact with English, is what I will call CHAIN COMPOUNDING. Humphries & MacDougall (1999) identify CHAINING as a pedagogical tool that links English and ASL vocabulary; they demonstrate that chaining is used in educational settings where Deaf, ASL-fluent students are learning English. In these environments, skilled teachers tend to chain English and ASL vocabulary together by alternatingly writing the English word on the chalkboard, indicating to the word, fingerspelling the word, and denoting the concept with a synonymous ASL sign.

In conversational rather than pedagogical contexts, I have observed chain compounds which involve borrowing a word from English, and then producing an ASL sign with a similar meaning, 7, or first producing an ASL sign, and then fingerspelling a related English word, 8.

(7)	P-R-O-S-O-D-Y WAVE-FROM-MOUTH	'prosody'
	A-B-S-T-R-A-C-T CONDENSE	'an abstract'
(8)	CUTE Q-U-A-I-N-T	'quaint'
	PUSH-MOP M-O-P	'a mop'

To my knowledge this type of construction has not been discussed in the literature on ASL structure, and certainly not in the literature on compounding in ASL. Chain compounds seem to serve the discourse function of establishing either the sign or the fingerspelled word as the intended label for the referent concept within a particular discourse setting, especially if the ASL sign is not a widely recognized sign with an established, conventional meaning.

Finally, to complement the two fingerspelling-sign compounding constructions discussed above, the third type of compounding we will discuss is SIGN-SIGN COMPOUNDING. Sign-sign compounds are constructions which juxtapose two ASL signs to denote a concept, just as canonical compounds in English juxtapose two words. By virtue of the fact both of the signs are recognizable within a sign-sign compound, and the meaning of the whole construction can be described in terms of the construction's constituent signs, sign-sign compounds are relatively transparent, as in 9. Some sign-sign compounds appear quite frequently in signed discourse, as the conventional labels for common concepts; the examples in 10 are routinely expressed as two-sign constructions, and they have not fused to a single opaque form. The constituent signs in these particular compounds, NAME, SIGN, SCHOOL, and DEAF, are among the most frequent ASL signs (Morford & MacFarlane 2003), and we might hypothesize that some of these sign tokens are actually instances of compounds.

(9)	MATH CLASS	'math class'
	SUGAR COOKIE	'sugar cookie'
(10)	DEAF SCHOOL	'Deaf school'[3]
	NAME SIGN	'name sign'

Regarding sign-sign compounds, one coding challenge involved strings of signs which together create a list, for example as in FAMILY FRIENDS (AND-SO-ON), where the distinct signs FAMILY and FRIENDS are indeed juxtaposed content signs which form a larger coordinate construction. Because they can also be analyzed as elements of a list, these constructions were not analyzed as compounds (contra Klima & Bellugi's 1979 analysis of this sort of construction as a *dvandva* compound).

3.2. RESULTS. One hundred and four compound examples and their sentential context were coded by the author in an Excel spreadsheet database. The database consists of compound tokens collected according to type frequency, such that individual tokens were counted as instances of a single compound type. In other words, some compounds which may have had high token frequency in the video data are represented as one type for the purposes of the current study. In Table 1, the 104 compound constructions are broken down into the three subtypes of interest; aside from one meta-class of examples which will be discussed shortly, RECURSIVE COMPOUNDS, no other compound subtypes emerged from analysis of the data. Of the 104 transparent compound tokens, 42 are fingerspelling-sign compounds, and 62 are sign-sign compounds. Within the formal group of fingerspelling-sign compounds, 19 are fingerspelled compounds, which serve the function of calquing an English compound, and 23 are chain compounds, which borrow and ground a single English word in ASL. Though I do not further analyze of which of the two elements of a fingerspelling-sign compound will be fingerspelled, this information is also reported in Table 1.

Transparent Compounds 104				
Fingerspelling-Sign Compounds 42				***Sign-Sign Compounds*** 62
Fingerspelled Compounds 19		***Chain Compounds*** 23		
FS-initial 12	*FS-final* 7	*FS-initial* 6	*FS-final* 17	

TABLE 1. Breakdown of the internet compound data

The compound database provides an opportunity to examine instances of fingerspelling-sign and sign-sign compounding more closely. For example, we have already seen that fingerspelled compounds are those in which a sign and a fingerspelled word function as a single constituent. Consistent with Padden's (1998) description, many of the fingerspelled compounds in the database are compounds which can be seen as matching the structure of either an existing or a possible English compound. Additional examples of fingerspelled compounds can be seen in 11, and two examples in context can be seen in 12.

(11) V-I-D-E-O EDITOR 'video editor'
AGREE F-O-R-M 'consent form'
PRIVACY S-E-T-T-I-N-G 'privacy setting'
C-O-N-T-E-N-T QUESTION 'content question'

(12) a. …WHENEVER ONE PERSON GO-AHEAD INVOLVED-IN **S-E-X-U-A-L ACTIVITY** FIRST TIME IN LIFE…
'…whenever a person engages in **sexual activity** for the first time…' (sexpositiveasl)

b. …UNIVERSITY COLLEGE NOTICE THEY WHAT POST #ASL UNDER WHAT, **H-E-R-I-T-A-G-E LANGUAGE**…
'…universities and colleges, I've noticed, post ASL under "**heritage language**"…' (northtrue)

Chain compounds, in contrast, cannot be analyzed as corresponding to an English compound. Instead, the fingerspelled English word is paired with a synonymous ASL sign. Examples of chain compounds from the database can be seen in 13.

(13)

V-I-D-E-O FILM	'video'
F-I-L-T-E-R FILTER	'filter'
VIRGIN V-I-R-G-I-N-I-T-Y	'virginity'
NAÏVE I-G-N-O-R-A-N-T	'ignorant'

Some chain compounds seem to pair a sign with a fingerspelled word in order to resolve lexical ambiguity, as in 14a, where the sign THOUGHTS could also potentially mean MIND, THINK, or even FOREHEAD. In other cases, however, this ambiguity is very slight, as in 14b, where the sign RECEPTIONIST could also be glossed as SECRETARY in English.

(14) a. …MEANS MIND CAN ABSORB++ A-LOT-OF INFORMATION COMING-IN++++++, YOUR **THOUGHTS T-H-O-U-G-H-T-S** AND-SO-ON…
'…that means your mind can take in a lot of information coming in, as well as your **thoughts**, and many other things…' (brianherneky)

b. …#SO INTERPRETER TWO-OF-US-GO TO **RECEPTIONIST R-E-C-E-P-T-I-O-N-I-S-T**, HEY, WHAT DRAWN-OUT WHAT…
'…so the interpreter and I went up to the **receptionist** and I was like hey, what's taking so long?...' (streetleverage)

These examples therefore support the view that fingerspelling-sign compounds are conditioned by polysemy and synonomy between English words and ASL signs. However, it is not clear at this point to what extent the fingerspelled elements in fingerspelled and chain compounds have distinct discourse functions; a more fine-grained semantic analysis of these two compound types is necessarily left for future work. Turning now to sign-sign compounds, additional examples

collected from among the internet data can be seen in 15.

(15) CALL CENTER 'call center'
EXAMPLE SENTENCE 'example sentence'
THEATER CLASS 'theater class'
SCHOOL SYSTEM 'school system'

Like many English compounds, the ASL sign-sign compounds in the database seem to be typically right-headed, meaning the relationship between the elements of the compound is a 'kind of' relationship, where the left element modifies the right one (e.g. Williams 1981). Thus, a CALL CENTER is a kind of CENTER, a THEATER CLASS is a kind of CLASS, and so on. Additional examples of sign-sign compounds in context can be seen 16, as well.

(16) a. …WOW CAPTIONS CHAMP ALL **WORKOUT PROGRAM**, ALL AND-SO-ON MATERIALS, **TRAINING MATERIALS**…
'… their captions are great for all of their **workout programs**, for everything, for their **training materials**…' (pearlyjo)

b. …NOW LOOK WOW, FOLLOW **ENGLISH RHYTHM** FOLLOW…
'…now if you look at it, you're struck by how it follows **English rhythm**…' (aslella)

All of the examples of transparent compounds discussed thus far have contained two elements, pairing a sign with either a fingerspelled word or another sign. However, another common characteristic of compounding, cross-linguistically, is that it is recursive. This means that compounds of more than two elements can also be seen as having internal structure (cf. Sandler & Lillo-Martin 2006). In the database we also find examples of recursive compounds. An example of a three-constituent sign-sign compound can be seen in 17; the #ASL COMMUNITY is a kind of COMMUNITY, and #ASL COMMUNITY MEMBERS are kinds of MEMBERS.

(17) YOU-GUYS [[**#ASL COMMUNITY] MEMBERS]** YOU-GUYS CHAT++ WITH FRIENDS, FAMILY, WHATEVER
'…as you, **ASL community members**, engage in discussions with or friends, family, or whoever…' (sexpositiveasl)

Another example of a recursive compound involves a chain compound within a sign-sign compound. In 18, the elements of the chain compound HANDSHAPE H-A-N-D-S-H-A-P-E appear to have equal status, in the sense that it is difficult to determine whether the sign or the fingerspelled word can be viewed as the head of the compound. However, the sign and the fingerspelled word together form a unit that in turn modifies the head sign STORY: like an #ABC STORY and a NUMBER STORY, a 'handshape story' is a kind of STORY.

(18) …#ABC STORY, NUMBER STORY, THEY ALL PART GROUP CALLED [[**HANDSHAPE H-A-N-D-S-H-A-P-E] STORY]**…
'…alphabet stories and number stories are part of a group called **handshape stories**…' (drdongcsus)

Finally, it is worth noting, consistent with Bayley et al.'s (2000) previous observations that DEAF often functions as a modifying noun in many ASL compounds. Some evidence from the database to support this position can be seen in 19, where the signer produces two such compounds, and then immediately uses the sign DEAF as a referential noun, as well. This single sign can be rendered in English as 'Deaf person' or 'Deafie', as in 19, because it refers to an individual Deaf person:

(19) …BECAUSE KNOW I STRONG [**DEAF WORLD] [DEAF COMMUNITY]** I YEAH! PROUD SEE **DEAF** ON #TV YEAH!...
'…because you know I'm way into the **Deaf world** and the **Deaf community** and I'm proud to see a **Deafie** on TV…' (letsgofly08)

3.3. DISCUSSION. This small database study set out to collect examples of compounds in ASL that contain two identifiable signs and thus can be considered to have transparent morphological structure. The fact that such constructions could easily be collected from ASL videos posted to the internet suggests, as has long been assumed, that compounding is productive in ASL. Few of the compounds discussed here are likely to be listed in a dictionary of ASL, but signers nevertheless produce and understand them, presumably because they follow productive principles of ASL morphology.

These findings therefore motivate a shift in how we view ASL compounds: like canonical compounds in English, compounds in ASL are lexical constructions in which it is possible to identify two independent words, and whose meanings can be described in terms of their constituent words. Compounds like DEAF COMMUNITY and NUMBER STORY, which frequently appear together as a unit in signed discourse and have transparent morphological structure, are to be considered true examples of compounds in ASL.

4. A DIFFERENT PERSPECTIVE ON LEXICALIZATION. The transparent compounds discussed in this paper have been categorized primarily by their formal characteristics, to illustrate the argument that the lexicalized compound constructions that sign linguists are accustomed to calling compounds do not actually function as compounds in synchronic ASL. At this point then, by way of a conclusion, it is worthwhile to revisit lexicalized compounds; if not compounds, then what are they? The answer is that many lexicalized compounds are in fact simple signs,

constructions which were once transparent collocations but have since reduced to the point that their relationship to their original source words has now been obscured.

It is not the case, however, that the ASL compound hoax is the result of early studies misrepresenting the phenomena they were studying (see e.g. Bellugi & Newkirk 1981:29-30, which distinguishes between compounds and lexicalized compounds). Instead, it is the way that the specific lexicalized compound examples these early studies discuss came to be handed down in the phonological literature that is problematic. In particular, the phonological literature has typically treated lexicalized as a synonym for reduced, and has treated reduction as a diagnostic for identifying compounds in ASL, when in fact these are distinct and interrelated phenomena.[4]

Conflating compounding, reduction, and lexicalization not only leads us to overlook compounds which are not reduced, as we have seen, but also to wrongly count all reduced constructions as compounds. For example, in a widely-cited study, Liddell and Johnson (1986) analyze UP-TO-YOU (from THINK#SELF[5]) and GOODNIGHT (from GOOD#NIGHT), as compounds, on the basis of their formal reduction alone. Similarly, Fischer (2006:182,190) describes fused constructions like DON'T-HAVE-TO (from NOT#MUST) and WHY-NOT (from WHY#NOT) as compounds. However, Bybee (2001:61) has demonstrated that, at least in spoken languages, reduction regularly affects a variety of high-frequency words and phrases. Among the construction types Bybee discusses in this context are greetings and salutations (*how do you do* > *howdy*), negation (*can not* > *can't*), and compounds (*cup board* > *cupboard*). To call GOODNIGHT and WHY-NOT compounds on the basis of their phonological reduction alone, then, is like calling *howdy* and *can't* compounds in English. These construction types all have in common that they can become reduced with frequent use, but nevertheless, it is misleading to group them all under the label of compound.

Having examined transparent compounds in ASL, then, we can now adjust our view of the relationship between compounding, lexicalization, and reduction (cf. Bybee 2001, Downing 1977, Hohenhaus 2005). First, context-dependent and low-frequency compounds, like ENGLISH RHYTHM, are most likely produced and processed according to productive processes in ASL, rather than retrieved from a stored lexical representation. Some of these compounds, like DEAF COMMUNITY, by virtue of their frequent use, can become lexicalized, or represented as part of a language user's linguistic knowledge, as conventional pairings of meaning and form. These conventional constructions can then undergo phonological reduction and semantic demotivation; with continued use, they may even reduce to the point that the relationship between the fused construction and its original source words becomes obscured entirely. This view recasts lexicalized compounds as reduced constructions in ASL; though all reduced constructions are necessarily lexicalized, not all lexicalized compounds are necessarily reduced, nor are all reduced constructions necessarily compounds.

This revised view of lexicalization in ASL research also opens up further avenues of inquiry regarding the processes of compounding and reduction, both on their own and as they interact with one another. Not only can we begin to reassess the phonological generalizations about reduced constructions in the literature in terms of more general synchronic and diachronic reduction, but it is also incumbent on ASL researchers to investigate properties of conventional compounds and characteristics of compounding constructions in ASL, as well. Though this paper represents a first step in this direction, having documented examples of three synchronically productive compounding processes in ASL, future work on ASL compounds will necessarily examine the various functions of different compounding constructions in ASL, moving beyond phonological reduction alone.

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[1] Following standard practice, here I represent ASL signs using English 'glosses'. A single word or a group of words separated by hyphens represents a single sign (SISTER, UP-TO-YOU); letters separated by hyphens represent fingerspelled words (V-I-R-G-I-N-I-T-Y); at the end of a word, the + symbol indicates repetition (ABSORB++); at the beginning of a word, the # symbol indicates an etymological analysis of a lexical sign derived from fingerspelling (#SO); between words, the # symbol indicates an etymological analysis of a lexical sign derived from a multi-sign construction (RED#SLICE). I acknowledge that English-based transcription of ASL is not ideal, for a number of reasons; fortunately, many of the signs discussed in this paper can be viewed via online resources like www.signingsavvy.com, www.handspeak.com, and www.lifeprint.com.

[2] This is consistent with Vercellotti and Mortensen's observation that "ASL researchers seem to have relied on the early work of Klima and Bellugi for their list of compounds, bothering neither to expand this empirical database, nor to verify Klima and Bellugi's claims" (Vercellotti & Mortensen 2012:547).

[3] Compounds beginning with DEAF have been mentioned by Bayley et al., who note that constructions like DEAF CULTURE and DEAF WORLD are "particularly salient in the Deaf community, [and] have come to be regarded by ASL natives as single lexical items" even though they are made from two signs (2000:104).

[4] Though a more thorough discussion of this point exceeds the scope of the present paper, lexicalized is also used as a synonym for reduced in treatments of so-called locally lexicalized constructions, in which a given construction becomes reduced as it is repeated in a single conversation (see Brentari 1998, Johnston & Schembri 1999).

[5] See Wilkinson's (2013:480) clear description of THINK#SELF as a fused construction resulting from a formulaic sequence, rather than a compound.

Exploring Conflict and Violence in ESOL Writing

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ABSTRACT. Throughout the years, the study of vocabulary, and how words are combined to express particular meanings, has been well-established in language studies. In 1935, Firth argued that the meaning of a word is as much a matter of how it combines with other words in actual use as it is of the meaning it possesses in itself (O'Keeffe et al. 2007). Since then, the study of collocations has been a recurrent area of investigation in corpus linguistics. Interestingly, when writing about sensitive topics, writers, including second language learners, tend to express their opinions very thoughtfully. This study reports on the frequency with which students in an ESOL program refer to sensitive topics in their essays. In addition, specific language patterns used by students are presented. To summarize, the goal here was to explore the connections that exist among writers, language, and texts/discourse when taking into account sensitive topics.

Keywords: collocations, second language learners, writing, stance, discourse

1. INTRODUCTION. The study reported here was conducted with two main goals in mind: First, to determine patterns of lexical co-occurrence that involve vocabulary related to violence and conflict in written assignments (essays) generated by English language learners, and secondly, to determine any patterns in the use of linguistic markers of stance expressed in relation to the violence and conflict being described by the students. The data used in the study consists of language learner corpus data. In this case, a sub-sample of written texts in the UTEP's Learner Corpus of Academic English (ULCAE) was used in order to analyze the linguistic expression of stance and lexical co-occurrence in topic-specific writing. The analysis of stance focuses on attitudinal and evaluative stance, i.e., the expression of thoughts, opinions, and involvement.

This investigation differs from other studies in the sense that the corpus data used to conduct the analysis relates to a very particular pedagogical situation, since the learners involved share the same L1 and are enrolled in the same institutional program, i.e., the ESOL (English of Speakers of Other Languages) program offered by the Department of Languages and Linguistics at the University of Texas at El Paso. The motivation for conducting the study relates to the fact that many of the students represented in the ULCAE corpus live in Juarez or have family and friends living in Juarez. Given the violence that has affected this city in recent years, as well as my participation as a teaching assistant in the students' program, I considered exploring the extent to which social conflict emerges in their writing, and how they use language in relation to such events, worth doing. This was done in order to understand how students use language in patterned ways to discuss sensitive issues. Even though issues related to social conflict and violence in students' writing have been previously researched, usually to study the benefits of expressive writing after a traumatic event (e.g., Fernández & Páez 2008), the language used by students in L2 writing about these issues has not been investigated. However, studies of L1

discourse have been conducted to investigate the use of formulaic language (including collocations), in emotionally-charged situations, as reported by Wray (2012).

1.1. HOW ARE COLLOCATIONS AND STANCE MARKERS DETERMINED OR IDENTIFIED?

COLLOCATIONS: Halliday and Sinclair (1966) were some of the early pioneers in conducting automated studies of collocations, which has shown that not only uncommon words, but also many common words, are highly attracted to one another even in an arbitrary order (O'Keeffe et al. 2007). In fact, collocations tend to be so predictable that collocational patterns indicate a strong representation of mechanics in discourse, even bigger than what was originally expected (Gledhill 2000). A common procedure used while identifying collocations is to retrieve the collocations by using a concordance program. Usually, a frequency list of a specific set of items is created in advance. The next step generally is the analysis of the corpus. Sometimes, sub-corpora are analyzed separately, depending on the purpose of the study. In this study, collocations are identified using MonoConc Pro, and a set of lexical items previously determined in a prior pilot study (Urzúa & Mendoza 2011) was used as a starting point.

STANCE MARKERS: Multiple methods of analysis can be employed for investigating stance markers. For example, genre analysis, corpus linguistics, contrastive analysis, quantitative analysis, and translation corpora, among others. Stance markers may be identified clause by clause by analyzing texts, for instance according to frequency. In this case, the study focuses on a relatively small set of stance markers involving first person pronouns, mental verbs (e.g., hope, consider, understand), and complement clauses (e.g., I think [that]..., we believe [that]...,) and by exploring their frequency and functions in context. These stance markers are reported as being commonly found in written discourse (Biber et al. 1999, Hyland 2005).

1.2. WHAT CAN BE LEARNED FROM DETERMINING PATTERNS OF LEXICAL CO-OCCURRENCE AND STANCE? Language is never random (Chaudhari et al. 2010); as a consequence, several uses of a word may be learned from determining specific lexical patterns. First of all, determining such patterns may be useful as an indicator of the way that various lexical patterns relate to one another. Besides, word combinations that co-occur recurrently in texts might mirror different underlying word senses (Biber 1993). It has been also proved that the analysis of lexical patterns may be useful to determine how much retention adult learners have about what words tend to occur together. Likewise, having knowledge of frequent collocations between words can serve as testing ground for models of acquisition (Durrant & Schmitt 2010). Interestingly, determining these patterns helps to understand how different units (words) working together may create a specific meaning.

2. THE STUDY. In this study, I rely on learner corpus data and corpus-based techniques to explore patterns of lexical co-occurrence, as well as linguistic stance markers commonly used in the students' writings. By focusing on lexical co-occurrences and linguistic stance markers I aimed to discover the core vocabulary that students may use, not only in a descriptive way, but most importantly, how students may use this core vocabulary while trying to express a particular stance (opinions and judgments). In this way, my goal was to explore, in a very small but meaningful way, the connection that exists among writers, language, and texts/discourse.

The expectation is that exploring the connection among those three elements in essays related to violence and conflict may shed some light on the ways in which ESOL students, as members of their discourse community, share some common lexicon and phraseology.

3. GUIDING/RESEARCH QUESTIONS. (1) What words tend to co-occur with frequent topic-specific words, i.e., words related to violence and conflict? (2) What do these patterns of co-occurrence tell us about the way students use, in writing, lexicon from a particular semantic field (e.g. violence and conflict)? (3) Are there any patterns in the stance the writers in this study express in relation to the violence and conflict being described?

In summary, the study aims to explore two distinct objectives. One is to determine the vocabulary that students use to write about social conflict and violence as well as the words that tend to co-occur with such topic-specific words. The second objective to determine the way students express their stance, as writers, using specific linguistic markers in their writing assignments (essays) when these deal with sensitive topics. A preliminary list of target words from a pilot study by Urzúa and Mendoza (2011), extracted from ULCAE data, was used as a starting point to identify essays for analyses and to explore the first objective. This procedure is explained more in detail below.

4. METHODOLOGY.

4.1. CORPUS DATA USED IN THE STUDY. The learner data used in this study comes from the UTEP's Learner Corpus of Academic English (ULCAE). The data for the corpus was collected from learners at The University of Texas at El Paso enrolled in the ESOL (English of Speakers of Other Languages) program. Ninety-five percent of the students in the corpus/program have Spanish as first language and attended Mexican high schools. At present the corpus comprises 1,355,645 words, reflecting a variety of writing genres such as process essays, comparison and contrast essays, evaluative essays, and research reports, among others. All written samples were produced as part of the general course work of the students in their ESOL courses.

All essays are subdivided according to level; ranging from intermediate level (ESOL 1610) to sequential writing intensive courses (ESOL 1309, 1311 and 1312). It is important to mention that the last two levels are equivalent to regular English courses in the core curriculum of the university. For the purpose of the study, two different sub-sets of data have been extracted; data from ESOL 1311 and ESOL 1312, which were the levels included in the analyses. In all cases, only the final version of the essay was taken into account; in other words, the number varied from the original corpus, since the ULCAE comprises not only final versions, but also first drafts. The first sub-set (shown in Table 1, Sub-corpus A) reflects the number of essays included in the corpus to date in those two levels, ESOL 1311 and ESOL 1312. Data from this sub-sample includes a total of 278 files (essays) and 236,418 words.

The different essays that ESOL 1311 comprises are: Evaluation Essay, Problem/Solution Essay, a proposal, and a final exam. And, the essays that students write in ESOL 1312 are: Genre Analysis, Research Proposal, Literature Review, Research Paper, Synthesis Paper, and a Final Exam. The number of texts in the ESOL 1311 and ESOL 1312 sections of the ULCAE, including only final drafts, by level/semester is shown below:

Sub-corpus A				
Course	**Semester / Year**	**Number of**		
		Sections	**Texts**	**Words**
ESOL 1311	Fall 2010	3	41	**22,718**
ESOL 1311	Spring 2011	4	75	**47,271**
ESOL 1312	Spring 2010	4	122	**129,679**
ESOL 1312	Spring 2011	3	40	**36,750**
	TOTALS	**14**	**278**	**236,418**

TABLE 1**.** Number of texts in ESOL 1311 and 1312 in the ULCAE

In order to create the second sub-set of data, i.e., the data for analysis, henceforth referred to as the 'V' sub-corpus, the essays that include words related to violence and conflict, extracted from the first sub-corpus (sub-corpus A) mentioned above, were identified and extracted, using the procedure described below.

4.2. IDENTIFYING ESSAYS FOR ANALYSIS ('V' SUB-CORPUS). In order to identify the essays to be included in the 'V' sub-corpus, the automated text search feature of the concordance software MonoConc Pro was used to locate the presence of any of the target items (from Urzúa & Mendoza 2011) in the original data (sub-corpus A). The data yielded by MonoConc was thus used to identify essays to include in the sample to be used in the analyses ('V' sub-corpus). In addition, once a preliminary sample of essays was determined, frequency lists of all the words found in this preliminary sample were manually explored in order to identify any potentially relevant lexical items not included in the original list used in Urzúa and Mendoza (2011). As a consequence, after locating the new lexical items in the list, another search was performed in order to identify any missing essays and include them in the corpus for analysis.

As shown in Table 2, this second sub-set includes a total of 51 files (essays) and 50, 145 words. This sample constitutes the focus of the analyses. The remaining essays, that is, those essays in the ESOL 1311 and ESOL 1312 sections of the ULCAE corpus that do not include terms (vocabulary) related to social conflict and violence constitute a third sample of essays, which was used here for comparison purposes. This third sample, henceforth referred to as the 'Non-V' sub-corpus is shown in Table 3.

Sub-corpus 'V'				
Course	**Semester / Year**	**Number of**		
		Sections	**Texts**	**Words**
ESOL 1311	Fall 2010	3	7	**4,079**
ESOL 1311	Spring 2011	4	19	**11,363**
ESOL 1312	Spring 2010	4	16	**23,975**
ESOL 1312	Spring 2011	3	9	**10,728**
	TOTALS	**14**	**51**	**50,145**

TABLE 2. Number or texts included in the 'V' sub-corpus

Sub-corpus 'Non-V'				
Course	**Semester / Year**	**Number of**		
		Sections	**Texts**	**Words**
ESOL 1311	Fall 2010	3	34	18,639
ESOL 1311	Spring 2011	4	51	32,765
ESOL 1312	Spring 2010	4	108	109,750
ESOL 1312	Spring 2011	3	31	26,022
	TOTALS	**14**	**224**	**187,176**

TABLE 3. Number of texts included in the 'non-V' sub-corpus

5. ANALYSES AND RESULTS.

5.1. PERCENTAGE OF ESSAYS DEALING WITH TOPICS RELATED TO SOCIAL CONFLICT AND VIOLENCE.

The first stage in the analysis aimed at determining the percentage of essays from the original ESOL 1311/ESOL 1312 sub-sections of the ULCAE that deal with topics related to social conflict and violence. Table 4 below shows how often students' writings reflect such topics.

Course	Semester / Year	Number of Texts		
		Sub-corpus A	Sub-corpus 'V'	%
ESOL 1311	Fall 2010	41	7	**17**
ESOL 1311	Spring 2011	75	19	**25**
ESOL 1312	Spring 2010	122	16	**13**
ESOL 1312	Spring 2011	40	9	**23**
	TOTALS	**278**	**51**	

TABLE 4. Texts that deal with topics related to violence

Tables 5 and 6 show the percentage of essays that were written in response to a prompt (assigned by the teacher or selected by the student) that dealt with topics directly linked to conflict and violence, and the percentage of essays that were composed in response to a prompt that did not deal with social conflict or violence, but in which students themselves shifted the topic from non-violent to violent events in their texts. In other words, essays with a non-sensitive topic (e.g. the use of Facebook among college students) in which the student-writer brings up an incident, anecdote or example that relates to conflict or violence (e.g. a person becoming a potential kidnapping victim because of private information posted in Facebook).

Course	Semester / Year	Number of Texts		
		Sub-corpus A	With topics related to violence	%
ESOL 1311	Fall 2010	41	7	**17**
ESOL 1311	Spring 2011	75	13	**17**
ESOL 1312	Spring 2010	122	8	**7**
ESOL 1312	Spring 2011	40	5	**13**
	TOTALS	**278**	**33**	

TABLE 5. Texts with topics directly related to violence

Course	Semester / Year	Number of Texts		
		Sub-corpus A	With terms related to violence	%
ESOL 1311	Fall 2010	41	0	**0**
ESOL 1311	Spring 2011	75	6	**8**
ESOL 1312	Spring 2010	122	8	**7**
ESOL 1312	Spring 2011	40	4	**10**
	TOTALS	**278**	**18**	

TABLE 6. Texts with terms directly related to violence

5.2. FREQUENCY OF OCCURRENCE OF TERMS RELATED TO VIOLENCE AND CONFLICT IN 'V' SUB-CORPUS. Once the sample of essays to be used in the analysis ('V' sub-corpus) was determined, the frequency with which each item in the list of terms related to violence and conflict was obtained, recording frequencies of occurrence in each individual essay, also by using the MonoConc Pro concordance program.

5.3. SEARCHING TARGET LEXICAL ITEMS IN 'V' SUB-CORPUS. As described above, a pre-determined list of lexical items from a previous pilot study (Urzúa & Mendoza 2011) was first used to identify as many essays as possible in sub-corpus A that included any explicit references to violence or conflict. This list was later expanded with relevant items used in the essays being identified for inclusion in the 'V' sub-corpus. Therefore, the procedure used to determine the list of lexical items to be used in the study was a recursive one: a preliminary list used to identify essays to be analyzed, and these essays used in turn to compile a more complete list of relevant vocabulary items to include in the lexical analysis.

MonoConc Pro allows the identification of the exact location of the lexical item within each specific essay. It also allows the researcher to look just for specific parts of a word, as a

consequence, special characters (such as '*') were frequently used while conducting the searches in order to avoid, first of all, misspellings of the words, and secondly, different variants of the target items. For example, when looking for the word BELIEVE, the given string of letters was BELIE*, which gives as a result a search for all the different possibilities that those string of letters may offer (e.g., BELIEF(S), BELIEVE and BELIEVED).

When investigating the target lexical items, such a procedure was used. For example, when exploring the lexical item GUN with MonoConc Pro, the software allows you to provide just a string of characters, like *GUN*, which the program analyzes in order to provide all the possible cases in which those characters appear. To illustrate, *GUN* provides lexical items such as GUN, GUNS, HANDGUN, and HANDGUNS, among others. As mentioned before, the software allows the researcher to locate the specific item within a certain text providing the context in which the item occurs. For instance, the string of characters *GUN*provides information of the immediate context in which the words occur in each essay, as in …THE EFFECTIVENESS OF **GUN** LAWS REMAINS UNPROVEN… and identified the corresponding essay (Essay ID Number: 1311-2-11-0266-4.2). This kind of search was performed for each of the target items.

5.4. MOST FREQUENT LEXICAL ITEMS RELATED TO CONFLICT AND VIOLENCE. The results show the frequency of occurrence of the five most frequent lexical items (i.e. the number of tokens) first in 'V' sub-corpus and then, for comparative purposes, in the 'Non-V' sub-corpus.

Table 7 shows the five most frequently occurring target items in the ESOL 1311 essays included in the 'V' sub-corpus. As shown, the most frequent lexical item was the word drug (including the plural form, DRUGS, as well as its use as a modifier, as in DRUG DEALER (S), DRUG DEALING, DRUG LORDS, and DRUG BUSINESS), with 142 occurrences. The second most-frequent word was CRIME including variants such as CRIMES, CRIMINAL (S), and CRIMINALIZE with 97

occurrences. The third one in the ranking is GUN, with variants GUNS and HANDGUN, with 85 occurrences, followed by VIOLENCE/-VIOLENT, with 47 occurrences and by government(s), with 30 occurrences.

Table 8 shows the five most frequently occurring target items in the ESOL 1312 essays included in the 'V' sub-corpus. As shown, the most frequent lexical items are: drug and its variants, with 423 occurrences, followed by violence/violent, with 158 occurrences. The third lexical item in 'V' sub-corpus refers to Mexico with 101 occurrences, and the fourth one is marijuana with 88 occurrences. The last item among the top five is government(s), with 57 occurrences.

ESOL 1311		
Rank	**Lexical Items**	**Number of Occurrences**
1	drug (s)	142
2	crime (s) [criminal(s), criminalize]	97
3	gun (s) [handgun]	85
4	violence/violent	47
5	government (s)	30

TABLE 7. Number of occurrences of target lexical items in 'V' sub-corpus

ESOL 1312		
Rank	**Lexical Items**	**Number of Occurrences**
1	drug (s)	423
2	violence/violent	158
3	Mexico	101
4	marijuana	88
5	government (s)	57

TABLE 8. Number of occurrences of target lexical items in 'V' sub-corpus

As can be seen in tables 7 and 8, three out of the five most used lexical items in both sections, ESOL 1311 and ESOL 1312, in 'V' sub-corpus are the same: drug(s), violence/violent, and government(s). More interestingly, in both cases the most frequent lexical item is drug(s), with 142 (ESOL 1311) and 423 (ESOL 1312) instances. In both cases, government(s) appears as the fifth most frequently used lexical item.

6. PATTERNS OF CO-OCCURRENCE AND COLLOCATIONAL ANALYSES. Analyses of word combinations were conducted in order to explore any existing patterns of co-occurrence and collocational frames involving the most frequent target words. The purpose for doing this was to gain a better understanding of how these frequent words combined with other words and what these could tell us about the way students refer to social conflict and violence in their writing.

6.1. PROCEDURE USED TO IDENTIFY EXISTING COLLOCATIONAL FRAMES. Once the frequencies of occurrence were determined, co-occurrence and collocational analyses were conducted. MonoConc Pro provides collocational information, such as the most frequent collocates to the left and to the right of specific lexical items. In other words, the software provides lists of the items that tend to co-occur with relative frequency with target words.

To illustrate, the chart below shows how MonoConc presents the most frequent collocates for a particular target word. For this example, the lexical item explored was DRUG(S). As shown in figure 1, the most frequent collocates of DRUG(S) are the preposition OF (18 occurrences) and the definite article THE (17 occurrences) (one collocate to the left), and forms of the verb BE, ARE and WERE (7 occurrences each) (one collocate to the right).

3-Left		2-Left		1-Left		1-Right		2-Right		3-Right	
13	the	12	of	18	of	7	are	7	legal	6	a
9	to	7	re-legalization	17	the	7	were	7	have	6	the
7	of	6	medications	9	illicit	5	in	5	not	6	to
5	and	5	to	7	legalizing	5	is	5	be	5	many
4	in	5	that	7	if	5	would	4	the	4	if
4	that	4	these	6	as	4	dealers	4	to	4	be
3	be	4	and	5	that	4	to	4	as	4	that
3	means	4	by	4	new	4	store	4	can	4	of
2	for	3	use	4	and	4	will	3	is	3	can
2	lthe	3	a	4	with	4	the	3	very	3	this
2	money	3	get	3	these	4	and	3	and	2	would
2	not	3	if	3	by	4	this	3	in	2	has
2	would	2	conclusion	3	a	4	stores	3	are	2	there
2	is	2	instance	3	any	3	there	2	that	2	in
2	also	2	for	2	illegal	3	I	2	will	2	sell
2	use	2	legalization	2	because	3	as	2	all	2	have
2	they	2	need	2	be	3	they	2	people	2	available
2	get	2	as	2	medical	3	users	2	means	2	cocaine
1	loads	1	affected	2	selling	2	but	2	problem	2	legal
1	legalization	1	pain	2	in	2	at	2	legalized	2	1991
1	muscular	1	sell	2	legal	2	should	2	would	2	opinion
1	only	1	know	2	drugs	2	abuse	2	a	2	new
1	any	1	problem	2	about	2	dealer	2	solution	1	arguments
1	pros	1	ridiculous	2	legalize	2	can	2	cause	1	while
1	medication	1	down	1	but	2	also	2	my	1	no
1	president	1	low	1	consuming	2	one	1	could	1	best
1	may	1	legalizing	1	big	2	companies	1	change	1	other
1	medications	1	front	1	use	2	cannot	1	summarize	1	dramatically
1	adults	1	the	1	forcing	2	have	1	won´t	1	tibor
1	producing	1	be	1	activity	2	such	1	if	1	allow

FIGURE 1. Collocational frame for drug(s)

7. STANCE. As mentioned in the Background section of this paper, stance is understood as the speaker/writer's expression of thoughts, attitudes, value judgments, or assessments (Biber et al. 1999). For instance, the tone used by a writer may be more or less formal, authors may write in more personal or impersonal ways (distancing themselves from their texts), agents may become focalized or defocalized, and so on. A clear example of making a text more personal and taking a more involved stance as writers is the frequent use of first person pronouns, so writers can position themselves in particular or strategic ways toward their texts. Pronouns then serve not only exclusively as referents, but also have illocutionary and perlocutionary effects, in terms of locating agency, moral responsibilities, duties, points of view, etc. (Yates & Hiles 2010).

Given the importance of first person reference in the explicit expression of stance, a first stage in this part of the analysis was to focus on first person reference (I, WE, ME, OUR). After that, the use of first person pronouns with complement clauses headed by mental or attitudinal verbs (e.g. THINK, HOPE, BELIEVE, AGREE, DOUBT, UNDERSTAND) is analyzed; and finally, nominal

expressions referring to attitude or thoughts/ideas, also in combination with first person reference are examined (e.g. IN MY OPINION, OUR BELIEFS).

7.1. USE OF FIRST PERSON SINGULAR AND PLURAL PRONOUNS. A frequency analysis of first person subject pronouns and possessives indicates noticeable differences between the way these elements are used in ESOL 1311 and ESOL 1312, as well as between its use in the 'V' corpus and 'Non-V' corpus.

ESOL 1311				
	Sub-corpus 'V'		**Sub-corpus 'Non-V'**	
	Number of		**Number of**	
	Essays	**Words**	**Essays**	**Words**
	25	14,846	86	52,000
Pronouns	**Tokens**	**Occurrences per 1000 words**	**Tokens**	**Occurrences per 1000 words**
I	45	3.03	310	5.96
MY	12	0.8	103	1.98
Sub-total	**57**	**3.83**	**413**	**7.94**
WE	75	5.05	507	9.75
OUR	36	2.42	189	3.63
Sub-total	**111**	**7.47**	**696**	**13.38**

TABLE 9. Number of occurrences of first-person reference in ESOL 1311

Table 9 shows the differences in first-person reference in each of the sub-samples in ESOL 1311. It indicates that when students in ESOL 1311 refer to themselves in their writing, they tend to use first person plural forms (we, our) twice as often in relation to their use of first person singular forms (I, my). In addition, when writing about violence/conflict, students seem to adopt a more distanced (impersonal) stance, as they use less first person reference than when writing about other topics. A similar pattern was also observed in ESOL 1312 essays, as shown in table 10.

ESOL 1312				
	Sub-corpus 'V'		**Sub-corpus 'Non-V'**	
	Number of		**Number of**	
	Essays	**Words**	**Essays**	**Words**
	25	34,703	139	135, 772
Pronouns	**Tokens**	**Occurrences per 1000 words**	**Tokens**	**Occurrences per 1000 words**
I	46	1.3	269	1.98
MY	20	0.57	91	0.67
Sub-total	**66**	**1.87**	**360**	**2.65**
WE	80	2.31	500	3.7
OUR	31	0.89	224	1.65
Sub-total	**111**	**3.2**	**724**	**5.35**

TABLE 10. Number of occurrences of first-person reference in ESOL 1312

8. CONCLUSION. The results obtained in this exploratory study show that students in ESOL 1311 and ESOL 1312 often write about situations involving social conflict and violence. In fact, these topics may be found in as much as 25% of the essays generated in one of these courses in a given semester. The examination of 'V' sub-corpus by means of frequency analyses, using the text retrieval program MonoConc Pro made possible to identify those lexical items that represent the core vocabulary students use when writing about social conflict and violence. This core vocabulary used in the identified texts includes lexical items such as: DRUGS, CRIMES, GUNS, MARIJUANA, MEXICO, CARTEL, and POWER, among many others. Three of these items, DRUGS, VIOLENCE, and GOVERNMENT, were ranked among the five top most frequent items for both ESOL 1311 and ESOL 1312. These items served as starting point for the collocational analyses.

The patterns of co-occurrence identified and illustrated in this paper tend to occur with relative frequency, as evidenced by their percentage of use in relation to the total number of instance a lexical items occurred in the data, and in comparison to the uncountable number of possible combinations that any target item given may have. These patterns show, for example,

that drugs are often discussed in relation to their legal status, and that whenever the word 'crime' is used, it often tends to be preceded by the adjective 'violent.' The patterns found also indicate that students often write about drugs in terms of what should, or must, or has to be done about them, either to try to reduce the number of drug-related violence, or to solve the many problems associated with it.

In relation to the analysis of personal stance, it was found that, if students refer to themselves in their writing, they tend to use first person plural forms (we, our), which occur twice as often as first person singular forms (I, my) in the data. Furthermore, when writing about violence/conflict, students seem to adopt a more distanced (impersonal) stance. In addition, students tend to use we-statements to express need, possibility, or conditionals, and I-statements to express agreement or disagreement.

What these results suggest, even when they are limited to a particular semantic field and a small set of stance markers here, if that studies like this one can help us understand how specific units of language may become more salient to learners. In other words, this type of study can enable us to understand how smaller (or bigger) units can be combined and recombined into larger collocations based upon different points of the acquisition process.

9. LIMITATIONS AND FURTHER RESEARCH. A limitation of this study was that data used in the analyses were extracted from only two sub-sets of students' essays in the ULCAE corpus. Another limitation is the fact that a limited sub-set of stance markers was examined here. A first possible step to expand the study would be to include more of the course levels in the ESOL program represented in the ULCAE corpus. This can be of interest given that the vocabulary and level of writing proficiency of students in the beginning levels of ESOL (classes such as ESOL

1610) have, without a doubt, different linguistic resources than those students enrolled in higher-level intensive writing courses (ESOL 1311 and ESOL 1312). Additional research can also be conducted to explore potential differences in the marking of stance depending on the gender of the writer. As the literature suggests, women express greater sadness or depression than men when using expressive writing to cope with an unpleasant situation (e.g. Fernández et al. 2008). To do that, it may be necessary, though, to examine a larger set of linguistic markers of stance. In sum, much remains to be done. This paper is a first exploration into how essays composed by ESOL students at UTEP write about situations dealing with social conflict and violence. These are topics that, unfortunately, touch them in direct and indirect ways. As an instructor, former ESOL and UTEP student, and research assistant, they have become very important to me as well.

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Synchronic evidence of grammaticalization and lexicalization processes in Czech aspectual prefixes

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ABSTRACT. This study examines the semantic and distributional properties of Czech predicates with aspectual prefixes. It analyzes four aspectual prefixes *za-*, *na-*, *po-* and *do-* in order to establish a semantic classification of predicate types in which these prefixes occur. The semantically defined predicate types are used to conduct a distributional analysis of predicate type and token frequencies in the Czech National Corpus and to make conclusions about the developmental stages of aspectual prefixes. The present paper provides evidence that aspectual prefixes in Czech exhibit different degrees of grammaticalization and lexicalization in relation to predicate types. Furthermore, the distribution of predicate types provides evidence of synchronic layering of aspectual prefixes and indicates that they share a common path of development.

Keywords: aspectual prefixes, development, semantic classification

1. INTRODUCTION. The main goal of this study is to define the semantic properties of predicates with aspectual prefixes and to identify their distribution in the Czech National Corpus. The analysis presented in this paper shows that aspectual prefixes share a common path of development in relation to grammaticalization and lexicalization processes that are argued to have taken place.

For a number of decades, linguistic studies on tense and aspect have been concerned with the idiosyncratic nature of Slavic aspect (Bybee & Dahl 1989, Dahl 1985, Dickey 1995, 2000, Eckert 1985, Hewson & Bubenik 1997, Janda 1985). Many studies on grammatical aspect in Slavic languages focus on the meaning of aspectual prefixes, e.g. recent studies on Russian aspect propose a semantic model of aspectual clusters (Janda 2007:607, Janda et al. 2013). Unlike previous research on the semantics of Slavic aspect, the present study investigates the path of development of Czech aspectual prefixes. It attempts to identify the relation between the type and token frequencies of PREFIXED PERFECTIVE (PP) predicates, i.e. predicates with aspectual prefixes that carry perfective meaning (see 1 and 2 below), and the semantics of PP predicates, i.e. their characteristic degrees of semantic compositionality.

(1) *na-koupit* 'to buy (PERF)'
(2) *na-značit* 'to indicate (PERF)'

The present analysis uses semantic criteria to propose a semantic classification of PP predicates and uses the defined semantic categories to investigate the distributional properties of these prefixed predicate types in relation to their occurrence with specific prefixes as well as their overall type and token frequencies in the Czech National Corpus.

It is proposed here that the semantically defined PP predicate types represent distinct stages of development of aspectual prefixes that are characteristic of grammaticalization and

lexicalization processes. Consequently, this study proposes a general path of development of aspectual prefixes based on the semantic and distributional properties of prefixes in PP predicates.

2. DATA COLLECTION AND METHODOLOGY. An extensive corpus study was conducted to analyze the semantics and frequency distribution of four aspectual prefixes in Czech: *za-*, *na-*, *po-*, and *do-*. These prefixes were selected because they have high token frequencies and appear to be in different stages of development (as attested by the data collected from the Czech National Corpus (CNC), SYN 2010, a corpus of written texts that contains more than 100 million words). They occur in a variety of PP predicates, and their semantic range varies from concrete to highly grammaticalized or lexicalized predicates.

This study analyzes fifty of the most frequently occurring predicates for each prefix from the Czech National Corpus. A list of perfective predicates was created for each aspectual prefix in order to examine semantic relations between prefixes and predicates.

The issue of semantic classification is approached from a usage-based perspective, i.e. tokens are classified in terms of their most frequent predicate type construals. Although the semantic analysis acknowledges the existence of multiple predicate type construals, it is outside of the scope of this paper to analyze in detail all the possible construals in the corpus. The goal of this analysis is to analyze tokens for recurring semantic patterns of Prefixed Predicates in order to understand grammaticalization and lexicalization processes. In order to identify a predicate's most frequent construal, a random selection of 20-40 instantiations of each token in the Czech National Corpus was analyzed.

The main criterion used for the semantic classification of predicate types was their degree of SEMANTIC COMPOSITIONALITY (Waugh 1994:64). Semantic compositionality was determined

to be an essential property to analyze as it is informative about the idiosyncratic properties of PPs and can be used to distinguish between PP types that have undergone grammaticalization as opposed to lexicalization processes. Specifically, this study argues that low semantic compositionality is indicative of PPs that are lexicalized as highly entrenched lexicalized predicates become more idiosyncratic, and their semantic compositionality is thus less transparent (see 3) than can be observed in grammaticalized predicates (see 4). Although grammaticalization processes are also argued to affect the lexical meaning of aspectual prefixes, the semantic compositionality of grammaticalized predicates remains transparent. This assumption poses a clear distinction between grammaticalization and lexicalization processes in aspectual prefixes.

(3) A tuto tradici si chtějí **za-chovat**.
And this tradition REF want.1PL.PRST **preserve (PERF)**.

'And they want to preserve this tradition.'

(4) Stavbu plánuje město dokončit v říjnu letošního roku a
construction plan.3sg.PRESENT city to finish in October this year and

za-platí za ni zhruba 70 milionů korun.
pay (PERF) for it roughly 70 million crowns.

'The city is planning to finish the construction in October of this year and pay for it roughly 70 million crowns.'

Examples of PP predicates in 3 and 4 demonstrate distinct degrees of compositionality and their relation to lexicalization and grammaticalization processes. This paper shows that lexicalization processes are accompanied by the loss of semantic compositionality, which affects the idiosyncratic properties of Prefixed Predicates. Highly entrenched lexicalized predicates become

more idiosyncratic and their semantic compositionality less transparent. In 3, the PP predicate *zachovat* ‘to preserve’ consists of the prefix *za-* ‘for’ and the predicate *chovat* ‘to raise.’ As can be seen from the meaning of the PP in this sentence, the semantics of the predicate became lexicalized to the extent that its meaning is now noncompositional, i.e. the relations between the parts that form the predicate do not yield a predictable meaning (see Waugh 1994:64 for a discussion on lexicalization and compositionality). However, the predicate in 4 clearly shows that the meaning of the PP is derivable from its parts, i.e. the meaning of *zaplatit* ‘to pay/to pay for’ is predictable from the prefix *za-* ‘for’ and *platit* ‘to pay’.

Considering that the notion of compositionality is essential for this analysis as it presents two semantically distinct predicate constructions which are characteristic of lexicalization and grammaticalization processes, the following discussion of predicate types adopts the terms SIMPLEX and COMPLEX predicates to refer to predicates that are lexicalized and grammaticalized respectively.

3. SEMANTIC CLASSIFICATION OF PREFIXED PERFECTIVES. The classification of predicate types explores the semantic properties of aspectual prefixes in predicates. This study introduces six distinct predicate types and divides them into complex and simplex predicates.

3.1. COMPLEX PREDICATE TYPES. Complex predicates are classified into three types based on the semantic relation between a prefix and a simplex predicate. Complex predicate types are categorized as SPECIALIZED PERFECTIVES, NATURAL PERFECTIVES, and COMPLEX ACT PERFECTIVES (after Janda et al. 2007). There is a derivational relationship between the aspectual prefix and the simplex predicate from which the complex predicate is derived. Aspectual prefixes in Specialized Perfectives add the most lexical content, while Natural Perfectives have no

transparent lexical content and appear to be inflectional morphemes encoding perfectivity. Complex Act predicates comprise a relatively small group of complex predicates since only a limited number of prefixes encode a delimitative time boundary on simplex predicates; thus, being derivational in their own kind. The following paragraphs discuss the predicate types in more detail and provide examples to demonstrate the degree of semantic compositionality based on the semantic relations between prefixes and simplex predicates; as follows:

SPECIALIZED PERFECTIVES (SPS) are complex predicates in which an aspectual prefix adds meaning to the simplex predicate to which it is attached. The newly derived perfective complex predicate preserves the 'original' simplex predicate's meaning, at least in part if not in full. In other words, the prefix adds a lexical meaning that can be identified as belonging to a cluster of meanings that are based around a prototype (see Janda et al. 2013 for a discussion of radial categories of Russian prefixes). Although the meaning of a prefix may not always be transparent, nonetheless, the meanings of complex predicates remain related to the meaning of the 'original' simplex predicate. Some examples of Specialized Perfectives that demonstrate this prefix-predicate relationship are: *dojít* 'to walk to' from *jít* 'to go/to walk', *poslechnout* 'to listen' from *slyšet* 'to hear', and *naznačit* 'to indicate, to suggest' from *značit* 'to mark, to signal'.

NATURAL PERFECTIVES (NPS) are complex predicates in which aspectual prefixes appear to have inflectional properties: they do not add any lexical meaning to simplex predicates other than perfectivity. Such prefixes are frequently identified in the literature as "semantically empty" (Deo 2012:163). Alternatively, it is argued that their non-transparent lexical semantics are a result of a meaning overlap with a simplex predicate (Janda et al. 2013:9). My study considers the lexical contribution of the prefix minimal (whether it is due to a semantic overlap or as a result of semantic generalization of the prefix due to semantic overlap). Both positions would be

consistent with my hypothesis. For this reason, conclusions about emptiness versus overlap are not within the scope of this study. Claims about emptiness are currently inconclusive assumptions; however, my claim that aspectual prefixes in Natural Perfectives are semantically generalized is plausible. Examples of Natural Perfectives are: *naučit* 'to learn, to teach' from *učit* 'to learn, to teach' and *podívat* 'to watch, to look' from *dívat* 'to watch'.

COMPLEX ACT PERFECTIVES (CAPS) are complex predicates in which an aspectual prefix encodes a time boundary onto the simplex predicate, i.e. it adds the meaning of completion and usually encodes the duration 'for a while' or delimits an event (Dickey 2007, Dickey & Hutcheson 2003, Filip 2003, Flier 1985). Only the prefixes *po-* and *za-* in my study of four aspectual prefixes derive Complex Act Perfectives. Examples of Complex Act Perfectives are: *pomyslet* 'to think (for a while with an end point)', *zasmát* 'to laugh (for a short period of time)'. There is a limited number of prefixes that can function in Complex Act Perfective constructions. They are restricted to aspectual prefixes that frequently occur in highly grammaticalized constructions.

3.2. SIMPLEX PREDICATE TYPES. Simplex predicates are grouped together based on their semantic properties that suggest diachronic development involving lexicalization processes. Semantic properties of simplex predicate types indicate that they exhibit different degrees of compositionality along a continuum from less compositional to noncompositional. That is, their semantics are not completely derivable or predictable from the constituents that form them. Simplex predicates in Czech exhibit different degrees of internal constituency and semantic compositionality. This study classifies simplex predicates into three types based on their degree of lexicalization and semantic compositionality.

NEW PREFIXED PERFECTIVES (NPPS) are simplex predicates in which aspectual prefixes substantially change the meaning of the original simplex predicate. The prefix and simplex predicate are entrenched as a single lexical unit and form a new simplex predicate. The use of the original simplex predicate is not limited to the Prefixed Predicate construction. It may function as an imperfective in other constructions, or may occur in Prefixed Predicate Constructions with other aspectual prefixes. That is, the imperfective simplex predicate may derive Specialized Perfectives in constructions with other aspectual prefixes. Some examples of NPPs are: *zaměřit* 'to concentrate' from *měřit* 'to measure, to gauge', *povědět* 'to tell' from *vědět* 'to know', *napadnout* 'to occur (in mind), to attack (in battle)' from *padnout* 'to fall.'

PERFECTIVES WITHOUT VERBAL ROOTS (PWVRS) are simplex predicates that are not associated with any imperfective simplex predicate. Although their form clearly developed from Prefixed Predicate constructions through lexicalization processes, the verbal root has lost its independent lexical status. If verbal roots of PWVRs are attested in the lexicon, they have very low frequencies, as they are usually restricted to archaic/idiomatic expressions in the corpus. Similar findings of such predicates are attested in Russian. Braginsky (2008:8) finds that the prefix *za-* derives perfective predicates "from presumably imperfective base verbs that do not have an autonomous lexical meaning of their own." Moreover, he claims that the prefix *za-* "serves as a word-formation tool, capable of introducing new verbal predicate into the lexicon" (Braginsky 2008:8). Generally, Czech PWVRs include simplex predicates that are conceptually basic and are thus among the most frequent lexical items in the corpus. Examples of PWVRs are: *zapomenout* 'to forget', *zavřít* 'to close, to shut (the door)', and *'nabídnout* 'to offer'.

PREFIXED IMPERFECTIVES (PIS) are imperfective simplex predicates. Predicates of this type have low type frequencies but high token frequencies in the corpus. The present analysis

accounts for their status in the lexicon and suggests their development. PIs have a lot in common with NPPs and PWVRs insofar as they often occur in prefixed simplex predicate constructions. The only transparent difference that sets them apart is their imperfective aspectual nature. PIs frequently encode concepts, such as undirected activities or states. This study argues that lexicalization processes of complex predicates are a plausible explanation for the emergence of PIs. That is, assuming that complex predicates lexicalize into simplex predicates (NPPs and PWVRs) that come to denote states, or activities, the most plausible hypothesis would be that such predicates become semantically reanalyzed as imperfective. Many of the imperfectives that were analyzed in this study have the imperfective suffix *–at/-ovat*. It remains unclear how the present PIs came to be lexicalized to incorporate the imperfective suffix. Given the evidence of lexicalization patterns in NPPs and PWVRs, the present analysis suggests that the imperfective suffix on PIs is a result of aspectual reanalysis. Some examples of PIs from the Czech National Corpus are: *počítat* 'to count', *poslouchat* 'to listen, to obey', and *považovat* 'to consider'.

4. SYNCHRONIC DISTRIBUTION OF PREFIXED PERFECTIVE PREDICATE TYPES. A semantic analysis of the synchronic layering of aspectual prefixes in predicates establishes grounds for the distributional analysis of Prefixed Perfective predicates in the corpus. Since grammaticalization and lexicalization processes have been argued to take place within specific constructions (Bybee & Hopper 2001), this study attempts to capture the development of aspectual prefixes in terms of their relation to predicate types and their distribution in the corpus.

In particular, the distribution of predicate types is predicted to reflect patterns of SYNCHRONIC LAYERING. This term is used in Hopper and Traugott (1993:94) to refer to the gradualness of grammaticalization processes that result in multiple stages of development occurring in languages synchronically. Applied to the analysis in this study, simplex predicates,

which are hypothesized to have undergone lexicalization processes, are expected to demonstrate higher token frequencies in the corpus as a result of their higher degree of entrenchment than complex predicates. Since the processes of lexicalization in constructions usually affect lexical items of high token frequencies and are not directly linked to high type frequencies (Trousdale 2008:163, from Lipka 2002), this study proposes that simplex predicates will have higher token frequencies and lower type frequencies than complex predicates.

Distinct stages of grammaticalization in complex predicate constructions are also expected to show clear distributional patterns in the data sample. Assuming that grammaticalization processes are unidirectional processes (Bybee et al. 1994:13), concrete lexical meanings of aspectual prefixes in complex predicates are predicted to show lower degrees of grammaticalization than semantically generalized prefixes that appear to have inflectional properties. This study hypothesizes that less grammaticalized predicates have lower token frequencies in the corpus than more grammaticalized predicates. Lower token frequencies are usually indicative of forms that have high content-specificity and, as a result, have a limited range of use in constructions. Therefore, the hypothesis about the distributional patterns in complex predicates is that Specialized Perfectives and Complex Act Predicates have lower token frequencies than Natural Perfectives.

4.1. DISTRIBUTION OF TOKEN FREQUENCIES IN PREDICATE TYPES. The distribution of token frequencies of predicates contributes to our understanding of grammaticalization and lexicalization processes in relation to predicate types. The distributional analysis of token frequencies demonstrates that PP types are associated with different token frequencies in the corpus. The following discussion presents quantitative data that supports the semantic findings

that predicate types reflect distinct stages of grammaticalization and lexicalization of aspectual prefixes.

Median values of token frequencies were collected for each predicate type in order to determine the distributional patterns of token frequencies of predicates in the data sample. The following graph in Figure 1 presents median values of token frequencies for each predicate type.

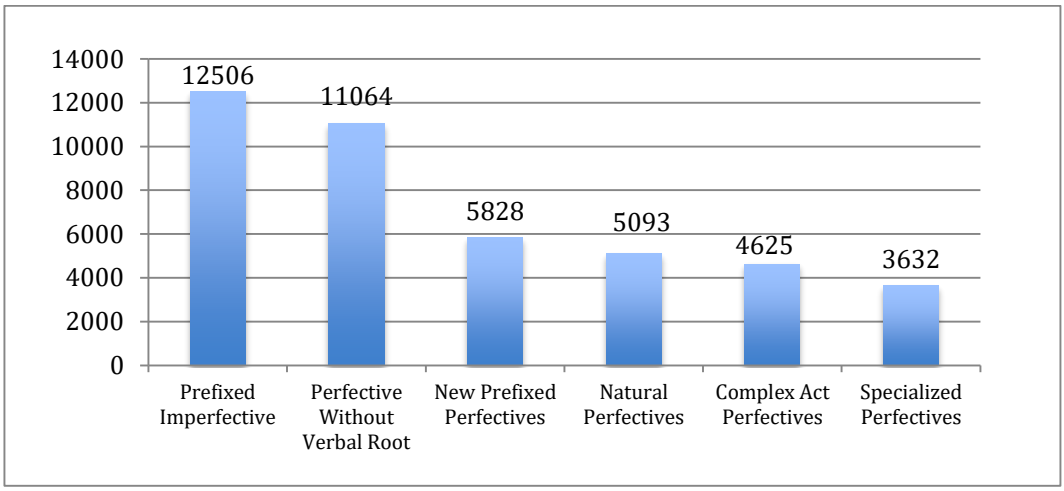

FIGURE 1. Median Values of Token Frequencies of Predicate Types

The median values of token frequencies in Figure 1 suggest that there are general trends in the distribution of token frequencies that correspond to predicate types and their distinct stages of grammaticalization and lexicalization. The most obvious patterns that are essential to the present hypothesis are revealed in the token frequencies of predicate types in complex predicates and simplex predicates. The graph in Figure 1 suggests that simplex predicates have higher token frequencies than complex predicates. A one-tail t-test shows that token frequencies of simplex and complex predicate categories are significantly different from each other ($p<0.05$).

Token frequencies of predicate types in Figure 1 suggest that predicate types within simplex and complex predicate categories show distinct token frequencies. Specifically, the distribution of token frequencies in simplex predicates shows that Prefixed Imperfectives and

Perfectives Without Verbal Roots have significantly higher token frequencies than New Prefixed Perfectives in the complex predicate category ($p<0.05$). The distribution of token frequencies in complex predicates shows that lower token frequencies are characteristic of Specialized Perfectives and Complex Act Perfectives, while higher token frequencies correspond to Natural Perfectives ($p<0.05$).

These results indicate that higher token frequencies reflect a higher degree of lexicalization in simplex predicates and a higher degree of grammaticalization in complex predicates. High token frequencies of Prefixed Imperfectives and Perfectives Without Verbal Root suggest their high degree of entrenchment and contrast with less lexicalized New Prefixed Perfectives. As would be expected of more grammaticalized forms, Natural Perfectives demonstrate higher token frequencies than Specialized Perfectives and Complex Act Perfectives. The overall patterns of token frequencies of predicate types reveal distinct stages of lexicalization and grammaticalization.

4.2. THE DEVELOPMENTAL CONTINUUM. The semantics and distributional patterns of complex and simplex predicate types indicate that aspectual prefixes show different degrees of grammaticalization and lexicalization, respectively. Furthermore, the variation in token frequencies and the semantics of aspectual prefixes in complex and simplex predicate types suggest that grammaticalization and lexicalization processes are gradual. Although this study employs semantic categorization to identify major stages on the path of development of aspectual prefixes, it argues that both grammaticalization and lexicalization processes in aspectual prefixes form a continuum. As can be seen in 4, the semantics of prefixes is gradient and shows variation in their semantic contributions to predicates.

The Natural Perfective in 4 is clearly derived from the aspectual prefix *za-* and the simplex predicate *platit* 'to pay'. Although the prefix *za-* does not seem to add any lexical properties besides its grammatical function, its original meaning 'for' is transparent in the formation of the Natural Perfective. The notion that one 'pays for' something clearly follows the grammaticalization processes that lead to the development of a Natural Perfective. Although *zaplatit* 'to pay' is a Natural Perfective due to the degree of entrenchment of the predicate construction and its frequency in the lexicon, the example demonstrates the gradient nature of lexical properties in the semantics of aspectual prefixes.

GRAMMATICALIZATION AND LEXICALIZATION CONTINUA. The semantics and distributional patterns of complex predicate types indicate that aspectual prefixes in Natural Perfectives are more grammaticalized than Specialized Perfectives and Complex Act Perfectives. In order to map the development of aspectual prefixes, this section presents grammaticalization and lexicalization continua as unidirectional paths that show PP types in relation to their proposed stages of development.

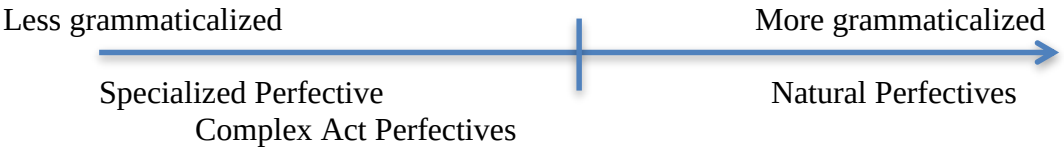

FIGURE 2. Grammaticalization Continuum in Complex Predicates

Figure 2 illustrates the unidirectional path of grammaticalization of aspectual prefixes with highly frequent Natural Perfectives on one end of the continuum and Specialized Perfectives with concrete lexical prefixes on the other end of the continuum. The token frequencies of Complex Act Perfectives suggest that they occupy a similar spectrum of the aspectual continuum

as Specialized Perfectives. The patterns of distribution of Complex Act Perfectives suggest that they are less grammaticalized than Natural Perfectives.

The distributional patterns of simplex predicates indicate that Prefixed Imperfectives and Perfectives Without Verbal Roots are more lexicalized than New Prefixed Perfectives. Furthermore, the semantic and distributional properties of simplex predicate types suggest that lexicalization processes are unidirectional, as was shown for grammaticalization processes in complex predicates.

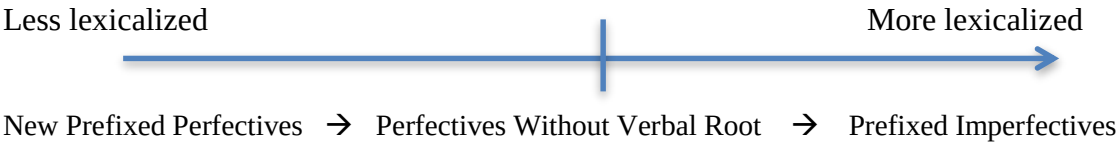

FIGURE 3. Lexicalization Continuum in Simplex Predicates

The unidirectional path of lexicalization processes is illustrated in Figure 3. The lexicalization processes that are apparent from the semantic and distributional analyses suggest that New Prefixed Perfectives present lower stages of lexicalization as opposed to Prefixed Imperfectives and Perfectives Without Verbal Roots, which display more advanced stages of lexicalization. Although more lexicalized predicate types of simplex predicates appear to have similar distributional properties, the default imperfective semantics of Prefixed Imperfectives suggest that they undergo additional derivational processes.

MAPPING GRAMMATICALIZATION AND LEXICALIZATION PROCESSES. Identifying distinct developmental stages of complex and simplex predicates on the grammaticalization and lexicalization continua allows for a more elaborate mapping of the PP predicate types in relation to each other. The following graph in Figure 4 illustrates how grammaticalization and

lexicalization processes are assumed to interact in the development of aspectual prefixes in Czech.

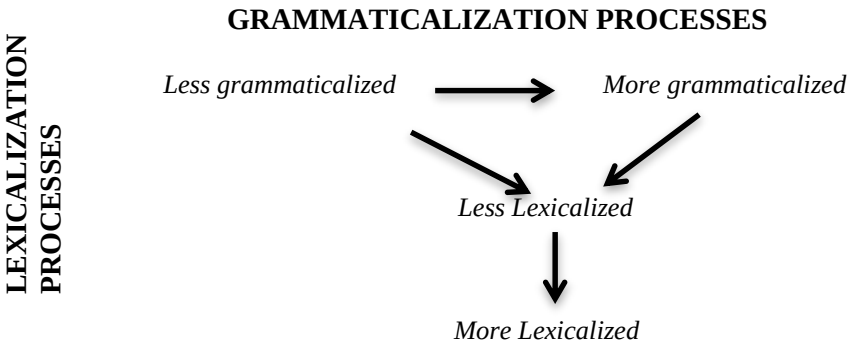

FIGURE 4. Continuum of Grammaticalization and Lexicalization Processes

The distribution of simplex predicates in the data sample suggests that lexicalization processes are characteristic of predicates of high token frequencies and are independent of their degree of grammaticalization. Although high token frequencies are representative of more grammaticalized complex predicates, this paper argues that lexicalization processes are not dependent on the degree of grammaticalization of predicates but on high token frequencies of predicates in the corpus. Figure 4 illustrates this point by drawing unidirectional arrows from both 'ends' of the grammaticalization continuum (i.e. *less grammaticalized* and *more grammaticalized*) to the less lexicalized end of the lexicalization continuum. The directions of arrows symbolize the unidirectional processes in grammaticalization and lexicalization. Less lexicalized predicates may undergo advanced lexicalization processes.

The development of aspectual prefixes is best explained by their occurrence in predicate types as they are representative of different stages of grammaticalization and lexicalization. PP predicate types can be mapped onto the grammaticalization and lexicalization continuum laid out

in Figure 4. The relation between predicate types and the proposed developmental path of aspectual prefixes can be mapped onto the unidirectional processes, as illustrated in Figure 5.

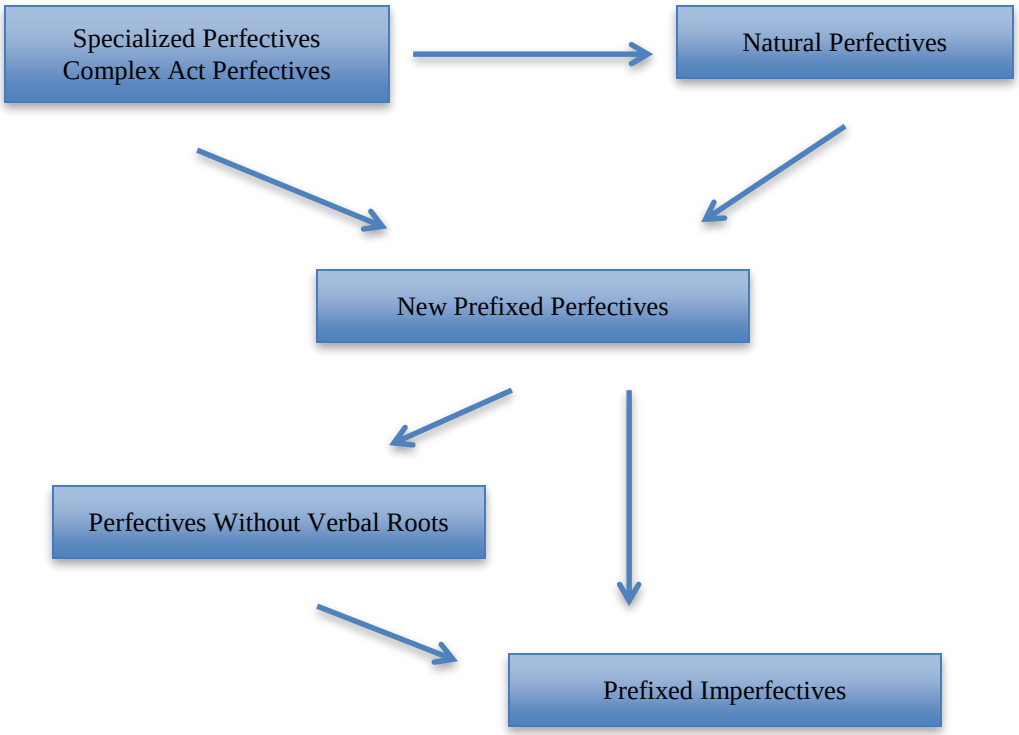

FIGURE 5. Path of Development of Aspectual Prefixes in PP Constructions

The graph in Figure 5 shows the unidirectional path of grammaticalization which has two distinct stages that contain less grammaticalized complex predicates, i.e. Specialized Perfectives and Complex Act Perfectives, on one end of the spectrum and more grammaticalized complex predicates, i.e. Natural Perfectives, on the other end of the spectrum. High token frequencies of complex predicates allow for lexicalization processes to take place, which first lead to the formation of New Prefixed Perfectives and may advance to Perfectives Without Verbal Roots or Prefixed Imperfectives. Lexicalization processes in Figure 5 illustrate that Prefixed Imperfectives can be formed from New Prefixed Perfectives or Perfectives Without Verbal Roots. Although most Prefixed Imperfectives in the data sample have limited references to the base verb from

which they originally developed, some have compositional transparency, similar to New Prefixed Perfectives. Thus, the present analysis argues that Prefixed Imperfectives undergo advanced lexicalization processes in simplex predicates, i.e. New Prefixed Perfectives or Perfectives Without Verbal Root, of high token frequencies. Both unidirectional arrows originating from New Prefixed Perfectives and Perfectives Without Verbal Root present possible lexicalization processes that involve semantic reanalysis that led to the derivation of Prefixed Imperfectives. Low type frequencies of predicate types that are associated with the highest stages of lexicalization attest to the relatively rare occurrence of such processes in the lexicon.

The following discussion of predicate type frequencies with individual aspectual prefixes corroborates this hypothesis and further develops the assumption that prefixes are at distinct developmental stages.

5. DISTRIBUTION OF PREDICATE TYPE FREQUENCIES WITH ASPECTUAL PREFIXES. This section discusses the patterns of distribution of predicate types with four aspectual prefixes *za-*, *po-*, *na-*, and *do-*. It proposes that type frequencies of predicates with aspectual prefixes reveal distinct grammaticalization and lexicalization processes.

PREDICATE TYPE	Number of Tokens				
	PO-	ZA-	NA-	DO-	TOTAL
Prefixed Imperfective	9	2	0	3	14
Perfective Without Verbal Root	5	4	3	1	13
Natural Perfective	12	12	17	0	41
New Prefixed Perfective	16	13	12	25	66
Specialized Perfective	6	13	18	21	58
Complex Act Predicates	4	6	0	0	10

TABLE 1. Distribution of Prefixes in Predicate Types

The analysis of the distribution of prefixes in predicate types in Table 1 suggests that prefixes *za-* and *po-* are semantically most productive in the data sample. Both prefixes occur in simplex as well as complex predicates. The frequency of predicate types with *za-* and *po-* in the corpus correlates with the varying degrees of grammaticalization and lexicalization in predicate types. Considering that only a small number of PPs undergo more advanced lexicalization processes, Prefixed Imperfectives and Perfectives Without Verbal Roots have lower type frequencies in the data sample in comparison to New Prefixed Perfectives. Although New Prefixed Perfectives are hypothesized to have undergone lexicalization processes, they display distinct distributional patterns in the lexicon. As opposed to PIs and PWVRs, they are less lexicalized, and thus have higher type frequencies in the data.

The relatively high frequency of Complex Act Predicates with the prefix *za-* and *po-* is associated with their semantic properties, i.e. the meaning of ingression with prefix *za-* and delimitative semantics with prefix *po-* (Dickey & Hutcheson 2003:23-24). The distributional analyses did not find *na-* or *do-* to be productive in the formation of Complex Act Predicates in the given data sample.

The distributional pattern of the prefix *na-* demonstrates lower degrees of lexicalization. Although the semantic analysis provides evidence that *na-* occurs in both simplex and complex predicate types, *na-* does not occur in Prefixed Imperfectives. The absence of Prefixed Imperfectives in the data sample suggests that *na-* has different patterns of synchronic layering from *za-* and *po-*. This variation is assumed to be the result of *na-* predicates being in a different stage of lexicalization. Since Prefixed Imperfectives are hypothesized to have originated during the last stages of lexicalization, their absence in the distribution of predicate types with *na-* suggests that the prefix is less lexicalized than *za-* and *po-*. The absence of Complex Act

Predicates is not given any major implications since only a limited number of prefixes yield the formation of Complex Act Predicates in Czech.

Predicate types with *do-* show distinct patterns of distribution along the grammaticalization and lexicalization continuum. The overwhelming number of Specialized Perfectives and New Prefixed Predicates presents a new pattern of distribution that is not found with the other three aspectual prefixes in this study. The absence of Natural Perfectives and a high type frequency of New Prefixed Perfectives suggest that lexicalization processes are dominant in the distribution of perfective predicates with *do-*. Moreover, the presence of all types of simplex predicates confirms that lexicalization processes are not dependent on grammaticalization processes. The patterning of *do-* with simplex predicate types suggests that lexicalization patterns are not related to any specific complex predicate type (i.e. Natural Perfectives, Specialized Perfectives, or Complex Act Perfectives). Instead, they are related to high token frequencies in the corpus. Thus, high token frequencies of all complex predicates can yield lexicalization processes.

6. PATH OF DEVELOPMENT. The data analysis provides strong evidence that, although aspectual prefixes develop along the same path, they reflect different stages of development. As discussed above, the distributional patterns of predicate types in aspectual prefixes suggest that they occupy different portions of the grammaticalization and lexicalization continuum.

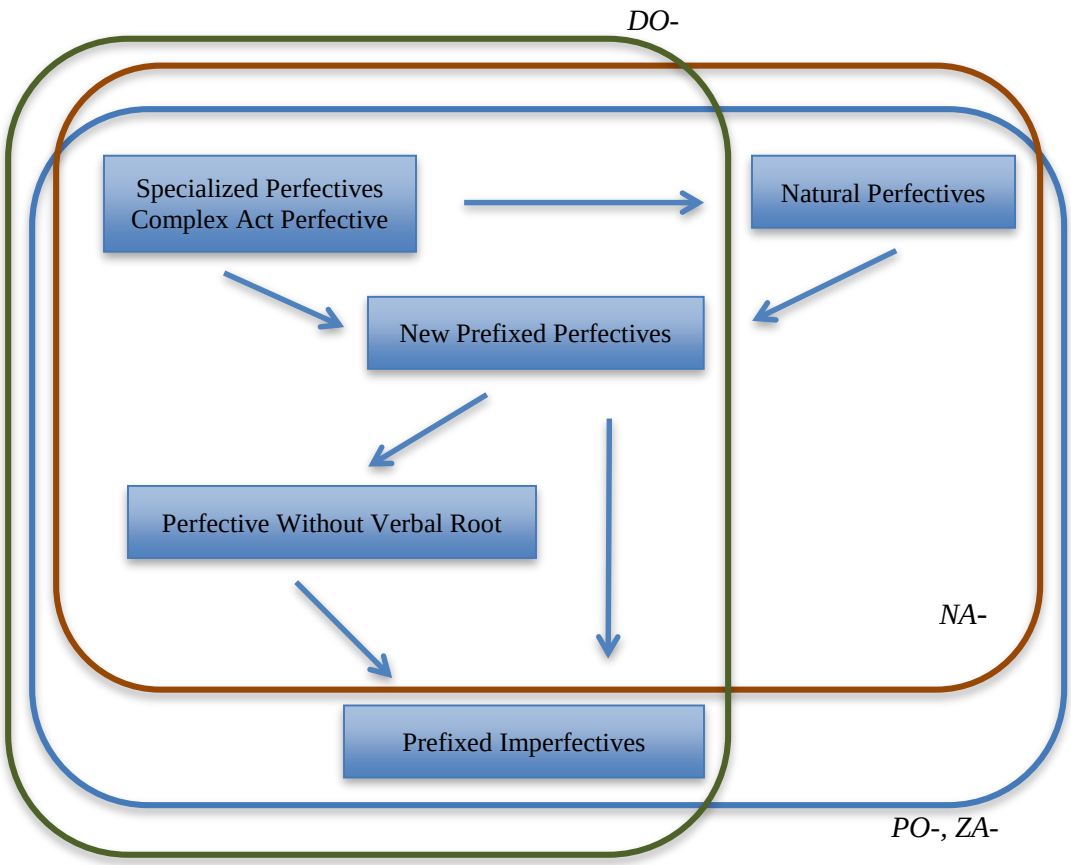

FIGURE 6. Mapping the Distribution of Aspectual Prefixes onto the Path of Development

Figure 6 illustrates the different stages of development that each aspectual prefix occupies on the path. It demonstrates that more developed aspectual prefixes occupy all spectrums of the grammaticalization and lexicalization continuum, while less developed prefixes either display lower degree of lexicalization or lower degree of grammaticalization. Specifically, *na-* and *do-* are less developed than *po-* and *za-*. *Na-* exhibits a lower degree of development because it does not favor the formation of Prefixed Imperfectives, which indicates a lower degree of lexicalization. *Do-* also exhibits a lower degree of development but presents different patterns of

distribution than *na-*. It does not form Natural Perfectives, which indicates a lower degree of grammaticalization.

The mapping of prefix distributions on the path of development presents evidence that prefixes develop along a continuum of grammaticalization and lexicalization processes. It confirms that there is a general path of development of aspectual prefixes that relates to their lexical and grammatical properties, instantiated by specific predicate types. Predicate types exhibit semantic properties characteristic of different stages of development.

7. CONCLUSION. This study analyzed four aspectual prefixes in Czech: *za-*, *na-*, *po-*, and *do-* in order to establish a semantic classification of predicate types in which these prefixes occur. The semantically defined predicate types were used to conduct a distributional analysis of predicate type and token frequencies in the Czech National Corpus and to make conclusions about the developmental stages of aspectual prefixes.

The present paper shows that aspectual prefixes in Czech exhibit different degrees of grammaticalization and lexicalization in Prefixed Perfective predicate types. It provides evidence that predicate types have distinct patterns of distribution and that their distribution is representative of varying developmental stages in relation to grammaticalization and lexicalization processes. Furthermore, the distribution of predicate types provides evidence of synchronic layering of aspectual prefixes and indicates that their development followed a common path that can be mapped onto predicate types.

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How similar are Dene languages?

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ABSTRACT. Dene is a family of languages spoken over a wide area of western North America, stretching west from northern Canada to the coast of Alaska and south to the Mexican border. Despite the distances between groups of speakers and substantial cultural diversity, Dene languages share grammatical similarities and widespread patterns of cognation. The grouping and classification of Dene languages, however, remains a long-standing problem. To achieve insight into the historical relationships among Dene languages, we propose the use of quantitative methods capable of discerning group structure in large bodies of data, such as clustering and multi-dimensional scaling. We apply these methods to a sample of 46 Dene languages and dialects. Since the fact of language relatedness is beyond question and the focus of interest is on degrees of relatedness, we use a sample of three semantic domains of human anatomy, mammals, and insects, instead of lists of purported universal meanings.

Keywords: Dene, dialectometry, classification, clustering.

1. INTRODUCTION. Dene or Athapaskan languages have long been understood to belong to a single, geographically dispersed, language family. The connection between Dene languages, and the languages Haida and Tlingit was formally proposed by Sapir (1915), who also suggested the name Na-Dene. There is considerable literature on Dene language chronology and reconstructions of Proto-Dene (see for example Dyen & Aberle 1974, Hoijer 1956, Kroeber 1959) and also on the extension into the larger Na-Dene and Dene-Yenisean families (Enrico 2004, Kari & Potter 2011). The attention devoted to these deep connections, while worthwhile and important, has meant that internal relationships within the Dene family have received less attention. The last concerted effort to produce an internal classification of the Dene languages was carried out by Hoijer (1963), who found that the sound correspondences exhibited by different groups did not render the kinds of distinction necessary for the construction of a phylogenetic tree. Hoijer was only able to distinguish a group of Dene languages in the southwestern part of the United States, the Apachean languages. These languages were geographically isolated, and at a great distance to the other Dene languages spoken in present-day Canada, Alaska, California and Oregon. Especially in Alaska and Canada, phonological differences appear to result from "areal diffusion of separate innovations from different points of origin" (Krauss & Golla 1981:68). This has led to a situation in which each Dene-speaking community is a "unique conglomerate" (ibid). As a consequence, the classification of Dene languages into sub-groups has been carried out predominantly along geographical divisions (Mithun 1999). Indeed, highest-level language groupings for the Dene family tend to be based on the three most salient geographic locations in which these languages are spoken: the Northern Dene (Alaska, Northwestern Canada), Pacific Coast Dene (Oregon, California), and Southern Dene (predominantly in Arizona and New Mexico, and to a lesser extent in the adjoining states).

While the last of these groups, generally referred to as Apachean, can be grouped according to the traditional historical linguistic criteria of shared sound changes and retentions (Hoijer 1938), it presents the lone exception in a family where patterns of sound correspondence cross-cut each other, in a manner extensive enough to obscure evidence of phylogenetic branching. Leading scholars, such as Michael Krauss and Victor Golla (1981) have come to the conclusion that the historical signal is so distorted that the possibility of identifying linguistic groupings above the level of individual Dene languages is near impossible.

These difficulties in classification have been postulated to result from sustained dialect admixture, especially among the northern Dene languages, spoken in Alaska and the Canadian Interior (Krauss 1973, 2005, Krauss & Golla 1981), which are subject to constant and dynamic interactions (Krauss 2005:118). Rejecting even the future possibility of the discovery of synapomorphic patterns capable of producing clearly defined phylogenetic branches, Krauss has suggested that the *Stammbaum* (phylogenetic tree) model cannot adequately capture the reality of Dene language history: "… it is fully to be expected that virtually the only meaningful internal relationships will be those which can be shown far better in terms of isogloss maps than by any other means" (1973:949). While we do not want to go quite that far, we accept Krauss' suggestion and follow the spirit of his idea in this comparative study of Dene lexical items. In fact, at an earlier point in his career, Krauss (1964:120) was convinced that it was possible to classify the Dene languages: "Further progress in classification will require careful study of the chronology of phonological changes in the sorting of inherited and diffused phenomena, collated with morphological, lexical, and ethnographic data." We wholeheartedly agree with Krauss' hypothesis here, and argue that with the modern methods of dialectometry and the advances in

the lexicographic description of Dene languages, the time is ripe for a fresh attempt to classify the Dene languages.

Our approach is to suspend the search for further and more telling sound correspondences, and instead address the question of language classification from the perspective of the phonological character of different languages based on aggregate measurements of individual phonological strings. We reinterpret Krauss' suggestion in light of new understandings of dialectal relationships and especially new research on quantitative dialectology known as DIALECTOMETRY (Goebl 2005). Krauss essentially advocates a dialectological approach in pointing out that language relationships may be identified through isoglosses, but fails to describe how language areas or groupings can emerge if isoglosses are not found to coincide. This problem, the identification of groupings in the case where isoglosses delimit non-commensurate areas, can be tackled through the use of aggregates of dialect features rather than individual features (Wieling & Nerbonne 2015). Even more precise assessments of language grouping can be obtained through numerical measures of phonological distance between dialects. We, therefore, follow through on Krauss' suggestion by implementing a dialectometric approach to the estimation of similarity among Dene languages. The dialectometric approach has several distinct advantages. Firstly, it produces information on the structure of internal groupings of Dene languages in a manner that goes beyond the predominantly regional arrangement of Dene languages that dominates current classificatory thinking in the field (Goddard 1997, Mithun 1999). Secondly, dialectometry relies on well-understood and easily accessible techniques, such as clustering, allowing for the results to be readily replicated.

The classification of Dene languages is an important part of the study of Dene (pre)history. The larger undertaking of tracing the history of Dene-speaking peoples is an

inherently interdisciplinary endeavour, also involving archaeology and anthropology, but one in which linguistics has a special place. Linguistic information is particularly important because the large geographic spread and non-contiguous nature of the Dene language communities results in a wide range of cultural diversity. Traditional means of clothing production, methods of subsistence, and housing vary tremendously, making it difficult to associate disparate Dene peoples on the basis of social and material culture. In fact, Dene peoples have shown a particular propensity to adopt the cultural practices of their geographic neighbors (Ives & Rice 2008). Despite cultural adaptations and geographic non-contiguousness, Dene speakers have retained a remarkable level of language similarity, sharing easily discernible grammatical structures and widespread patterns of cognation (Rice 2012). Thus, the social and material culture of Dene-speaking peoples are varied and do not indicate a common origin. In contrast, the linguistic data provide a strong indication of historical association, and the actual membership of individual languages in the family is beyond dispute.

The special place of linguistics in the study of Dene (pre)history emerges from these facts. This behooves us, as linguists, to present research results in a manner that speaks to the interdisciplinarity of these research questions. We therefore present our results in diagrams and maps that, we hope, allow for an intuitive understanding of the complex linguistic data that underlie them. *Gabmap* is a research tool which allows us to plot our data onto geographic maps annotated with information regarding the nature and strength of the relationship of the represented languages. We consider the results of these classifications as a temporary stepping stone to a fuller understanding of Dene cultural and linguistic history, which we believe will ultimately be attained through the conjunction of research in linguistics, archaeology, ethno-history, and anthropology. Therefore, we are advocating two kinds of transparency: firstly, a

transparency of data and methods to achieve a more open research process inclusive of all scholars of Dene, inside and outside of academia, and, secondly, a transparency across fields that aims to make itself understood to related disciplines.

In the following section we describe our methods in more detail. This is followed by a discussion of the sample, which requires special merit. We conclude with a discussion of the results.

2. METHODS. Each of the languages is represented by an ordered list of phoneme strings encoding individual referents. The similarity of languages to each other is estimated on the basis of a numerical measure of the similarity between phoneme strings encoding the same referent-concepts in different languages. The algorithms used for this are implemented in the software Gabmap (Nerbonne et al. 2011), freely available over the Internet.

Similarity of phoneme strings is operationalized by means of the simple LEVENSHTEIN DISTANCE. This is a measure of the distance between two words informally defined as the minimum number of single-character edits required to change one string into another phonologically (Sankoff & Kruskal 1983:18). The phoneme strings are aligned so that vowels will be compared with vowels and consonants with consonants. The distance between two strings is then established by comparing each character: if the characters are identical at an aligned location in each of the two strings, the distance will be measured as 0. If the two aligned characters are different, the distance will be measured as 1. Should only a diacritical mark indicating nasalization, tone, length or aspiration (e.g. /t/ vs. /t^h/) distinguish the two characters, the distance will be measured as 0.5. The distance between two strings is the sum of the character distances. So as to compensate for differences in word length, the “distance of each

word pair is normalized by dividing it by the mean length of the word pair" (Nerbonne et. al 1999). In Table 1, two phoneme strings representing the concept 'thumb' are compared in the languages Ahtna and Kaska, and are found to have a Levenshtein distance of 3.5.

Compared referent-concept: 'thumb'							
Ahtna	l	a		kʰ	o	tsʼ	
Kaska (Frances Lake)	l	aː	s	ʧʰ	o	ʔ	
Levenshtein Distance	0	+ 0.5	+ 1	+ 1	+ 0	+ 1	= 3.5

TABLE 1. Measuring the simple Levenshtein distance between two strings

This measurement is taken between every possible pair of referent-concepts. The result is a distance matrix in which each cell lies at the intersection of two languages and contains the numeric distance value between them, as can be observed in the matrix excerpt in Table 2. This matrix serves as the input for the clustering algorithm.

	Deg Xinag	Koyukon	Dena'ina (Iliamna)
Deg Xinag	0	0.387154	0.431306
Koyukon	0.387154	0	0.372488
Dena'ina (Iliamna)	0.431306	0.372488	0

TABLE 2. Excerpt of distance matrix showing aggregate Levenshtein distances between languages

From the matrix of distances, a dendrogram is constructed using hierarchical agglomerative clustering. This is a technique for finding groups in data which does not assume a predetermined number of clusters.[1] This kind of clustering has been shown to be highly sensitive to even small

variations in the data. To find stable results, the clustering procedure is repeated multiple times under varying conditions. Additional variations in the data (noise) are added artificially and the resulting dendrograms are recorded. After 100 repetitions, the likelihood of the repeated emergence of individual clusters can be assigned a percentage value indicating the stability of the cluster. This technique is known as FUZZY CLUSTERING (Nerbonne et al. 2008). Only clusters that appear in 60% or more of the dendrograms are deemed stable and considered further in the analysis below.

Finally, it is worth briefly mentioning how Gabmap handles missing values. This is important, because, as we describe below, Dene languages are often under-described and data availability varies considerable from language to language. Gabmap allows us to capitalize on the available data by drawing comparisons only between available strings. While missing data still lead to a less representative measurement of language similarity, aggregating the results from all available items allows us to achieve the highest possible precision, given the available information. The next section describes the dataset we used in more detail.

3. DATA. This study uses data collected through the database building project the Pan-Athapaskan Comparative Lexicon (PACL). PACL is an interdisciplinary database at the University of Alberta, supervised by Dr. Sally Rice of the Department of Linguistics and Dr. John Ives of the Department of Anthropology. The goals of PACL are: (a) to build a better cross-linguistic lexical set to compare contemporary and historical relations among Dene communities, (b) to make an accessible and hands-on living archive for Dene speakers to assist them in revitalisation work, and (c) to create a framework to help identify converging lines of evidence to answer questions about ancient Dene relations and migrations (Rice et al. 2013).

Currently, PACL entries are collected from dictionaries, unpublished field notes, and other text sources, all of which are publicly available. The accessibility of the data is a point that bears emphasising in the context of Dene historical linguistics, a field in which discussion and research has been marred by general lack of transparency and unavailability of data. This lack can now be amended thanks to the greater ease of access to digitized lexical resources on Dene, especially those resources made available through the Alaskan Native Language Center (2015), as well as more recently published print dictionaries. We hope that this trend continues and want to emphasize that the making public of data and methods has to be the way forward in Dene linguistics, and that the wider involvement of researchers outside and inside of the academia can only be a benefit to the field as a whole.

Each entry in PACL is annotated with as much information from its source as possible and additional labels and notes are made to help with future recall and analyses. To create the larger PACL database, entries are added according to semantically defined domains in order to manage and mitigate the overwhelming task of lexical collection. As we continue with PACL, we will keep incorporating more data to help continuously build a better and more complete picture of Dene language relatedness.

For this study, we used a sample of the larger database, focusing on three semantically defined lexical sets. These included terms referring to parts of the human body, mammals, and insects. These three semantic domains were chosen because they contain terms most frequently available for Dene languages in PACL. This resulted in 5,588 unique phoneme strings, found across 346 referents. Every item has been transcribed from its source's original orthography into International Phonetic Alphabet notation, ensuring proper alignment and distance measurement in Gabmap (discussed in Section 2). An illustration of the database is given in Table 3.

	Referents		
Language	LEG	BEAVER	RABBIT
Ahtna	ʦ'ən	cʰɑʔ	qɑχ
Gwich’in (Tl)	tθ'ànʔ	ʦʰèːʔ	kʷeh
Tanacross	ɣolʔ	ʦʰàʔ	ga
Hare	w'én	sáʔ	kah
Dene Sųłiné	tθ'ĕn	ʦʰá	kah
Witsuwit’en	qʰecən	tsʰɑ	qəχ
Hupa	ʦ'ɪŋʔ	ʧʷaʔ	naːq'ɪtʰahk'ɪɬɪxun
Tolowa	ʦ'eːn	chiːntʰeɬ	gɑːmɑʔʂ
Navajo	ʧáːt	ʧʰaːʔ	kah
Jicarilla Apache	ʧátí	ʧʰɔ́ː	kɔ̃h
Plains Apache	ʤàːh	t'shá	kʰáltsuɻe
Tsuut’ina	wus	ʦʰò	nìtɬ'ótòɣà

TABLE 3. Sample of languages and referents from PACL

Each referent-concept varies in number of total items, meaning that many of the concept lists are incomplete. This is due to two main factors: under-documentation of languages and range of ecosystems. Many Dene languages are moribund or extinct and suffer from under-documentation, and many of the concepts we search for are simply not recorded and are missing from PACL. The other factor which leaves gaps in PACL is the range of ecosystems in which Dene communities are in. For example, the types of mammals and insects found in the Arctic Circle will vary from those in the American Southwest or the Pacific Coast; scorpions and tarantulas are not found in Northern Dene communities and caribou are not found in Apachean or Pacific Coast Dene communities, and thus we do not expect to have entries for the respective languages. However, many of the referent-concepts are shared among all the languages, especially those of body parts, which are semantically more stable (Snoek 2013).

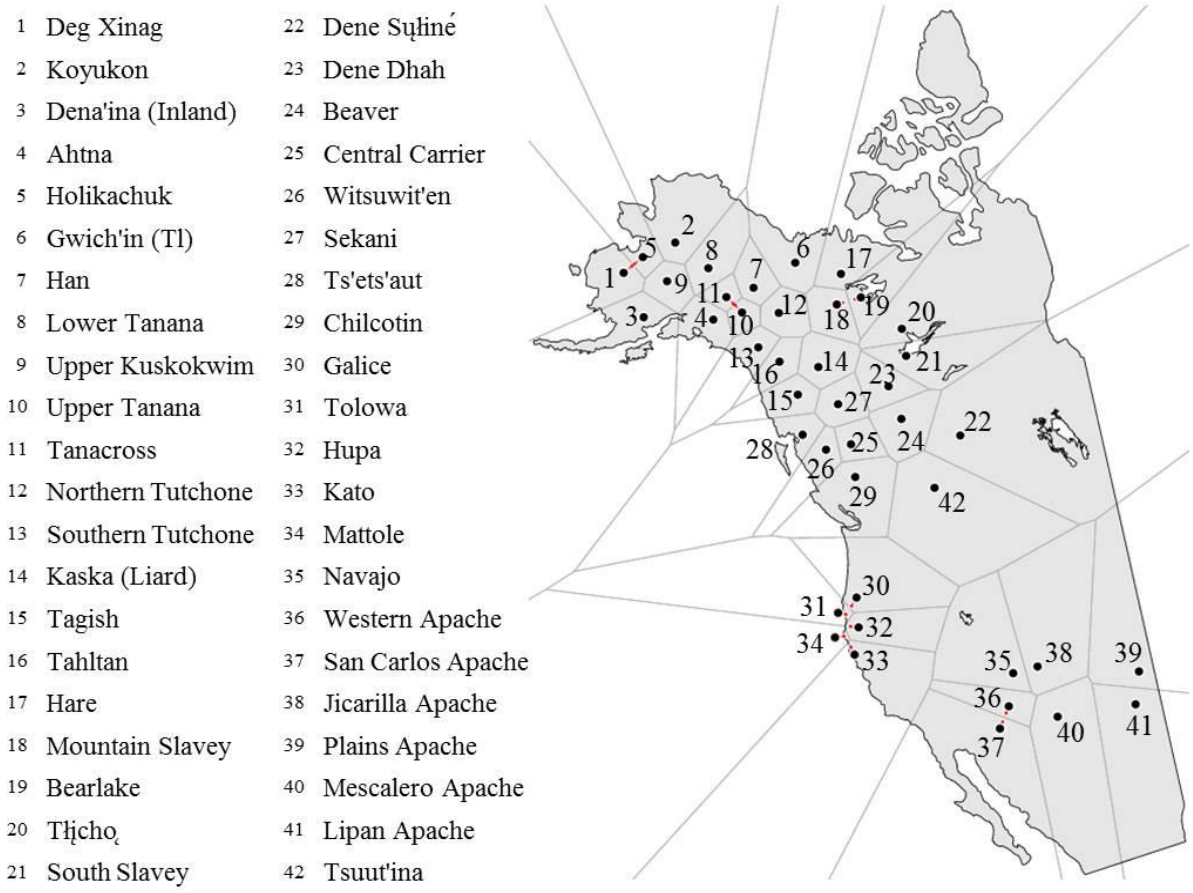

FIGURE 1. Languages sampled with relative location according to Gabmap

The languages covered in this study total 42, representing all the Dene languages for which we have access to sources. Figure 1 is a list of the languages and their relative geographic location. Where there is significant documentation on dialectal variation for one language, we have indicated the dialect in parentheses which represents the language used for this study. Please note in Figure 1 that the boundaries on this map are artificially placed by Gabmap and do not represent real geographic ranges for these languages, while also excluding the locations of many other indigenous languages found in this area.

4. RESULTS. As indicated above, Gabmap was used to calculate language similarity on the basis of the aggregated distances between phoneme strings. Gabmap provides visualizations of these results in the form of cluster dendrograms and maps. The complete dendrogram resulting from the fuzzy clustering is given at the end of this section in Figure 5. In order to make transparent our results, we have chosen to represent the resulting clusters on geographic maps, which are color coded to aid visual identification of the groups and associated regions. Many of the clusters reach stability values that exceed the pre-determined threshold. In Figures 2-4, the numbers above a branch indicate the percentage of times that groupings re-emerged through the fuzzy clustering algorithm. In this section, each of the clusters is described in detail.

As shown in Figure 2, the language cluster formed by Deg Xinag and Holikachuk, Lower Tanana and Upper Kuskokwim, Ahtna, Koyukon, and Dena'ina (Inland) is very stable, with each branch re-emerging 100% of the time. This group of Western Alaskan languages agrees with common geographic groupings; however, Gwich'in and Han, Tanacross and Upper Tanana, and Northern Tutchone are generally associated with the Alaskan grouping (Mithun 1999:344). Through this analysis, they are clustered separately and with relative stability (Figure 2). Northern and Southern Tutchone are generally grouped as two closely related dialects, but according to phonemic differences, they do not fall under a cluster, let alone a similar branch. Southern Tutchone instead forms a close relationship to Tagish. It must be noted however that the latter language is very under-documented, and consequently this grouping must be considered tentative despite the high reliability value. This placement of Tagish contrasts with Rice's classification (in Mithun 1999), where Tagish is placed within the Northern Cordillera Languages along with Tahltan and Kaska. Instead, these last two languages cluster with Sekani; Kaska and Sekani represent a particularly stable cluster, reappearing 100% of the time.

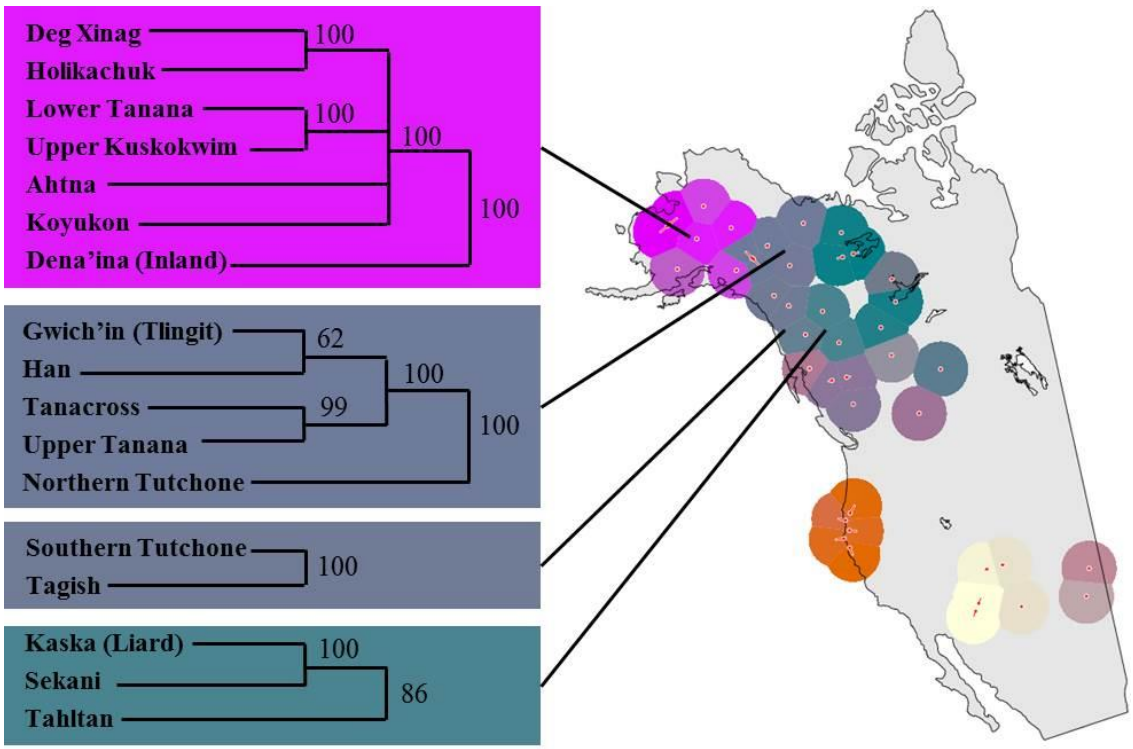

FIGURE 2. Dene languages of Alaska and northern Canada

The languages spoken in the Mackenzie drainage, sometimes identified as the Slavey languages, form a stable cluster within our model, shown in Figure 3. Though the whole cluster is very stable, the relatedness of languages within exhibits a greater degree of variation, only returning with 62% likelihood. Rice argues that these languages, here Bearlake, Mountain Slavey, Hare, Dene Dháh and South Slavey, are best treated as a dialect complex, since there is a 'chain of mutual intelligibility' (1989:9). She also does not consider Tłı̨chǫ (Dogrib) or Dene Sųłiné to be part of this dialect complex (in Mithun 1999), which is in line with our findings. Figure 5 shows that neither of these two languages clusters closely with any other language in the Mackenzie region, though they do show regional association being part of the larger branch in which the other Mackenzie languages are found.

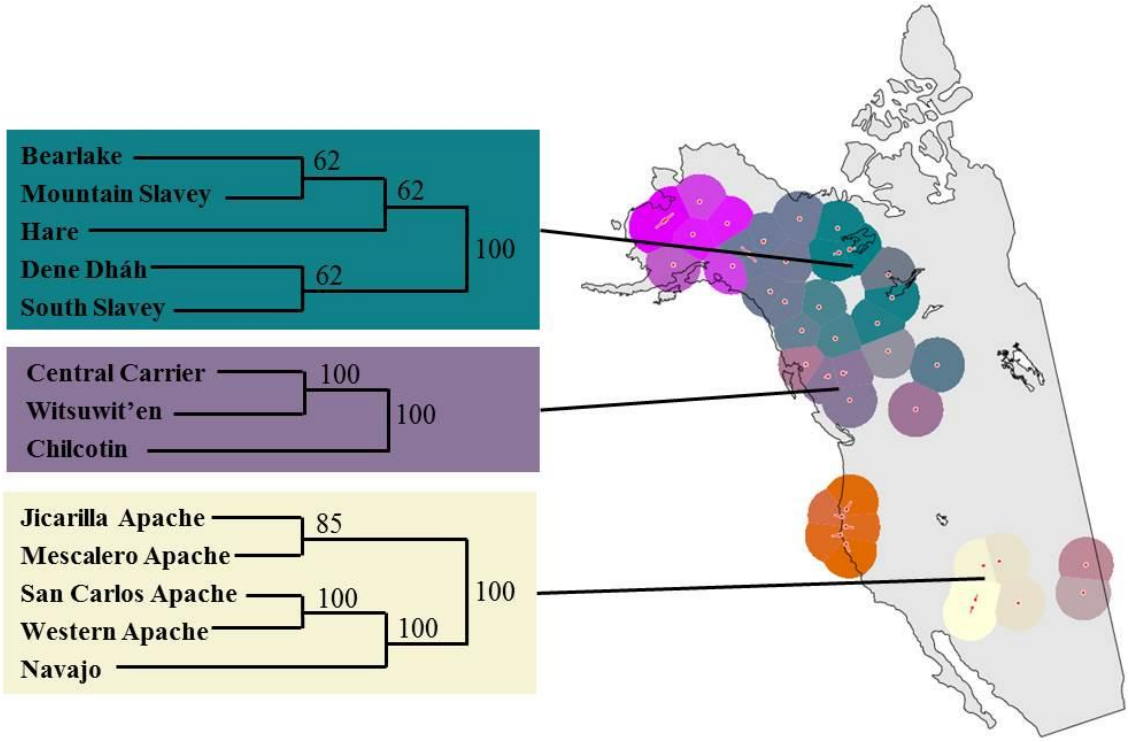

FIGURE 3. Dene Languages of Canadian interior, British Columbia, and the American Southwest

Moving into central British Columbia, Central Carrier, Witsuwit'en, and Chilcotin form a stable cluster (Figure 3), and this follows in line with geographic clustering as well. Nicola, an extinct language that was non-contiguous with the other B.C. Dene languages, is often grouped with these languages, and we are unfortunately unable to test this due to lack of data.

Of considerable interest are the clustering and closest relations of the Southern Dene, or Apachean. As mentioned in the introduction, Apachean languages are the rare exception among the Dene languages, in that they can be grouped according to the traditional historical linguistic criteria of the comparative method (Hoijer 1938), and thus the internal branching of these languages is quite well-established on independent grounds. Shown in Figure 3, our analysis also finds a two-way division among the Southern Dene languages, with Navajo, San Carlos, and Western Apache forming one branch, just as Hoijer had found. The other branch however,

groups Mescalero and Jicarilla Apache, which Hoijer had assigned to different groups. In our estimates, Lipan Apache bears no greater similarity to any of the other Apachean languages, contrary to Hoijer's conclusions, which had placed Lipan closer to Jicarilla. Above these internal sub-groupings, Jicarilla and Mescalero Apache, San Carlos and Western Apache, and Navajo cluster closely and stably as a single branch, which in turn falls under the larger division which includes all Northern Dene groups, except for the Western Alaskan cluster. Lipan Apache does cluster with the aforementioned Southern Dene languages, but falls outside of any close clusters, just like Tłı̨chǫ, Dene Sųłiné, and Beaver (Figure 4). These 'outlier' languages fall under a larger grouping, which also includes the languages spoken in Alaska and the Canadian interior (see Figure 5). While further analysis is needed to produce more precise branching patterns indicative of Northern and Southern relatedness, our results provide good, if tentative, evidence for the association of the Dene languages spoken in the Canadian interior with the Apachean branch.

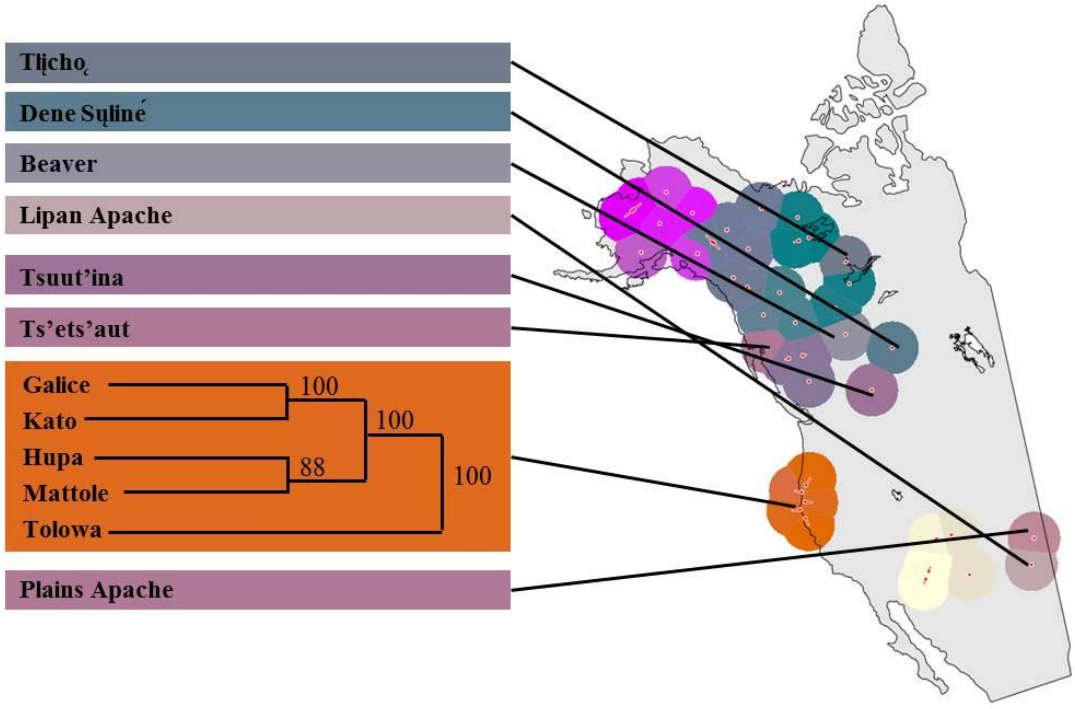

FIGURE 4. Pacific Coast languages and isolates

According to the dendrogram produced through Gabmap, Plains Apache (Kiowa Apache) lies furthest away from all Dene languages, in that sense being as closely related to all languages as other Apachean languages. Geographic groupings often put Plains Apache automatically in with the Apachean cluster, splitting Lipan and Plains Apache into an Eastern branch (Mithun 1999). Bittle argued based on morphological and phonological comparison with Apachean languages that "[Plains] Apache has long been separated from the remaining Apachean languages, and has undergone a separate development" (1956:180), which our phonological comparison concurs with.

Two languages are isolates within the larger cluster uniting all Canadian and Alaskan Dene languages: Ts'ets'aut and Tsuut'ina. Ts'ets'aut, an extinct language whose geographically closest Dene language community was the Tahltan, is most distant from all other Dene languages. Rice placed Ts'ets'aut within the Cordillera with other Northwestern Canada languages, but did not propose any close relations outside of proximity (Mithun 1999), which our results agree with. Tsuut'ina is closer to the remaining languages of this grouping than Ts'ets'aut, but remains otherwise isolated. Many theories have positioned Beaver as the closest linguistic and genetic relation to Tsuut'ina (Dempsey 2001, Goddard 1915, Hoijer 1963, Osgood 1936), though mutual intelligibility between the two is doubted (Cook 1984:2). Though Beaver and Tsuut'ina do not cluster closely together through this study, both appear as outliers, making it difficult to either support or deny hypotheses of their relationship to one another.

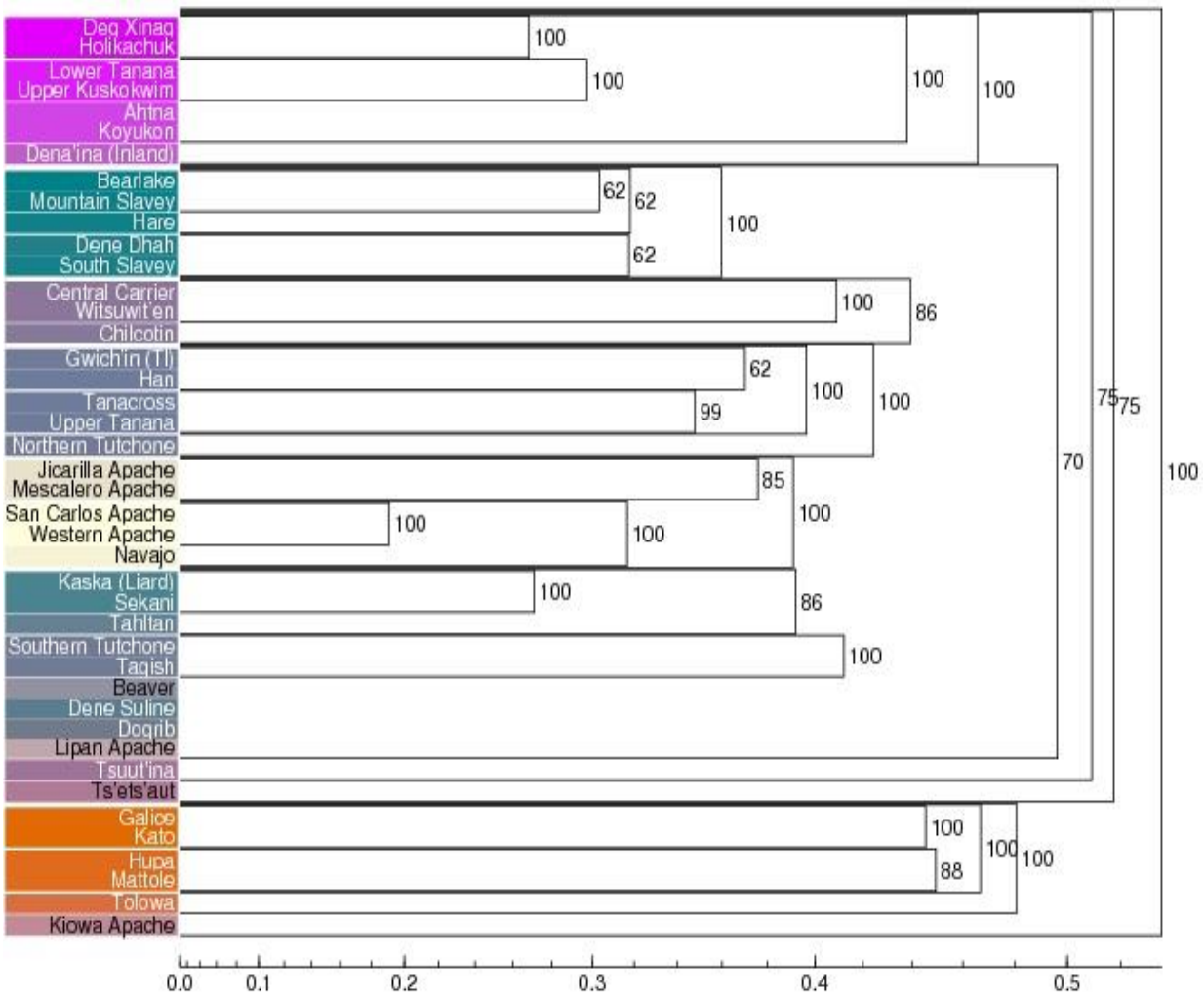

FIGURE 5. Fuzzy cluster dendrogram (the language Tłı̨chǫ appears as Dogrib here)

Finally, the Pacific Coast languages, Galice and Kato, Hupa and Mattole, and Tolowa, form a stable cluster. This Pacific Coast cluster is isolated, representing a group of languages that is not associated with any other branch of the Dene language family.

5. DISCUSSION AND CONCLUSION. The results from the application of dialectometric measurements and methods to the question of sub-grouping among the Dene languages are promising and show that detailed information on language relationships beyond mere regional

association can be obtained through careful sampling and analysis. The branchings and groupings our method uncovered do not represent a radical departure from the current classifications of the Dene Language family, rather, they are distinct in their details. At the present state of knowledge on the Dene language family, it is precisely these details that are missing. However, we do not consider our task completed. Instead, even more careful and detailed analysis is needed. For example, our methods assumed that the terms drawn from different semantic domains can be treated as a uniform source of data, or rather, that our methodology is powerful enough to draw general conclusions from varied data. While this might be true, we intend our future work to test this assumption by comparing clustering results across semantic domains. We are also conscious of the fact that we have included no semantic, syntactic or morphological data in our study, and understand that a fuller picture of the historical relationships among Dene languages will have to include these.

Overall, we hope to have shown the benefit of using published data and replicable methods. By opening the field of Dene historical linguistics to a wider scholarly audience both inside and outside of academic linguistics, we hope to invigorate interest in the field and inspire the kind of detailed etymological analysis which will ultimately be needed for a fuller understanding of Dene linguistic and migratory history.

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[1]There is not enough space to explain the method in detail here. Interested readers are referred to Jain and Dubes (1998) and Jin et al. (1999).

Grammatical constructions, frame structure, and metonymy: Their contributions to metaphor computation

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ABSTRACT. In conceptual metaphor theory, mappings between source and target frames entail relations between roles within those frames. However, the contributing functions of metonymic relations between frame roles and type constraints on those roles – e.g., whether the role is of type Entity or Process – must also be established. These metonymic links and type constraints enable metaphoric conceptualization, as does the particular frame structure of the metaphor's target and source domains. In this paper we use computational implementations of ontological structures developed in Embodied Construction Grammar and our own constructed metaphor repository to explore these relationships. We demonstrate that both role-to-role metonymic relations and type constraints on the roles are important in generating the correct metaphoric interpretation. In this way, the formal treatment of frame-internal and frame-to-frame mappings is brought to the fore in metaphor analysis.

Keywords: metaphor, metonymy, frame semantics, nominal compounds, embodied construction grammar, metaphor identification

1. INTRODUCTION. Consider two lexically and grammatically similar phrases: *pill-popping* and *pill-pushing.* Both involve a physical object ('pill') and a motor action upon it ('popping', 'pushing'). However, the first refers to a physical activity, and the second metaphorically describes the coercive behavior of a drug dealer. Yet, when *pill-popping* is itself embedded in a larger nominal compound – as in *pill-popping epidemic* – it metonymically evokes the larger notion of drug abuse, which is in turn a type of social problem and thus incurs the metaphoric reading SOCIAL PROBLEMS ARE DISEASES. The processes by which both humans and computers can recognize and disambiguate such metonymic and metaphoric language involve the complex interaction of frames, the semantics of elements within those frames, grammatical constructions, and the lexical constructions that respectively evoke and fill them. In the following paper, we illustrate a cognitive linguistic approach to metaphor analysis that emphasizes the critical role of analyzing the internal structure of frames and relationships between frame elements in tackling such complicated challenges as the highly productive English noun-noun compound.

A fundamental tenet of cognitive linguistics is that semantic frames, as defined in Frame Semantics, play a central role as basic units of linguistic analysis, defining and structuring core semantic concepts (Clausner & Croft 1999, Fillmore 1976, 1982). As such, frame structure not only reflects how we conceptualize and reason about the world, but contributes to language at both grammatical (e.g., Goldberg 1995, Östman & Fried 2005) and lexical (Fillmore 1982) levels. As a result, relations both within (metonymy) and between (e.g., metaphor) grammatically and lexically evoked frames play a central role in the way we

comprehend linguistic expression (Dancygier & Sweetser 2014). Contemporary approaches to Conceptual Metaphor Theory (Lakoff & Johnson 1980, 1999) recognize the central role of frame structure in metaphor analysis. However, the explicit contribution of internal frame structure and role relations to metaphor analysis remains an under-explored area of research. In this paper, we present a case study of a commonly-occurring and frequently metaphoric construction in English, the Noun1-Noun2 nominal compound, to illustrate the critical role that frame semantics plays in metaphor. This construction has been well-studied in cognitive linguistic frameworks, and is highly productive in both literal and figurative uses. Crucially, our analysis relies on formalisms developed in the MetaNet project (David et al. 2014, Dodge et al. 2014, 2015) and based on Embodied Construction Grammar (Dodge & Petruck 2014, Feldman et al. 2009).

MetaNet is a metaphor repository and identification system that is based on a union of Conceptual Metaphor Theory, Embodied Construction Grammar, and Frame Semantics. The union of these theoretical approaches and formalisms is justified as follows: conceptual metaphor (CM) is a language-independent cognitive phenomenon, yet it surfaces linguistically in linguistic metaphors (LMs), which are necessarily mediated via grammatical constructions. For example, the LM *depths of poverty* instantiates the CM, POVERTY IS A LOW LOCATION, which is a subcase of a more general metaphor NEGATIVELY EVALUATED STATES ARE LOW LOCATIONS. LMs bring their own constraints to the surfacing of the target and source domains of the metaphor, as is discussed in Sullivan (2007, 2013). For instance, in the above example, the metaphoric variant of the Noun1-of-Noun2 construction has Noun1 as the

source-domain-evoking word and Noun2 as the target-domain-evoking word. This generalization is true of this construction regardless of which lexical units it combines with. The source and target domains in turn constitute specific frames, which reside in intricate hierarchical relational networks, much in the way they have been implemented in FrameNet (Ruppenhofer et al. 2010). Because ECG already provides a good means to encode construction-to-frame relations and model constructional composition, it is a good candidate as a grammatical framework that can incorporate metaphor into grammar.

Part of the scope of MetaNet is the extension of a system as outlined above to a multilingual repository of a semantic network of frames and metaphors in order to support metaphor analysis that is reflective of the specific grammatical constraints typical of different languages (David et al. 2014, Dodge et al. 2014). So far, the system has been extended (with varying degrees of breadth and detail) to English, Spanish, Russian and Persian. While languages may show much grammatical variation, semantically all languages are hypothesized to converge on experientially-derived primary frames (called image schemas or cogs) and primary metaphors (Grady 1997), and diverge on more complex and culturally-specific ones (e.g., Kövecses 2005). Indeed, common image schemas found in all languages are those pertaining to motion, force-dynamics, causation, scalar structure, object manipulation and certain body and perception schemas, such as temperature and verticality (Clausner & Croft 1999, Croft 1993, Talmy 1983, 2003).

In an endeavor to leverage these conceptual primitives to uncover cross- and intra-linguistic commonalities and differences in metaphoric language, the MetaNet system

provides two main components: (1) an analyst-defined frame and metaphor repository, and (2) an automated metaphor extraction pipeline that scans over large corpora to identify and annotate possible linguistic and conceptual metaphors. The second component uses the first in the process of identifying whether a potential LM is metaphoric, and if so, what metaphors from those found in the repository are the most likely candidates as CMs.

The MetaNet approach to metaphor identification and analysis uses a series of constructional patterns that define argument structure relationships in which metaphoric expressions are likely to occur (Croft 1993, Sullivan 2013). For example, as a general property of the metaphoric Noun1(Target)-Noun2(Source) nominal compound construction, the target domain is realized in the first noun, which modifies the second noun where the source domain occurs, as in *drug pusher* or *pill-popping scourge* (note that the nominal slots may be occupied by NPs, not just bare nouns). By making use of these constructional constraints, the automatic metaphor identification system can filter corpora for those collocations likely to contain LMs, and can match the known Target-slots and known Source-slots to their respective candidate lexical units (LUs) in potential LMs.[1] Figure 1 illustrates a schematic metaphoric Noun1-Noun2 construction, and how the components of the construction map to the frame roles belonging to the frames that populate the source and target domains of a metaphor. The “meaning” and “evokes metaphor” fields would be filled with the meaning and metaphor instantiated in a particular construction exemplified by a particular construct, while the schematic representation remains unspecified. Under “meaning constraints”, the meaning of the whole construction is the meaning of the target domain,

while the meanings of its constituent parts (NP1 and NP2) are associated with roles in different frames. These roles are evoked by the noun phrases themselves in the linguistic expression. This representation demonstrates how the MetaNet system uses ECG formalisms to match frame roles to constructional slots and to assign target- and source-domain status to the lexical components of the construction.

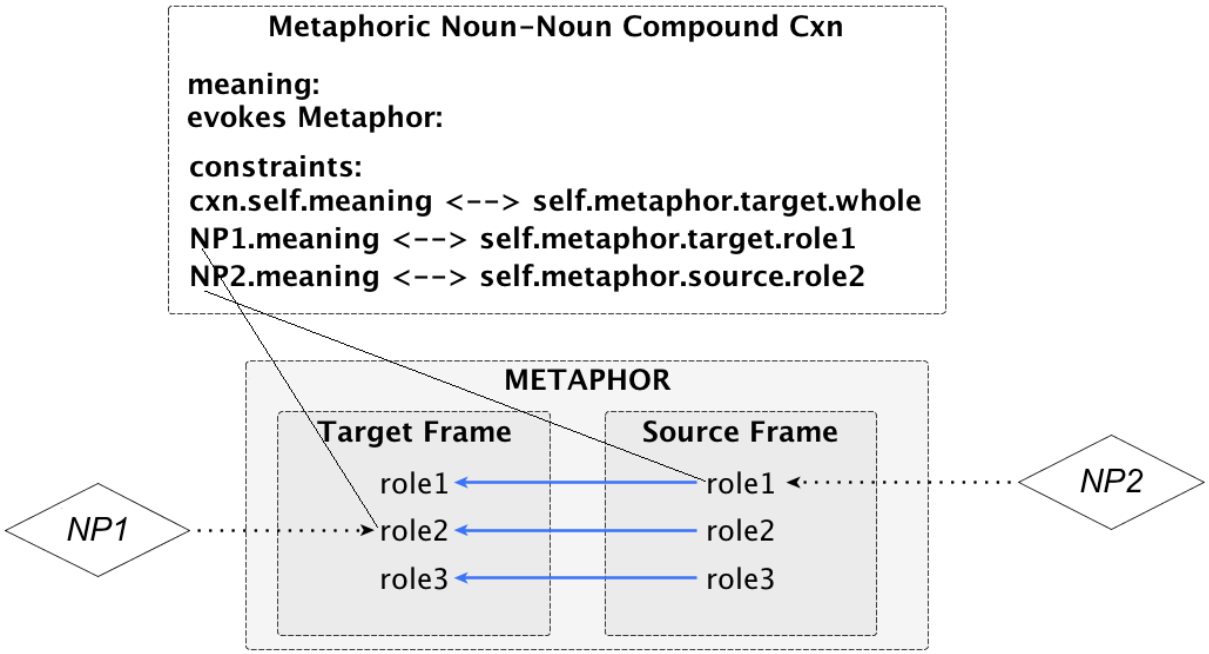

FIGURE 1. Metaphoric Noun1-Noun2 compound construction with bound frame roles evoked by lexical expressions.

We will also show that in addition to the relationship between lexical units and frames, metonymic relations within frames – in which one evoked frame role in turn activates the semantics of another role or of the whole frame – play a major function in metaphoric conceptualization. These metonymic relations commonly come into play when the same expression could have both metaphoric and non-metaphoric readings. For example, *drug*

pusher refers to a drug dealer who encourages a drug addict's addictive behaviors; in addition to literally providing them with drugs, they also metaphorically "push" the addict into drug abuse. Hence, in the metaphoric understanding of *drug pusher*, *drug* metonymically evokes the whole Drug Abuse frame, because it is the drug abuse that is being encouraged, and not the drug itself. Similarly, *pill-pushing* could either be understood as literal caused translational motion (such as pushing a pill across a table), or metaphoric caused translational motion, in which a drug dealer encourages the drug addiction itself; literal pills may or may not even be involved, depending on the drug of choice.[2] Whether a given expression receives a metaphoric or literal interpretation depends not only on context but on the interpretation of the relationship between the lexical items and the frames and roles *within* those frames that they evoke. The particular semantics of the evoked frame roles also contributes to interpretation of the phrase. In the case of literal *pill-pushing*, 'pill' is understood to be a physical object, and 'pushing' evokes a Caused Motion frame, in which an agentive causer acts upon a patientive affected entity (a physical object) and causes it to move. Hence, because 'pill' is a physical object, it aligns with the semantics of the Caused Motion affected role – also a physical object – and thus we can understand *pill-pushing* to refer to physically moving the pill. As we will demonstrate, computational metaphoric identification occurs when the semantics of the elements in the expression evoke frame elements that are incompatible and cannot be interpreted as filling slots in a non-metaphoric construction. In the case of such semantic mismatch, the expression can be understood as metaphoric. Just as

the computational model formalized in ECG strives to reflect human cognitive processes, so too MetaNet reflects a plausible representation of the mechanisms of conceptual metaphor.

In this work, we focus on two types of compounds. The first, such as *pill-popper,* are synthetic or verbal compounds (Lieber 1992, Terasova 2013), which are characterized by the first element being interpreted as the object of the action denoted by the second element; the latter is usually a deverbal noun with inflectional (e.g., *bicycle riding*) or derivational morphology (e.g., *music appreciation*) (Lieber 2010:128). As compounds with deverbal elements, expressions such as *pill-popper* or *drug-pushing* retain the verbal argument structure of verb phrases from which they are composed, but impose additional constructional meanings. The second, such as *drug epidemic,* are primary or root compounds, because the non-head (N1) does not function as an argument of the head.

Both types of compounds are classified as endocentric compounds, because N2 acts as the grammatical head as well as the semantic referent of the whole compound. These endocentric compounds have more constrained semantics than do exocentric nominal compounds, also called 'creative compounds' (Benczes 2006), such as *jailbird* and *muffin top,* because they are constrained by the argument structure and frames evoked by the verbs involved. Exocentric and endocentric compounds interact with metaphor in different ways, and the current analysis focuses on the metaphoric construction specifications of the latter.

Compounds have received attention in cognitive linguistics literature most notably in conceptual integration analyses following the approach of Fauconnier and Turner (1995, 1996, 1998), such as Coulson (2001) and Sweetser (1999), and in Cognitive Grammar

approaches in Langacker (1987, 1990, 1991) and Ryder (1994). Following these traditions, and the insights into compound semantics gleaned from Construction Grammar analyses of compounds (Bundgaard et al. 2006, Onysko 2010, Terasova 2013), the ECG approach taken here assumes that the construction possesses a schematic meaning shared by all specific instances of the construction. Namely, due to their deverbal nature based on transitive verbs, the constructional meaning of the *pill-popper* NN type is grounded in affectedness, as detailed in the discussion of the Caused Motion schema above, whereby N1 is understood as affected by the action in N2. On the other hand, the semantics of the *drug epidemic* NN type is similar to that of domain adjectives, such as *economic collapse,* as discussed in Sullivan (2013). That is, N1 sets up a domain onto which the semantics of N2's frame maps; here, the term *drug* tells us that *epidemic* should be interpreted in the domain of drug use (see also Sweetser 1999 for a comparable discussion of domain profiling and elaboration in adjective-noun compounds). These will be further elaborated upon in the case studies presented below. These constructional meanings would be specified in the meaning slot of the construction in Figure 1.

In section 3, we demonstrate how computational implementations of the ontological structures developed in ECG and the MetaNet repository instantiate frame relationships in metaphoric contexts. ECG is a good framework for this type of formalization because roles are systematically defined within frames, and frames are related to each other in the computational grammar. Further, role-to-role bindings are inherent in the system, and constructional slot matching to source- and target-domain frame roles is possible with the

architecture already in place in ECG. This type of system captures some important components of metaphor cognition – metonymy, role type constraints, and constructional mediation of metaphoric meaning – that any adequate study of metaphor (whether a computational implementation or analysis by a researcher) should account for.

2. FORMALIZATION. In MetaNet, metaphors and frames are organized into a complex lattice-like ontological network. Frames are formally defined according to their frame roles, their relations to other frames, and the lexical units that evoke them. In addition, they are specified for internal inferential structure, such that, for instance, in the Caused Motion frame, we not only know there is a motion causer, a moved entity, and a path of motion, but we also know inferences about their interaction (e.g., once caused to move, the moved entity is no longer in stasis, and will soon reach a goal). Frames are further organized into macro-frame families according to semantically coherent broader domains. Figure 2 shows a frame network for a group of frames in the family of Social Problems. Crucially, this is a partial representation of the frame network; it highlights a small, semantically-related conceptual neighborhood within the broader network. Furthermore, semantic relations between frames are defined in the network as well, although they are not illustrated here.

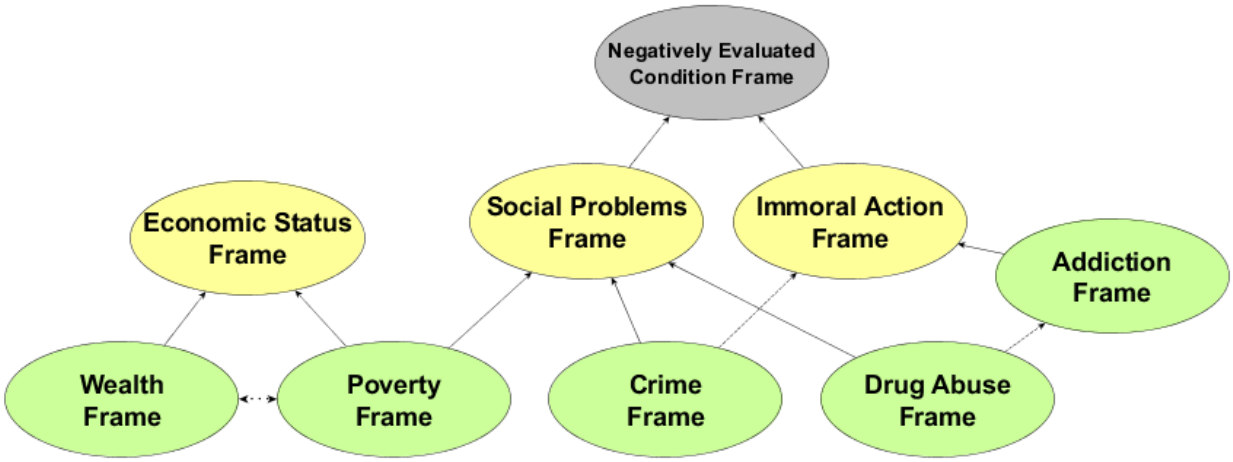

FIGURE 2. Example of a frame-to-frame relation network for Social Problems.

In addition to instantiating the network of frame-frame relations, MetaNet provides detailed representations of frames as well, as driven by their roles in metaphor analysis. Figure 3 is an example of the representation of the structure of two individual frames in the system; a frame is internally-defined with its roles, relations to other frames, assignment to one or more families, and has several inferences defined. Frames contain entity/participant frame elements and process frame elements, which, once a frame is evoked via an LM, are bound appropriately to constructional slots.

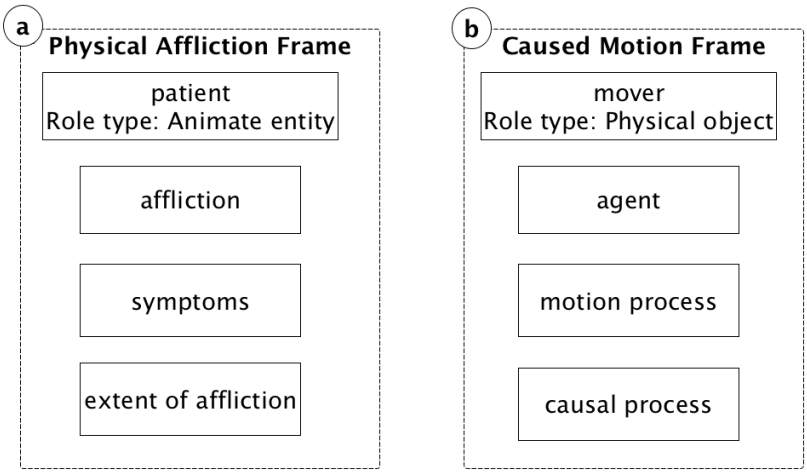

FIGURE 3. Roles within Physical Affliction (a) and Caused Motion (b) frames.[3]

Importantly, in ECG frame roles are assigned semantic *types*. These types are themselves hierarchically-structured frames, such as Entities, as shown in Figure 4.

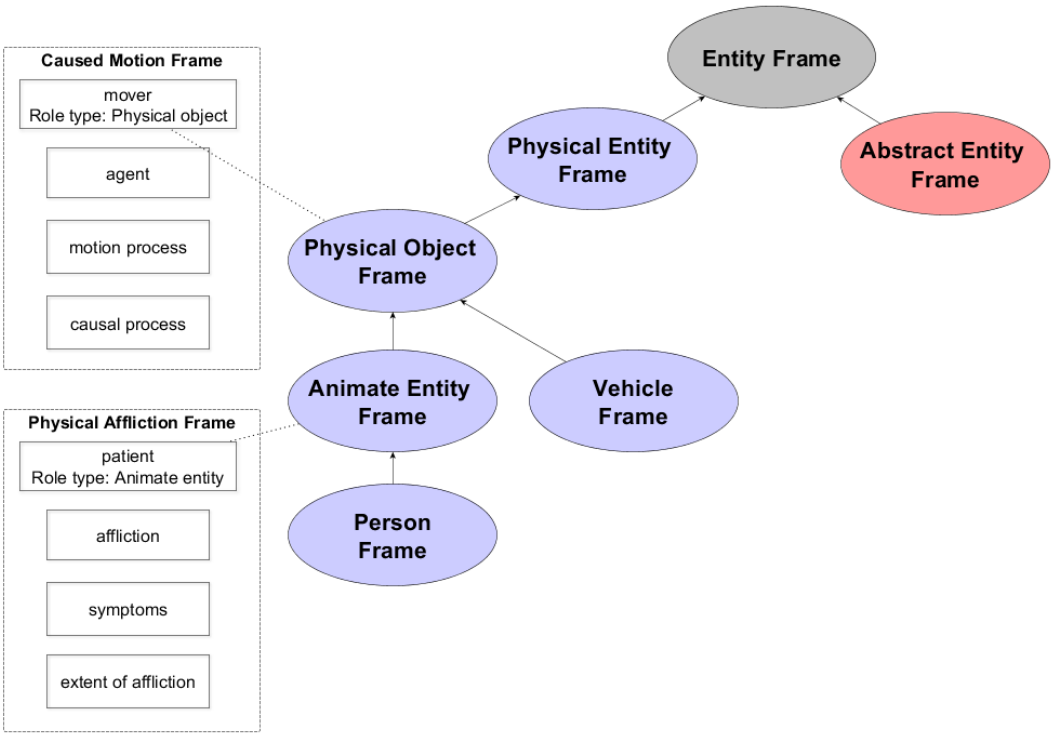

FIGURE 4. Partial illustration of hierarchical relationship between Entity frames; some intermediate frames are not shown.

Depending on the specificity of a frame, an entity role may be type-constrained to, for example, Animate Entity, such as in the Physical Affliction frame as illustrated above in Figure 3a, which requires that the patient role experiencing the physical affliction must be a living thing. Hence, a Vehicle, which does not evoke the semantics of an Animate Entity, cannot fill the patient role of Physical Affliction. We term this semantic violation a *role type mismatch*, in which the semantic type of a potential role-filler is in conflict with the semantic type constraints of the role. In contrast, the Caused Motion frame (Figure 3b) only requires

that the entity undergoing motion (the mover) must be some kind of physical object, and hence that role's type only constrains it to be a Physical Object of some kind. Because Animate Entity inherits from Physical Object, this means that Animate Entities, as well as any other frames inheriting from Physical Object such as Vehicles, may successfully fill the entity role in Caused Motion. These type constraints are in part defined in the grammatical construction: for example, in the ECG analysis of the Caused Motion Construction, the affected entity role, which experiences movement, is constrained to be of type Mover, which must be a physical entity that can undergo motion (Dodge & Petruck 2014). Just as frames are organized into hierarchical conceptual networks, metaphors are also organized as illustrated in Figure 5, with the relationships between metaphors determined by the relationships between their constituent frames.

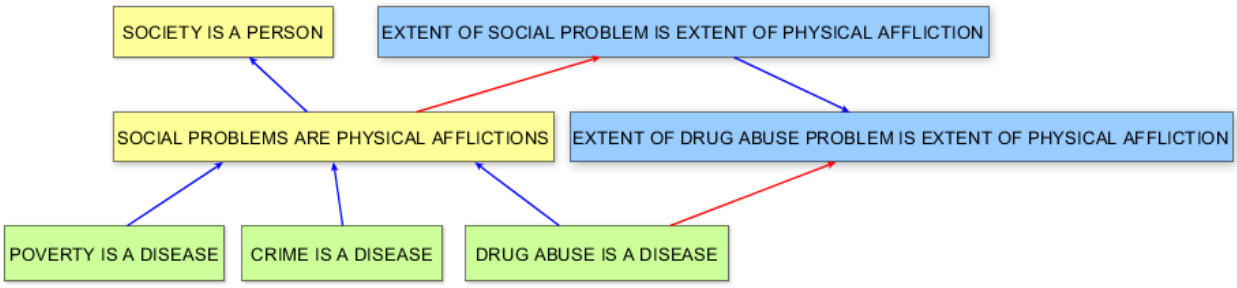

FIGURE 5. Example of a metaphor relation network. [4]

Metaphors are represented as mappings between two frames, which comprise its source and target domains. For example, the metaphor SOCIAL PROBLEMS ARE PHYSICAL AFFLICTIONS relies on the conceptualization of society as a person and therefore could be susceptible to experiencing harm due to an ailment. Inferential structure of the Physical Affliction frame –

such as the understanding that it applies to an animate living entity, causes harm to that entity, and can be potentially alleviated and cured to reduce or eliminate the effects of that harm – is then transferred via the frame-to-frame mapping to the target domain of Social Problems. Furthermore, the individual roles of the frames map onto each other as well, such that society is understood as the entity experiencing harm and the social problem is the physical ailment causing harm.

Crucially, these mappings occur between roles of compatible, but different, semantic types. Entities map onto entities, and processes map onto processes. However, the mapped types differ as to their specifics: for example, in the above metaphor, the society role of the Social Problems frame is an Abstract Entity, whereas the patient role of the Physical Affliction frame is an Animate Entity. Metaphoric interpretation of a linguistic expression occurs when lexical items co-occurring in a grammatical construction evoke semantic types which are incompatible with the role types specified by the construction. Thus, *role type mismatch* enables the metaphoric mapping between the source and target domain roles within the metaphor. In the next section, we provide a case study illustrating the architecture of the frame and metaphor networks, focusing on LMs from the domain of drug use and specifically targeting nominal compound constructions.

3. CASE STUDY. One commonly recurring metaphoric construction in our database is the Noun1(Target)-Noun2(Source) construction, in which the second noun, which specifies for a source domain lexical item, and the first noun specifies for a target domain item. By

constraining a search to lexical units (which may be multi-word NPs) evoking the Drug and Disease Spread frames co-occurring in this constructional pattern, we find such attested instances as *pill-popping epidemic*[5], *pain pill epidemic*[6], *drug abuse plague*[7], and *drug addiction scourge*[8]. In all of these instances, drug abuse is conceptualized as a widespread disease infecting society. While the target domain lexical items directly refer to drug abuse itself, in these contexts they are frequently metonymic for the greater effects of drug abuse as it affects society at large, rather than just the negative effects of drug abuse on the individual addict. The predominant metonymy found is frame metonymy (Dancygier & Sweetser 2014), often in the form of ROOT CAUSE FOR RESULTING EFFECT. Thus, both metonymic and metaphoric processes play a role in the interpretation of these linguistic expressions.

The lexical items related to drug abuse (*pill-popping, pain pill, drug abuse, drug addiction)* evoke the Drug Abuse frame. For example, *pill-popping* evokes the drug taking process, which metonymically activates the whole frame. In these contexts, this use of the Drug Abuse frame not only evokes the notion of Drug Abuse itself, but also its larger effects on society; hence, there is a metonymic instantiation of the Drug Abuse frame, a special case of the more general Social Problems frame; the specific frame only additionally specifies that the particular social issue is Drug Abuse.

Given this metonymic relation, the metaphoric interpretation of a phrase such as *drug abuse epidemic* can be analyzed. In such examples, the social effects of drug abuse are metaphorically understood as a disease infecting society, via the general metaphor SOCIAL PROBLEMS ARE DISEASES. In particular, the source domain lexical units *epidemic, scourge,*

and *plague* profile particular aspects of the Disease scenario frame: namely, the broad extent of the disease, and the fact that it spreads across populations rather than being isolated to individuals. Hence, these lexical items instantiate an entailment of the general metaphor: EXTENT OF SOCIAL PROBLEM IS EXTENT OF DISEASE. Given that the target domain lexical items specify the type of social problem (i.e., 'drug abuse'), this can be refined to EXTENT OF DRUG ABUSE PROBLEM IS EXTENT OF DISEASE.[9]

To see how we can understand drug abuse as an epidemic, we must now consider how the specific internal structure of the linguistically-evoked frames and the constructions in which they occur contribute to metaphoric interpretation. If a Disease-frame-evoking linguistic element fills the second slot in the Noun1-Noun2 (N1-N2) construction, the *literal* N1-N2 construction specifies that the first slot must be occupied by a noun which evokes a frame compatible with the structure of the Disease frame. However, if the discourse context is not Disease-related, when such a compound occurs with a Disease-evoked N2, then it is possible it is rather a realization of the *metaphoric* N1-N2 construction. As such, the N1 will evoke a different, non-Disease frame. In such a case, the semantics of the frame role evoked by the N1 will clash with the semantics of the frame role evoked by the N2. In particular, this clash is reflected in the semantics of the frame roles as determined by their *role type*, as specific varieties of Entity or Process.

We can illustrate this interplay of construction, frame, and metaphor using the example LM *pill-popping epidemic.* Looking first at the source domain of Disease as evoked by *epidemic*, we see that the frame role of the diseased entity has the semantic role type

Animate Entity. This is an Entity frame, which inherits from the Physical Object frame (Figure 4). In contrast, *pill-popping* evokes the Drug Abuse frame via the frame element of the drug-taking process: the process is metonymic for the frame as a whole via part-whole metonymy. In turn, the perspective of Drug Abuse as a Social Problem is metonymically evoked via the relationship between the Drug Abuse frame and the drug abuse problem role within the Drug Abuse as a Social Problem frame. 'Pill-popping' is associated with the mechanistic aspect of taking medicine, and therefore focuses on a scene whereby an individual takes steps to alleviate an ailment. It is therefore perspectivized as a highly individualistic behavior. Nevertheless, the metaphor, evoked via *epidemic*, frames this as a social problem. As Figure 6 shows, the society role in this target domain frame is of semantic role type Abstract Entity. Whereas both Abstract Entity and Animate Entity are Entities, there are specific semantic conflicts between the two. Abstract Entities do not have physical form, and therefore cannot be alive. Thus, this role type mismatch between the diseased entity (Animate Entity) role in Disease and the society (Abstract Entity) role in Drug Abuse as a Social Problem (as metonymically evoked by *pill-popping*) leads to the metaphoric understanding of SOCIETY IS A PERSON. Given that society is construed as a person, it can then be understood as a person experiencing a physical affliction. A social problem that has widespread effects throughout society is understood as a widespread affliction, such as an epidemic or plague that infects a wide area via the entailment EXTENT OF SOCIAL PROBLEM IS EXTENT OF DISEASE, or more specifically EXTENT OF DRUG ABUSE PROBLEM IS EXTENT OF DISEASE. The full analysis is illustrated in Figure 6.

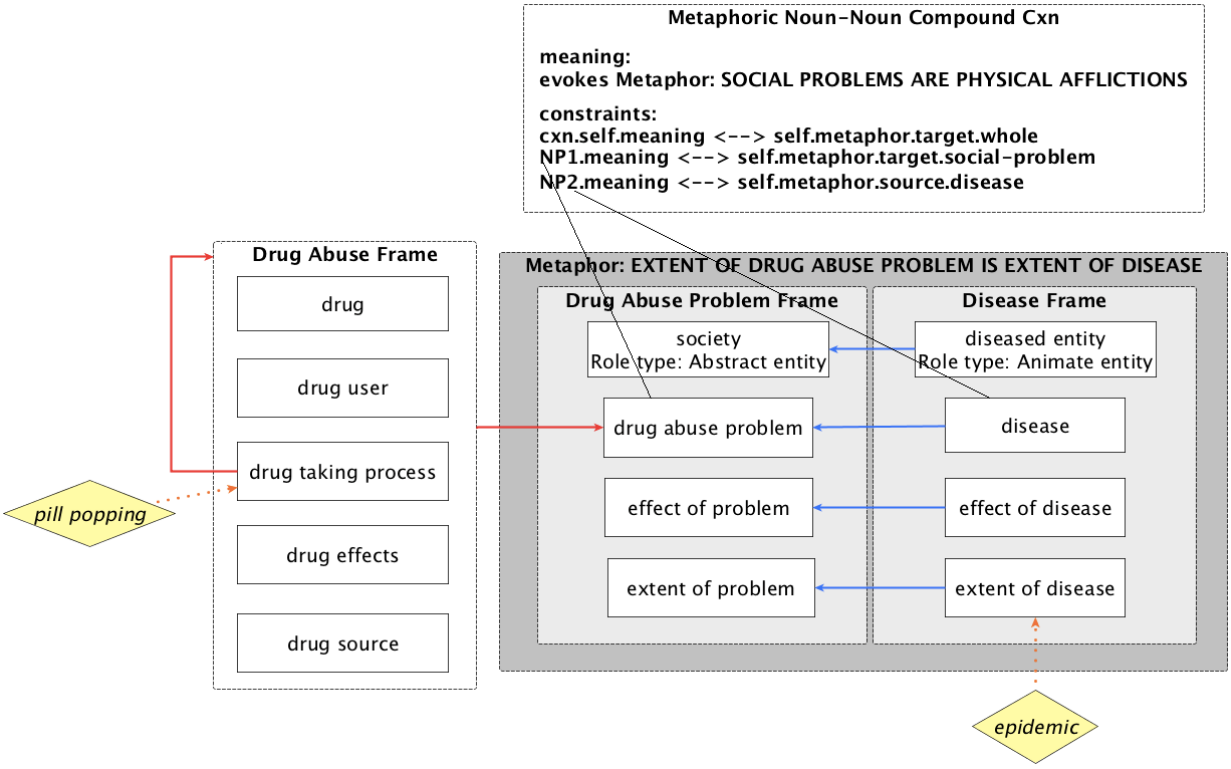

FIGURE 6. Analysis of *pill-popping epidemic*.

Additionally, by contrasting expressions such as *pill-popping epidemic* and *pill-pushing*, we can show how the Drug Abuse frame can also highlight the drug dealer's actions, which in turn has a different set of metaphors. In the target domain, drug consumption/use/abuse on the one hand, and drug dealing/selling on the other, constitute different parts of the social problem, and hence different metaphors are evoked depending on which of those aspects of the target domain is highlighted. Drug use and abuse are problems for the drug-taker or society as a whole, while expressions such as *drug-pusher* lexicalize aspects of the Drug Abuse frame from the supply side. Unlike *pill-popping*, which is strictly metonymic, and only becomes metaphoric when part of a larger N1-N2 compound like *pill-popping epidemic*, *pill-*

pushing is generally metaphoric, evoking the COERCION IS FORCED MOTION metaphor. Figure 7 shows the integration of this metaphor with the same N1-N2 metaphoric construction.

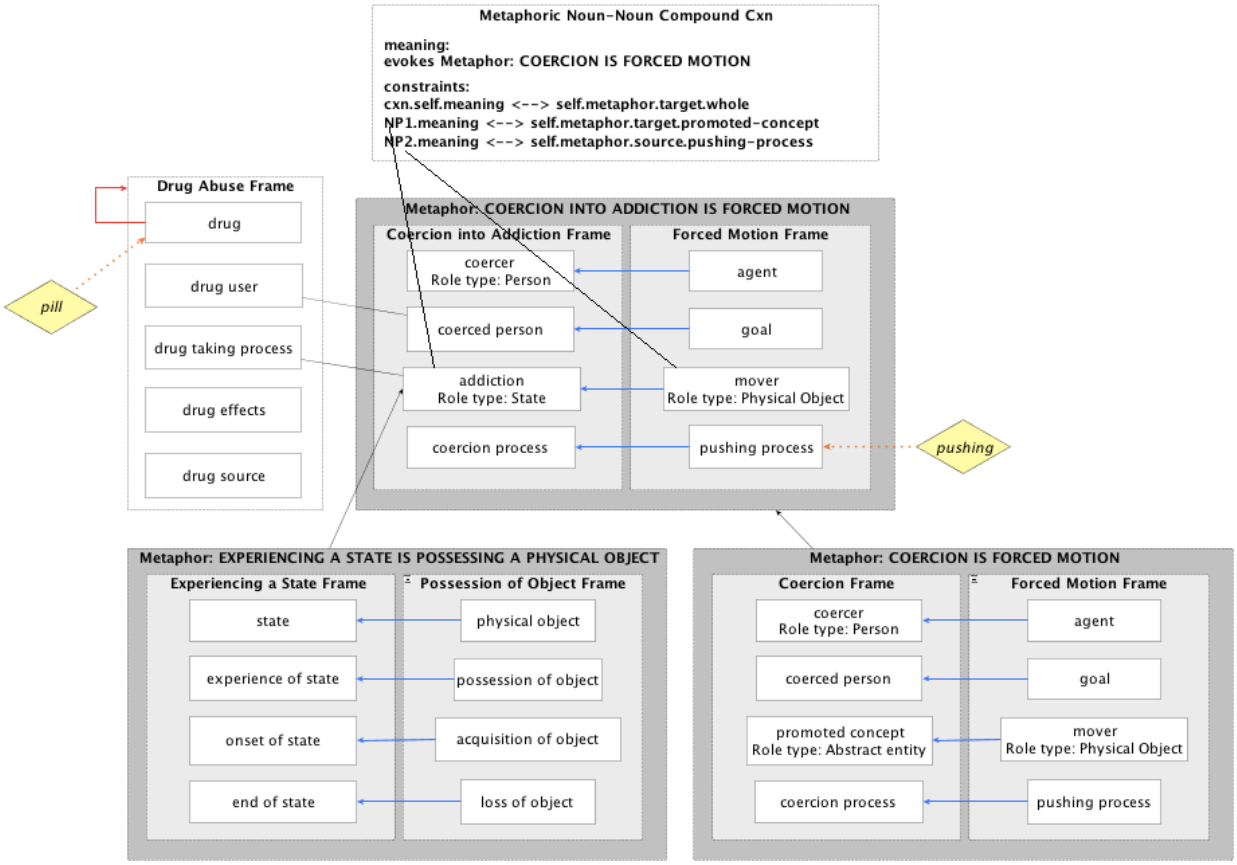

FIGURE 7. Analysis of *pill-pushing*.

The type constraint on roles with this metaphor occurs at the level of the mapping of a state (in this case, addiction) onto a physical object (the entity being pushed), via the metaphor STATES ARE OBJECTS and the entailment that EXPERIENCING A STATE IS POSSESSING AN OBJECT. The fact that there is a type mismatch at this level results in the expression *pill-pushing* or *drug-pushing* being inherently metaphoric. The contrast between *pill-popping* in Figure 6 and *pill-pushing* in Figure 7 – the first metonymic and literal, and the second metonymic and

metaphoric – shows that the system cannot generalize as to the metaphoricity of the expression solely on the basis of the same surface constructional pattern (here N1-N2); rather, it is the role type mismatch in the role-to-role mapping, in combination with N1 metonymy (*drug* or *pill* for the Drug Abuse frame) that indicates whether this will be a literal or metaphoric expression.

4. CONCLUSIONS. By focusing on one small set of frames and metaphors involved in understanding expressions such as *drug abuse epidemic*, *drug pusher*, *pill-popping*, and *pill-pushing*, we have seen how systematized role-to-role metaphoric relations, constructional slot matching to the source and target frames, and metonymic links within the frames help yield the correct interpretations for such expressions. The analysis we provide using an ECG framework is compatible with a conceptual integration approach and shows how meaning compositionality, whether literal or metaphoric, occurs via the binding across frame and constructional spaces. To this we add that both role-to-role metonymic relations and type constraints on the roles are important in generating the correct metaphoric interpretation. A computational system that makes explicit the frame-to-frame and metaphor-to-metaphor relations (by implementing a hierarchical ontology of frames, metaphors, and their relations), can be useful in combination with a construction-matching mechanism in identifying more general metaphors for a particular linguistic metaphor string. Metonymy is crucial to such a system because metaphors can underlie essentially concrete expressions, such as *pill-popping*, whose metaphoricity is only evident when encountered in a metaphoric construction, such as

in *pill-popping epidemic*; the metonymic link between *pill-popping* and the Drug Abuse frame reveals the underlying metaphor. In this process, the linking of metaphoric source and target frames to constructional slots is necessary. Constructions are layered, such that metaphoric target domains in the smaller constituent components affect the metaphoric reading in the larger construction.

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[1] However, this process by nature can only identify constructs in which both the S and T of the metaphor are realized lexically, and is blind to such metaphoric expressions as *modern women have **hit a glass ceiling*** or *he's **moving up the ladder***.

[2] Note that the noun-noun compounds *pill-pushing* or *pill-pusher* are never used to refer to the act of physically pushing a pill in our corpora; although the pattern could perhaps be used in a creative manner, such as calling a pharmaceutical machine that counts pills a "pill-pusher", its usage is clearly canonically metaphoric. Its constructional entrenchment as a metaphoric expression is typical of metaphoric constructions with metonymic roots in physical scenes, an entrenchment pattern not exclusive to noun-noun constructions. This enforces the idea that the construction plays a major role in contributing to the role type mismatch in the mapping.

[3] Note some elements of frame structure (lexical units, relations to other frames, inferences, and additional roles) are not represented here.

[4] General metaphors are in yellow, specific metaphors are in green, and entailments are in blue. Blue arrows indicate subcase relations and red arrows indicate entailment relations.

[5] *So, is there a solution to the latest housewives pill-popping epidemic that's sweeping our suburbs?* http://www.newjerseynewsroom.com/healthquest/housewives-are-desperatepill-popping-epidemic-sweeping-the-suburbs

[6] *Who is responsible for the pain pill epidemic?* http://www.newyorker.com/business/currency/who-is-responsible-for-the-pain-pill-epidemic

[7] *Any prescription for the drug abuse "plague," they say, counts on the political will of all of the countries involved.* http://www.csmonitor.com/1987/0617/oconf.html

[8] *Touted by Hythiam as the first effective treatment for methamphetamine and cocaine addiction, it quickly won converts among some drug treatment specialists who reported "phenomenal" results from its use and from investors who know how profitable it would be to have a magic bullet for the drug addiction scourge.* http://www.nbcnews.com/id/22315918/ns/health-addictions/t/setbacks-plague-drug-addiction-remedy/#.VWe2A2RViko

[9] Note that the framing of Drug Use as a Social Problem is only possible by virtue of the metaphor evoked by the source item *epidemic* – i.e., it's apparent that it is a social problem and not an individual problem due to the spreading nature and population-wide scope of a disease epidemic. In a sense, issue framing and constructional mediation of metaphor are mutually-dependent, and one does not come before nor occur independently of the other. If framed as a problem of individual moral failing rather than a social problem, *epidemic* would be highly unlikely to co-occur; instead, we may encounter other metaphors in other constructions, such as *drug addicts are infecting our city*. This would take the perspective that individuals with poor morals are the root of the drug abuse problem, in which case it is the individuals themselves who are the infection while society is the infected entity. Such a perspective would perhaps lead to measures like putting up walls and other physical barriers or not extending public transit to well-to-do neighborhoods, in order that the "undesirables"

cannot physically access and therefore “infect” the nicer – and by implication morally superior – areas.

Revitalisation of indigenous languages in the Canadian school system: An analysis of some strategies and approaches

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ABSTRACT. First-Nations languages seem to be more promoted today than they were a few decades ago. This situation is favoured by the country's language policy that appears to be somewhat ambitious for aboriginal languages, many of which have been introduced into the school system with various degrees of success. One of the objectives of this paper is thus to see if the language management in the field, that is, if what is concretely done to promote those languages is tallied with legal-political approaches. To this end, a number of promotion means were critically examined. They include language nest, master-apprentice, head start programs, etc. It would be interesting to note that, although aboriginal languages seem to be more promoted, they are more endangered. The overall objective of this paper is thus to tentatively find out why there is a mismatch between a good language policy and questionable language planning in Canadian schools, as it relates to aboriginal languages.

Keywords: head start, language policy, indigenous languages, revitalisation strategies, language nest, master-apprentice, immersion summer camps

1. INTRODUCTION. This paper, which falls within the general framework of language policy and planning, especially acquisition planning or language in education, is aimed at critically analysing some education programs in indigenous languages in Canada. It is based on the observation that those languages are rather worse off under the pressure of official languages, despite the number of revitalisation strategies and means of promotion put forth since 1972. It can be seen in different population censuses that aboriginal languages keep losing ground to English and French. For example, in 1951, despite the overt policy of cultural and linguistic assimilation that was instituted, 87.4% of aboriginal people spoke an aboriginal language as mother tongue (L1). However the precipitous decline starts ten years later, in 1961 when this proportion lowered to 75.7%, then to 57.1% in 1971, 30% in 1981, 25% in 1996, 24.1% in 2001, 21.5% in 2006 and 15.2% in 2011 (Norris 1998, 2007, Statistics Canada 2008, 2012, Tulloch 2004). This clearly means that the use of aboriginal languages as L1 is steadily declining. The question one is tempted to ask is the following: what could be the inhibiting factors to effective revitalisation of aboriginal languages in Canadian schools? A possible answer might be in the language policy. It might also be in the fact that the numerous revitalisation approaches and promotion means are probably incomplete, inappropriate, unsuitable or simply hard to apply.

2. LANGUAGE POLICY IN RELATION TO CANADIAN INDIGENOUS LANGUAGES.

2.1. LANGUAGE POLICY BEFORE THE CONFEDERATION. From the 16th century, aboriginal languages were going through linguistic transfer to official languages (OL). Canada

underwent internal colonisation that is quite similar to external colonisation in force in Africa or Asia, at least at the linguistic level. “The language of the colonized is restricted in its use and development and has invariably less prestige, frequently even in the minds of its own speakers” (Peñalosa 1981:169).

For the specific case of Canada, colonisers implemented an “ethnicized” and “linguicide” policy which Grant (1996) calls “cultural and linguistic genocide.” Hence the creation of residential schools, one objective of which was to counteract intergenerational transmission of aboriginal languages. Those residential schools, considered to have been a “national shame,” (see Ennamorato 1999, Friesen & Friesen 2002, Grant 1996) started as a system in the 1850s amid the signature of the Act to Encourage the Gradual Civilization of the Indians in 1857. It is under this system that young aboriginals officially started going to residential schools designed for them. This colonial language policy, which Battiste (1986:23) refers to as “cultural and cognitive assimilation,” was clearly aimed at anglicising aboriginal people and homogenising the Canadian linguistic landscape in favour of English or French. It would be interesting to see how it evolved after the Confederation.

2.2. LANGUAGE POLICY BETWEEN THE CONFEDERATION AND 1972. After the Confederation of 1867, political authorities reinforced, for a century, the colonial governmentality. Grant justly writes, “After Confederation, government policies became more intrusive and coercive. Ottawa became impatient at the slow pace of Indian ‘civilization’ and assimilation” (1996:63). The Indian Act was enacted in 1876.[1] This act, according to Burns, is an

instrument of colonisation and domination of aboriginal people: “The Indian Act itself is Eurocentric, ethnocentric, racist, discriminatory, and exclusionary. […] A close examination of the Act reveals that it exists as a structure of domination, control and oppression” (2001:60). Hence, the number of residential schools increased tenfold around the country; in 1894 the government was funding 45 residential schools, 11 of them in British Columbia. By 1923 there were 71 such schools, and at their peak in the 1930s there were as many as 80 of them in operation (Friesen & Friesen 2002:104). It is noteworthy that, from 1894, it was mandatory for aboriginal children less than 16 years old to go to a residential school. This policy continued until 1972.

2.3. CANADIAN LANGUAGE POLICY AFTER 1972. Most Aboriginal people rejected the government policy documented in the *Statement of the Government of Canada on Indian Policy* (Government of Canada 1969) because they did not like the fact that the document recommended the abolition of the special Indian status and that of the reserves as political entities,[2] as well as the fact that the provinces would no longer take charge of aboriginal communities. The National Indian Brotherhood, that became the Assembly of First Nations (AFN), published *The Indian Control of Indian Education* (ICIE) in 1972. The ICIE played a decisive role in the approach initiated by the aboriginal people to take control of their community schools, especially the band schools that skyrocketed from 53 in 1976 to 329 in 1992 and to 600 in 2001 (Friesen & Friesen 2002). The intent of the ICIE is that “the curriculum be culture-based, methods and styles be Native in orientation, Native language be

used, Native values and identity be developed and reinforced, and the process be based on a distinctively Native philosophy of teaching and learning" (McCaskill 1987:163). Hence, in kindergarten and up to grade 4 or 5, the language of instruction would normally be an aboriginal language. The transition to English or French as L2 would normally be done only after the pupil will have mastered his/her L1.

Aboriginal people could thus design programs for the revitalisation of their languages and cultures. According to McCaskill, the objective of band schools, which he calls CULTURAL SURVIVAL SCHOOLS, "is to promote and preserve Indian language, values, and history in order to survive as a distinct people within the larger Canadian society" (1987:162). At Mi'kmawey school in Nova Scotia for example, Micmac is taught both as a subject and as medium of instruction (Battiste 1987:120).

Although aboriginal schools have been created, the system is still in the hands of the federal government. This poses the question of educative centralism, what Binda calls "the federal government's discursive policies of colonization, centralization and control" (2001:36). According to Bear Nicholas (2001:16),

> The truth is that true Indian-controlled schools in Canada are almost nonexistent. In the first place, it has been enormously difficult for communities to gain even the smallest modicum of control over their own schools, in spite of the fact that federal policy is now ostensibly aimed at devolving responsibilities of education to First Nations.

So, whenever an aboriginal school board has tried to exercise some control over band schools, “they were regularly stymied, either by the jungle of federal or provincial regulations or by the interference of any number of hierarchies, from the chief and council on up to the federal government” (Bear Nicholas 2001:16). It would be interesting to note that in those so-called community schools, the language of instruction in all classes is English, except in Québec, North West Territories and Nunavut where aboriginal languages are also languages of instruction in some schools. Bear Nicholas is right when she writes, “After nearly thirty years of ICIE it is patently clear that assimilation is still the driving force in Native education policy, even on reserves” (2001:17). A Department of Indian and Northern Affairs top-ranked official in Nova Scotia emphatically stated that “language is not a priority in education” (Fettes & Norton 2000:43). It is also good to recall that, although the government accepted the ICIE, it did so after redefining the term CONTROL which becomes DEGREE OF PARTICIPATION. This definition has probably allowed the government to move slowly, delegating programs of administration rather than policy development and real management and financial control (see Longboat 1987:25-27).

It is not necessary to go over the Constitutional Act and the Canadian Charter of Rights and Freedoms of 1982 and the Canadian Multiculturalism Act of 1988 which all consolidate linguistic diversity and, at the same time, legally empower aboriginal communities to promote their languages and cultures. But, none of these acts has been up to the expectations as far as the revitalisation of aboriginal languages goes, probably because language policy has always had some sort of assimilation undertone.

3. INDIGENOUS LANGUAGES IN SCHOOL. A number of programs and approaches are designed and developed for the promotion and revitalisation of aboriginal languages through formal and informal education. They will be discussed in the following subsections.

3.1. THE LANGUAGE NEST PROGRAM. The language nest program is an early childhood immersion program which aims at producing a new generation of native speakers of aboriginal languages. Designed in New Zealand under the Maori appellation of Te Kōhanga Reo, its aim is to provide an environment where children will hear only the aboriginal language and will therefore grow up speaking it (see King 2001).

In Canada, the first language nests began in the 1980s with two programs in the Kahnawà:ke Mohawk community and in Adam's lake, BC (First People's Cultural Council (FPCC) 2014). This program normally takes children from zero to five years old because early childhood is a critical time for the acquisition of language. It is practised in a number of aboriginal communities with relative success. This is the case with the Labrador Inuits through the Hopedale Language Nest or the Language Nest at Adam's Lake Band and the Language Nest at Lil'wat Nation, both in BC. The FPCC (2014:5) defines it as a program where children are immersed in their First nations Language. This program

> [P]rovides a safe, home-like environment for young children to interact with fluent speakers of the language, often Elders, through meaningful activities. The goal of a language nest is not to 'teach' children the language, but rather to create an environment where language can be acquired naturally, as infants

> acquire their first language. It may be useful to think of a language nest as like [sic] 'Granny's house', where children are cared for in a traditional, cultural way *in* the language.

The program started in Labrador in 2001-2002 with three children and, since then, there has been an intake of six children yearly (Canadian Heritage 2003). That is about the same intake in the two BC programs (see McIvor 2006). According to the Labrador Inuit Association, the future of this program is bright because children learn the fundamentals of aboriginal languages and cultures. In addition, parents and teachers report that families of children registered in the program make huge efforts to speak the language to their children or encourage them to speak it (Canadian Heritage 2003).

This program, if widely used, could immensely contribute to the revitalisation of aboriginal languages. For the time being, it is still restricted to few communities. Moreover, it suffers from many ills. The teachers are not fluent speakers of the language they want to preserve. Thus, the program heavily depends on elders, many of whom are not always willing to be part of it because they don't know what is expected from them. Below is a testimony from a BC language nest coordinator:

> I didn't speak the language at the time, right. I came in just keeping my mouth shut, running around after kids and doing different things. The Elder we hired really didn't have any idea what to do, so we just said, 'Let's just play with them, let's just do whatever you do with kids but just all speak the language.' Gradually I picked up more language and the Elder got a little more confident,

> and that's how it started. Not a lot of planning when it started, more like a divine inspiration more than anything else! (McIvor 2006:11)

The Hopedale Language Nest in Labrador had only two teachers in 2008, which added to the general lack of interest (Canadian Heritage 2003) and caused the Labrador Inuit government to suspend it for one year to figure out how to tackle a poor pickup of the language among older children and how to gather necessary ideas, materials and human resources (CBCnews 2008).

The lack of qualified and fluent teachers paves the way for the predominance of English. Ironically, it is often the elders themselves who bring the most English into the program. "Their use of English can be seen as a natural, empathic response to 'rescue' the little ones struggling in the language" (FPCC 2014:30). Another big challenge is the lack of pedagogic resources. Many nest programs run without any curriculum materials. They are now in the process of creating them. However, they start by trying to translate most mainstream materials with the help of elders who become occasional translators.

Also, some parents fear that there might not be a smooth transition from language nest programs where the only language used is probably an aboriginal language to public schools where the only language of instruction is an official language (OL). In New Zealand, to address the same issue, the Department of Maori Affairs has created two types of primary and secondary schools. The first type is called the Kura Kaupapa Māori with a "policy of total immersion in Māori within a Māori philosophical orientation and curricular framework" (King 2001:122). The second type is bilingual classes and units in mainstream schools in

which former students of Te Kōhanga Reo made up 40% of the students in 1990 (King 2001:122). But in Canada, to better develop this program and extend it to other languages, aboriginal communities might want to reflect on a smooth transition towards OLs. At least, parents should have the choice.

If parents distance themselves from the program, it is partly because of the colonial heritage as their language has always been portrayed as useless. Below is a parent's testimony: "You know, like we had one person put the [language immersion] school down. Saying, 'I want my kid to go be a doctor, and I'm not sending him up there. . . .' I asked them, 'Are you scared of the language?' That's what they're scared of" (McIvor 2006:15).

3.2. THE MASTER-APPRENTICE PROGRAM. According to the FPCC,

> The Master-Apprentice Program is a method of learning a language where a fluent speaker of the language (a master) teaches a language learner (an apprentice) through language immersion. […] The goal of the program is to have apprentices increase their fluency in speaking and understanding their language (in semi-fluent speakers). While reading and writing are valuable skills, an apprentice must be able to speak and understand to become fluent. This is the focus of the Master-Apprentice Program (FPCC 2012:3).

This program was designed in California in 1992 to counteract the rate of language extinction by transmitting the languages to young adults (Hinton 2001). In Canada, the program pursues the same objectives. There are ten points that might guarantee successful learning: (1) the use

of English is prohibited, (2) the mentor as well as the apprentice must use verbal and non-verbal communication to make themselves understood, (3) they must use full sentences, (4) the language is used for real communication, (5) the focus is on language as well as culture, (6) the learning activities are based on listening and speaking, not on writing, (7) language is taught and learned through activities like picking berries, cooking supper, doing the dishes, the laundry, the shopping, etc., (8) the use of audio and video recording is encouraged to help the apprentice practise, (9) the apprentice should be an active learner, (10) both master and apprentice should be sensitive to each other's needs and feelings (FPCC 2012).

They must agree to spend 10 to 15 hours per week or about 50 hours per month for three years with 300 hours per year for a total of 900 hours (FPCC 2012:3). The apprentice's progress is evaluated after every 100 hours. This program timidly started in Canada in 2001. It is in 2007 that it peaked in BC with 12 teams from 11 BC languages, a second group of 10 teams in 2010, two more in 2011 and five in early 2012 (FPCC 2012:3). Finally, it remains to be seen whether giving primacy to oral production and relegating writing to the background favours balanced learning of a language. Overall, the limits are the same as those of the language nest programs.

3.3. IMMERSION CAMPS. A good number of aboriginal languages offer immersion programs for adults. This is the case of Mohawk in Québec and in Ontario. The objective of such a program is to "provide adult learners with the opportunity to learn to speak the Mohawk language with sufficient fluency to participate in traditional cultural activities in Mohawk"

(Maracle & Richards 2002:127). The group members meet informally in a natural and culturally relevant environment (a house, a supermarket, a restaurant, etc.) and talk (while doing an activity) with the help of a teacher assisted by some Elders. In the inception of this program, the group would not normally work on grammar, but teachers often spend a long time explaining the aboriginal language grammar and speaking English instead of getting the language used in conversations. But the biggest drawback of this program is that learners have different expectations about what an adult immersion course should be. Based on Maracle and Richards' (2002:128) explanations, in the organisers' opinion, it "implied that the classroom language would be Mohawk, with English used only when necessary for communication." But some students "wanted to be in an immersion course, but at the same time they wanted to know in English exactly what they were hearing in Mohawk. They, therefore, kept asking for translations and explanations in English." An explanation for this is that learners get into the program with various fluency levels and the organisers do not always group them according to their fluency in the target language.

3.4. THE HEAD START PROGRAM. The head start program is a bilingual OL/aboriginal language program. This federal initiative, launched in 1995, is offered to children aged zero to six. It was created in the USA in 1964 "to address the needs of preschool children living in poverty" because "children living in poverty can often experience inadequate basic health and low cognitive abilities" (Goulet et al. 2001:142).

In Canada, the program pursues a number of objectives that can be found in the document *Aboriginal Head Start on Reserves Program* (AHSRP) (Government of Canada 2003:3):

> The [AHSRP] is designed to prepare young First Nations children for their school years by meeting their emotional, social, health, nutritional and psychological needs. […] The [AHSRP] retains the six core components including: culture and language, education, health promotion, nutrition, social support, and parental and family involvement.

The linguistic aspect of this program aims for the promotion of minority languages through acquisition. To qualify, the staff must have a good knowledge of the First Nation, its language, culture and traditions (Government of Canada 2001:22). Moreover, the management techniques must be adapted to the culture and the use of an aboriginal language (Government of Canada 2001:25). A few years before, it was specified that the program would emphasize the promotion of cultures and languages, education and health (Government of Canada 1998). The same document underscores that aboriginal children have the right to learn their language and their history, with the help of adults. But, the most important part of the document is entitled “Culture and language” which emphasises that aboriginal children should deepen the knowledge of the language and culture of their community (Government of Canada 1998).

The program has experienced some relative success. For example, in the 2000-2001 report, about 6,500 children were served for a total of 68 projects in 300 communities

(Government of Canada 2003:6). Table 1 below shows the number of children served and the number of centres in which the program is practised (for a federal funding of $27,000,000).

Region	**Number of centres**	**Number of children served**	**Number of special needs children served**	**Number of children on waiting lists**
Alberta	53	933	59	270
Atlantic	36	663	32	89
Manitoba	20	659	52	178
Ontario	15	643	30	90
Québec	38	1,443	57	596
Pacific	75	892	100	120
Saskatchewan	77	1,234	47	548
Total	**314**	**6,467**	**377**	**1,891**

TABLE 1. AHSRP project demographics as reported by regions 2000-2001

The Buffalo Lake Aboriginal Head Start in Caslan, Alberta, can illustrate the importance of this program in urban centres. Activities take place in aboriginal languages or in English or both. Teaching methods and strategies are also culturally based.

This program also has some limits. First, there are too many children that need the program, yet different centres accept only a very insignificant number of them. For example, in just Québec, there are about 600 children on the waiting list. Second, there is not enough infrastructure, didactic material and funding to recruit more children. Third, teachers are not always qualified and, to remedy this lack, principals rely on aboriginal people who are fluent in the community language. Finally, the general problem is that both teachers and learners resort to OL most of the time. So children end up learning about Euro-Canadian culture instead of their own.

3.5. IMPORTANCE OF BILINGUAL EDUCATION. Bilingual education is a partial immersion program at the primary and secondary levels with the media of instruction being an OL and an aboriginal language. It is offered in such linguistic communities as Chipewyan, Cree, Gwich'in, Dogrib, Slavey, Innu, Inuktitut, Micmac, Mohawk, Naskapi, Ojibwa, Tinglit, etc. It has several advantages: apart from language revitalisation, it enables the students who take it to obtain very good results in intelligence tests, more success in L2 and math, and to be more sensitive to other cultures and more successful in school (Taskforce 2005:94). The immersion program in Mohawk in Kahnawake, Québec, is a good illustration. Not only is it the first immersion program in aboriginal language in Canada (in operation since 1979), but it

is the one which has been the most successful. Hoover and the Kanien'kehaka Raotitiohkwa Cultural Center confirm it when they write:

> It has proved so successful that today more than half of the community's students study entirely in Mohawk from nursery school to grade 3, then 60% in Mohawk and 40% in English from grades 4 to 6. The others attend the English-language elementary school in the community, where they receive a half-hour a day instruction in Mohawk. Children at both schools learn French as a third language (1992:271).

Thanks to this type of immersion, the number of L2 Mohawk speakers has considerably increased in Kahnawake. Hoover and the Kanien'kehaka Raotitiohkwa Cultural Center write:

> One effect of the Mohawk immersion program is creation of a lost generation of people now in their 20s, 30s and early 40s, who were not given the opportunity to learn to speak Mohawk, and find themselves surrounded by Mohawk speakers. It is not uncommon in Kahnawake to hear people conversing with their grandchildren in Mohawk, then switching to English to speak to their own children (1992:271).

However, bilingual education, like the other types of education discussed above, suffers from the lack of qualified staff, didactic resources and funding, despite the good will of the populations. Also, in spite of the numerous advantages of such a program, it doesn't seem to pick up. In places where it is offered, the intake is very low. For example, at Mi'kmawey school in Nova Scotia, only 35 students from kindergarten to grade 6 were registered in the

bilingual and bicultural program in 1986 (Battiste 1987:121). Many parents choose to put their children in English schools (see Tulloch 2004 for the case of Inuktitut).

3.6. ABORIGINAL LANGUAGES AS L2. The teaching of an aboriginal language as a school subject is more widely used as it is implemented through the Second Language Program. It is offered by local school boards and in band schools. In both cases, it is a mandatory subject taught weekly for 40 to 90 minutes. Its content is chiefly the colours, the numbers, greetings and common expressions used in the community. This program, like the other ones, has problems. Apart from the lack of staff and resources, the content and scope is very limited. It cannot permit a learner to speak fluently. The case of Inuktitut is a clear illustration. Although it is an OL in Nunavut and NWT, its teaching as a subject is far from satisfactory. According to Tulloch (2004), even if young Inuits take it as a subject up till grade 12, they express serious doubts over the quantity and quality of Inuktitut they learn in class.

3.7. ABORIGINAL LANGUAGES IN HIGHER EDUCATION. In Canada, many postsecondary institutions are specialised in the teaching of, in, or about aboriginal languages and the training of trainers. Two good illustrative cases are the Nunavut Arctic College (NAC) and the First Nations University of Canada (FNUC). Inuktitut occupies a special place at NAC as for all community specialisations, candidates must, among other things, be able to read and write in English and Inuktitut (NAC 2012). For Jewelery, Ironwork or Textile programs, candidates can even be unilingual in Inuktitut (NAC 2012). Many programs are more directly

linked to the language, like that of Language and Culture which offers a postsecondary training on Inuktitut language and culture (NAC 2012). Those who take it are trained as translators and interpreters. To be part of this program, as well as that of Inuit studies, one needs to be fluent in both English and Inuktitut.

FNUC, founded in 1976 as Saskatchewan Indian Federated College, seems to be the only university that devotes the maximum time and efforts to the revitalisation of aboriginal languages. Through the Department of Indian Languages, Literatures & Linguistics, the Department of Indigenous Education, etc., this university promotes languages and cultures of the Prairie. The School of Education, for example, offers various BEd programs for teaching in aboriginal communities. Moreover, the Department of Indian Languages, Literatures and Linguistics offers a BA in Cree linguistic studies, another one in Saulteaux. Such programs are presented thusly:

> We have minor, major and honours B.A. programs in both Cree (primarily Plains Cree, though we also accommodate Woods and Swampy dialects of Saskatchewan, Alberta and Manitoba) and Saulteaux (western or Plains Ojibwe). The Cree and Saulteaux programs are actually in the process of being revised to allow for oracy and literacy based concentrations. We also have a minor program in Nakota (Assiniboine) which is undergoing revision to develop a stronger program with cognates for Dakota and Dene (Department Head (DH), personal communication of September 22, 2008).

However, it should be noted that the programs in Cree and Saulteaux are offered to aboriginal people who might not have good oral competence in those languages. So English is generally the language of instruction. The DH confirmed this when he said:

> As of right now, our classes are taught primarily in English as the language of instruction, though of course our language-based courses contain a great deal of content in Cree, Saulteaux, etc. Some of our upper year courses (and hopefully more in the new programs) are taught by fluent speakers who - given a class of fluent speakers - will conduct at least a portion of the class in the language, rather than English. However, I would have to honestly say we are still some way from offering our courses completely in Cree, Saulteaux, etc. It's a target to shoot for ... (personal communication, September 22, 2008).[3]

Moreover, professors themselves are not always fluent in the target language. The DH is honest when he reveals:

> For the most part, our language instructors are fluent speakers, though we have sometimes out of necessity (the unavailability of fluent speakers) employed instructors with less than full fluency for intro classes with non-fluent students. We try to avoid that. However, certain courses in our program do not require fluency and are in fact taught almost exclusively in English (except for examples in the target language). These are mostly linguistic structure courses, such as the ones I mostly teach. I am by no means fluent, nor would I be able

> to conduct an entire course in Cree even if I tried (personal communication, September 24, 2008).

Also, there is little or no synergy between those universities and different community associations. For example, at FNUC, the Cree Language Retention Committee and the Cree Language Commission are not sufficiently involved in the Cree programs. The DH confirms: "It is in part a sad truth that we suffer from the 'ivory tower' syndrome in that we do not necessarily have a lot of links to the community at this point - other than the links forged by individual faculty with their own communities" (personal communication, September 24, 2008). Such a collaboration should be reinforced and even instituted so that professionals could discuss their experiences, and that linguistic and cultural associations which directly work on language retention in the field could be involved in the design and implementation of programs.

4. CONCLUSION AND PROSPECTS. For a better revitalisation of aboriginal languages in school, it might be a better idea to adopt a bottom-up approach exclusively. It is only a linguistic community that can save its language with means they can mobilise by themselves. In this case, the State would just perform the role of a regulator by creating a legislative framework for the promotion and revitalisation of those languages, which already appears to be the case. Language laws, even good ones, are often tinged with governmentality. Foucault (1991) reminds us that laws are generally multiform tactics of the government when he underscores, "Within the perspective of government, law is not what is important: […] it is not through

laws that the aims of government are to be reached" (1991:96). One would not be wrong to believe that language laws are aimed more at consolidating the unity of a country, without any genuine desire for the preservation of everyone's languages.

So, to substantially better the situation of aboriginal languages, many of which are moribund, each linguistic community would normally be leading all language planning initiatives in the field, without expecting any decisive help from anybody. To achieve this, a lot of upstream work must be done: self-organization, self-motivation of parents and youth who might be suffering from negative attitudes they themselves have towards their languages, financial autonomy, primacy of the training of teachers without whom no serious revitalisation strategy can take place in a school, the primacy of pedagogic resources, etc. So a lot needs to be done prior to opening schools or creating education programs.

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[1] The Indian Act, which determines the status of an Indian and defines his/her rights and duties, stipulates that the federal government handles the protection, health and education of Aboriginal people. This act gives the federal government the power to be the sole owner of the land. Although the Indian Act was deeply revised in 1951, its spirit remains fundamentally the same: colonise, control and assimilate Aboriginal people. Hence Ennamorato denounces it as being a "paternalistic anachronism and a national embarrassment to Canada" (1999:53).

[2] Indian reserves, after all, allowed aboriginal communities, notably the parents, to preserve their languages and cultures.

[3] When asked about the quantity of the target language students might have in a course, Wolvengrey wrote: "Our students range from fully fluent to having no knowledge of the language whatsoever. With fluent speakers, we have tended to concentrate on building literacy skills. Non-fluent speakers are taught the spoken language to a degree, though written materials also tend to end up predominating in the upper classes. We are hoping to address this with the current changes to our programs meant to promote more oracy skills by adding upper level conversation/public speaking courses, as well as classes in transcription, translation and interpretation. This will give non-speakers more exposure to and more opportunity to learn the spoken language, and allow fluent speakers to use and develop the skills they already have" (personal communication, September 24, 2008).

The role of sensory relevance in the ordering of adjectives

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ABSTRACT. Starbucks has developed a system for ordering adjectives, inspired by standardization and printed on each cup. *High frequency visitors* (HFVs) to Starbucks were found to comply less with the Starbucks' standardized order and used more adjectives than *distributed frequency visitors* (DFVs). HFVs also formed new adjectives not found on the menu and used adjectives that reflected Starbucks' sensory intentions for their customers significantly more often than DFVs. This indicates that customers are becoming more complex in their adjective use as their visits to Starbucks become more frequent. This increase in complexity is posited to be the result of cross-sensory conceptualization that guides the order and use of adjectives, rather than the findings for adjective ordering that other linguistic studies might have led us to expect. In particular, one might predict adjectives to be especially sensitive to this input as they are the very words we use to describe sensory information.

Keywords: adjectives, adjective ordering, cross-sensory conceptualization, sensory intentions, store atmospherics, Starbucks, coffee

1. INTRODUCTION. Customers ordering coffee at Starbucks rattle off many variables, or adjectives, related to size, temperature, syrup flavor, espresso shots, name of drink, and more. What order these adjectives are placed in has been standardized for Starbucks' employees to maintain training consistency and for purposes of efficiency (Le Meur 2009). The ordering system, from Starbucks' perspective, is driven by the variables as they are printed on the side of the cup itself. Table 1 shows the cup-printed order that employees of Starbucks typically use when they restate each purchase back to the customer.

1	Size
2	Temperature
3	Caffeine
4	Shots of espresso
5	Syrup
6	Milk
7	Custom details
8	Drink name

TABLE 1. Cup-printed order used at Starbucks

A typical ordering exchange at Starbucks involves a dialogue between the customer and the barista. As an example, a customer may state an order as, "Decaf, nonfat, venti latte." The Starbucks barista would then restate the order back to the customer for confirmation as, "Venti, decaf, nonfat latte." The barista's restatement reflects the customer's drink, but the variables now coincide with the Starbucks' cup-driven sequence of size (*venti*), caffeine (*decaf*), milk (*nonfat*), and drink name (*latte*). This demonstrates how the barista came to place each adjective in its order, but it remains unclear as to what drives customers' initial placements of adjectives when they place their coffee order.

THEORIES OF ADJECTIVE ORDERING. Wulff's (2003:249) corpus analysis revealed that just 0.096% of noun phrases contained adjective pairs. Of those, only 4% were followed by a third adjective. Several theories on adjective ordering exist when multiple adjectives occur in a noun phrase. One theory is Hetzron's (1978:165) *subjectivity-objectivity gradience*, where adjectives are coded and ranked by their semantic class. For example, an adjective from a semantic class of purpose (e.g., *ironing*) would be coded with a 1, indicating it would be located closest to the noun when there are multiple adjectives. By comparison, an adjective from a semantic class of epistemic qualifiers (e.g., *famous*) would be coded with a 13, indicating it would be located furthest from the noun. The *length* of the adjective has also been discussed, with some theories suggesting that longer adjectives follow shorter adjectives before the head noun. Another theory relates to each adjective's *nominal character,* stating that the most nounlike adjectives rank themselves closest to the noun they modify. Still another theory says that *semantic closeness* ranks adjective ordering, with the adjectives that are most closely represented in thought to the noun also being placed closest to the noun.

While any of these differing theories on adjective ordering may apply to Starbucks, it is also possible that the ordering is being determined as a function of routinization. Mithun (2001:73) discusses that "human beings, like other animals, routinize frequently recurring tasks, including the assembly of grammatical constructions" and "recurring constructions become automated; speakers choose them as units rather than as individual components."

Starbucks' customers, especially those who are high frequency visitors (HFVs), may begin to place their orders as though the words have become automated, routinized units.

HFVs have heard the Starbucks' cup-driven order repeated back to them with every purchase, which may lead to an adoption of the Starbucks' system of ordering. Based on these views, this study hypothesizes that high frequency visitors (HFVs) to Starbucks will routinize their adjective order to the Starbucks' cup-driven order more than customers who visit less often.

CROSS-SENSORY INPUT. A quick visit to any one of Starbucks' worldwide stores shows a consistent presentation of cross-sensory inputs through branded materials, rich use of color, light, music, special cups, photographs and more. Coffee itself is a highly sensory product that includes variables such as temperature, foaminess, flavor, caffeine, and size. Starbucks holds the largest market share of coffee and snack shops in America (Stockdale 2012). This implies significant, consistent, cross-sensory input to HFVs. Starbucks has achieved a substantial competitive advantage largely attributed to creation of a cross-sensory customer experience (Pine & Gilmore 1999). This experience has been engineered to solicit specific emotional responses in customers through senses of bodily experience, sight, hearing, smell, and taste (Biehl-Missal & Saren 2012:168). For example, Biehl-Missal and Saren describe Starbucks as having a "seductive consumption atmosphere" that utilizes architectural features such as tall columns and large windows to suggest feelings of being inviting, open, and friendly. Another example of using cross-sensory input to elicit emotion is seen in Starbucks' choice of round tables and lamps that are described as creating a "cuddly" sensory experience. This study hypothesizes that HFVs to Starbucks will use more adjectives that

coincide with Starbucks' sensory intentions for their customers compared to customers who visit Starbucks less often.

2. METHOD. Customer orders and barista responses were overheard and written down from three different Starbucks in Albuquerque, New Mexico. The customers were not aware of their participation in the study. Additionally, orders were collected from an article published in the *Huffpost Taste* (2013). Orders were placed by 17 female and 18 male adults (information about the individuals placing orders in the *Huffpost Taste* article was not available). All Albuquerque participants demonstrated English proficiency, which was determined by their ease of ordering. Participants were deemed to be primarily of middle class status based on Starbucks' pricing (a cup of coffee can be over four dollars) and on reports that Starbucks' sales numbers are correlated to middle class economics (McIntyre 2009).

Two groups were analyzed. Members of the first group did not say anything during their visit to Starbucks that provided information as to how frequently they visited. This group is referred to as *distributed frequency visitors* (DFVs) because it is assumed that there is a distribution of low, medium, and high frequency visit customers in the group. The second group consisted of customers who were seen at the same Starbucks multiple times during the data collection period or who made statements while ordering that indicated they visited Starbucks frequently. This group is labeled as *high frequency visitors* (HFVs). For example, a customer was placed in the HFV group after stating, "I've earned a reward drink!" which meant they had previously purchased the 12 drinks necessary to earn a reward drink. Additionally, orders were taken from a *Huffpost Taste* (2013) article,

which described the most obnoxious Starbucks' orders. These orders were identified as belonging to the HFVs group, simply because a low visit or even medium visit customer would seem ill equipped to place orders with variables that deviate away from the typical drink features of size, type of milk, flavors of syrup, or temperatures. For example, one of the *Huffpost* orders was a *quad-grande, nonfat, extra-hot, caramel macchiato, upside down.* It seems unlikely that a low or medium frequency visit customer would be aware of the availability of these adjectives when ordering a coffee, largely because items such as *quad-grande, extra-hot,* and *upside down* cannot even be found on the Starbucks' menu.

In fact, it could be suggested that the number and use of adjectives in Starbucks' coffee orders is driven by the menu posted at each location. To investigate this suggestion, each coffee order was examined to determine how many words were explicitly posted on the Starbucks menu and how many were not.

Adjectives were defined as words that described or modified the coffee related noun. For example, in the case of the coffee order *grande single-shot extra-hot light-foam latte,* the words *shot* and *foam* are considered adjectives that describe the latte when they are paired with other descriptive or modifying words connected with a hyphen. These words were counted as one compound adjective because when these words compounded they described or modified the coffee related noun.

To examine the possibility of cross-sensory inputs influencing adjective choices, specific components of Starbucks' environment were investigated based on Biehl-Missal and Saren's (2012:173) analysis of intended customer emotional responses to the Starbucks engineered environments. These emotional responses were then matched with coffee orders where customers' adjectives indicated that the sensory intention for Starbucks' customers were successful and, thus, translated to language use. For example, Biehl-Missal and Saren's analysis of Starbucks' use of round lamps and tables to inspire

emotional responses for cuddliness, translated to customer adjective choices of *foam, whip,* and *whipped cream* as indicating that these adjectives inspired similar concepts of cuddliness. Another example from Biehl-Missal and Saren's analysis is Starbucks' use of tall columns and large windows to inspire emotional responses for being inviting, open, and accessible. Customer adjective choices of *venti, light*, and *extra* then indicated similar concepts for openness and accessibility. Percentage of use for sensory intended adjectives was calculated from the total number of adjectives used.

3. RESULTS. Percentages correct were calculated for how often HFVs and DFVs complied with the cup-driven Starbucks' order. While HFVs and DFVs were both similar in where they placed adjectives related to milk at 44% and 43% and drink type at 50% and 52%, respectively, the groups differed in where they ordered adjectives of size, temperature, number of espresso shots, type or amount of syrup, and custom details. DFVs were at 81% accuracy for placing drink size in first position, 67% for temperature in second position, and 0% accuracy for placement of caffeine, espresso shots, syrup, and custom details. By comparison, HFVs were at 44% for placing drink size in first position, 33% for temperature in second position, and 0% accuracy for placement of caffeine, 17% for espresso shots, 17% for syrup, and 23% for custom details. Averages of the percentages of compliance across all positions for each group showed that HFVs were at 28% overall compliance compared with DFVs at 30%.

Further analysis was made regarding which variables were most-substituted for first and last position in each group, as seen in Table 2. Additionally, in the "custom" category for final-position substitutions, 28% of both groups combined substituted the use of a negative adjective, such as *nonfat, no-whip*, or *no-foam*.

First Position Substitutions

group	temperature	caffeine	shots	syrup	milk	custom	drink name	total substitutions
DFV	20%	20%	0%	20%	20%	0%	20%	19%
HFV	10%	40%	30%	0%	10%	0%	10%	56%

Final Position Substitutions

group	size	temperature	caffeine	shots	syrup	milk	custom	total substitutions
DFV	8%	15%	0%	15%	0%	8%	53%	48%
HFV	0%	0%	0%	0%	22%	11%	67%	56%

TABLE 2. First and final position adjective ordering by percentage of accuracy when measured against order imposed by Starbucks

Differences were also found in the number of adjectives used by each group. Customers used adjective pairs 47% of the time while ordering coffee, with three adjectives in an unbroken string at 18%, and three or more adjectives in an unbroken string at 24%. DFVs also displayed a lower use of adjectives, overall and in an uninterrupted string, compared with HFVs as seen in Table 3.

Group	average adjective number per order	average number adjectives in string per order
DFV	2.74%	2.15%
HFV	4.61%	3.67%

TABLE 3. Average adjective number per order for DFV and HFV

Hetzron's (1978:165) subjectivity-objectivity gradience and hypothesized adjective order is shown in Table 4, along with an example of each semantic class and the numeric code (taken from Wulff 2003:262).

EXAMPLE	CODE	SEMANTIC CLASS
Famous	13	Epistemic qualifier
Good	12	Evaluation
Wide	11	Static permanent property
Sweet	10	Sensory contact property
Fast	9	Speed
Cheap	8	Social Property
Young	7	Age
Square	6	Shape
Blue	5	Color
Deaf	4	Physical trait
Asian	3	Origin
Wooden	2	Composition
Ironing	1	Purpose/destination

TABLE 4. Hetzron's (1978:165) subjectivity-objectivity gradience and hypothesized adjective order (taken from Wulff 2003:262)

Example 1 shows Hetzron's coding applied to the Starbucks' order of *iced half-caff ristretto venti four-pump sugar-free cinnamon-dolce soy skinny latte,* which is an order from the HFV group.

(1)

order:	*iced*	*half-caff*	*ristretto*	*venti*	*four-pump*	*sugar-free*	*cinnamon-dolce*	*soy*	*skinny*	*latte*
class:	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	N
code:	10	2	9	11	11	10	10	3	2	

("ristretto" meaning espresso shots are pulled short, adding an extra complexity to the flavor).

Differences were also seen when examining the percentage of adjectives used while ordering at Starbucks and their appearance on the posted menu. The non-menu words found in our data consisted of adjectives (e.g., *double, cold, plain, regular, unsweet, triple, quad, ristretto*), shortened adjectives (e.g., *soy* for *soymilk*), and newly devised compound adjectives (e.g., *extra-hot, with-room, single-shot, light-foam, half-sweet, no-foam, medium-roast, extra-shot, black-tea, one-pump, light-ice, half-caff, four-pump, extra-whip, two-*

percent-foam). A total of 25% of all adjectives from the data were not posted anywhere on the Starbucks menu. Specifically, 29% of all adjectives HFVs used were not posted on the Starbucks' menu, compared to 16% for DFVs.

Based on a one-way analysis of variance (ANOVA) for correlated samples, HFVs used adjectives that complied with Starbucks' sensory intensions for their customers significantly more often than DFVs, $F(1,15) = 17.19$, $p = .004$. Table 5 shows the adjectives customers used that reflected the sensory intentions of Starbucks as a percentage of all adjectives used while ordering coffee.

STARBUCKS' CROSS-SENSORY INPUT	SENSORY INTENTION	RESULTING SENSORY INTENDED ADJECTIVES	HFV	DFV
tall columns and large windows	accessibility, inviting, open	*venti, light, extra*	20%	15%
furnishings are soft and plush	safe and intimate	*vanilla, sweet, cream, mocha*	10%	12%
round lamps & tables	Cuddliness	*foam, whip, whipped cream*	9%	1%
airy store arrangement	emotional & imaginative extension	use of adjectives not on menu	29%	16%
warm, yellow lighting	Relaxation	*decaf, drizzle, caramel, hazelnut*	12%	7%
aromatic coffee smell	inclusion with ambience	*shot*, number of shots	11%	4%
unobtrusive music	bodily relaxation	*skinny, free, light*	12%	5%
overall atmospheric	haven of escape from work & home	ordering MY way: *no, non, half*	16%	4%

TABLE 6. Percentage of adjectives used that reflect Starbucks' sensory intentions for their customers, based on sensory analysis of Biehl-Missal and Saren (2012:168)

3. DISCUSSION.

3.1. THEORIES OF ADJECTIVE ORDERING. In considering Hetzron's *subjectivity-objectivity gradience* and hypothesized adjective order as applied to Example 1 of *iced half-caff ristretto*

venti four-pump sugar-free cinnamon-dolce soy skinny latte, the two adjectives closest to the noun were numbered with low numbers (3 and 2), which is consistent with what one might expect. However, it is difficult to explain that the adjective eight positions away from the noun is rated as a 2 (a low numbered adjective should be closer to the noun). This indicates that Hetzron's analysis may not best explain how Starbucks' customers are ordering their adjectives. Using the same coffee order from Example 1 to consider the theory that adjective *length* dictates order, where longer adjectives follow shorter adjectives (Wulff 2003:251), it can be seen that this theory also does not explain Starbucks' customers ordering of adjectives, because the word *soy* is close to the noun while the longer word *ristretto* is far from it. Similarly, the hypothesis that *nominal character* drives the ordering of adjectives, with the most noun-like modifiers occurring closest to the head noun (Wulff 2003:252), is also not supported as some noun-like words in Example 1 (*iced, cinnamon*) have not appeared closest to the head noun. The theory of *semantic closeness* for sequencing adjectives, where "things belonging closely together in mind are also put closely together in communication" (Wulff 2003:256), also did not prove as an adequate theory to explain how Starbucks' customers order their adjectives. For instance, from the same Example 1, it does not seem inherent to the word *skinny* that it would be semantically related to *latte*. Interestingly, the most substituted final position category over the Starbucks order was "custom details" in both groups (Table 2). This includes variables such as *no-whip* or *2%-foam*. It is conceivable that users might perceive the customness of their order to be most semantically related to the noun, although analysis showed that in all drink orders from both groups the word concept

used 28% of the time closest to the noun described what the drink was **not** (*nonfat, no-whip, no-foam*). This was higher than other concepts we might expect to be semantically related to coffee, such as flavor, temperature, or caffeine, which were all were less-substituted for final position. Given this analysis, it's difficult to imagine that users are semantically relating what their drink is **not** most closely with the head noun. It may be the case that users are saying what they feel is most important to them closest to the noun, and this importance somehow semantically relates the word to the noun. However, conflicting information comes from data in Table 2 where the most-substituted item to the first variable (furthest away from the noun) was related to caffeine (*decaf* or extra shots), which is arguably quite important to most coffee drinkers. It seems reasonable, then, to consider is that the user's semantic relatedness may not be at all related to how they are ordering their adjectives.

In Wulff's corpus analysis (2003:249) just 0.096% of noun phrases contained adjective pairs, with 4% of those followed by a third adjective. By comparison, Starbucks' customers used adjective pairs 47% of the time while ordering coffee, with three adjectives in an unbroken string at 18%, and three or more adjectives in an unbroken string at 24%. Additionally, HFVs used more adjectives per order and more adjectives in an uninterrupted string per order than DFVs. This would seem to indicate that, indeed, language produced in the context of ordering coffee at Starbucks is quite different from what is found from other contexts.

Based on Mithun's (2001:73) view of recurring constructions becoming automated, one might expect to see a routinization of ordering at Starbucks where customers place their

orders as though they are automated, routinized units, or as routinized units that comply with the Starbucks' system of ordering adjectives, especially for HFVs who may repeatedly order the same, favorite drink and who have repeatedly heard the Starbucks order repeated to them with every purchase. Interestingly, several of the HFVs were overheard saying things such as, "three o'clock comes, and I get a coffee" or "I can't get the day going without my trip to Starbucks," indicating that other aspects of their Starbucks' behavior have routinized. However, the data showed that HFVs used orders that complied with the Starbucks order 28% of the time, whereas DFVs were at 30%, indicating that the Starbucks' order may be used even less as visits increase. Additionally, the use of adjectives not posted on the Starbucks' menu were at a rate of 29% for HFVs compared to 16% for DFVs, and differences were found in the average number of adjectives per order, with 4.61 adjectives used per order compared for HFVs compared to 2.74 for DFVs. These differences between HFVs and DFVs seem to indicate that users are becoming less routinized and more complex in their language use as their visits become more frequent.

It has been asserted that customers "speak Starbucks" (Smith 2012:62), which would imply a certain level of jargon may exist for frequent visitors to Starbucks. Jargon is considered to be the specialized language of a professional, occupational, or other group, often meaningless to outsiders. If HFVs are using jargon, it could explain the DFVs' use of less adjectives in their orders, because they don't yet know the jargon. However, it's arguable that terms such as *half-sweet, soy,* and *iced* would not be meaningless to an outsider. Even if these terms were foreign to an outsider, one might assume that the Starbucks' cup-driven

order would then be the framework of jargon. In that case, again, we would expect to see HFVs with a higher rate of compliance to the Starbucks order, but the data show HFVs actually use the Starbucks cup-driven order less.

To examine the possibility of cross-sensory inputs influencing adjective choices, specific components of Starbucks' environment were investigated based on Biehl-Missal and Saren's (2012:173) analysis of intended customer emotional responses. Adjectives that reflected Starbucks' sensory intentions for their customers were used significantly more often by HFVs than by DFVs. To demonstrate the impact of sensory input on customer behavior, it's important to note that Starbucks is not alone in their efforts to influence customers through cross-sensory input. There are numerous other examples taken from the realm of marketing:

- Lower lighting in the glassware section of IKEA led to increased glassware purchases (Hulten 2012:273)
- French music made people buy more French wine (North et al. 1999:271)
- Fast tempo music made people eat and drink more rapidly (McElrea & Standing 1992:362)
- Single sounds in a chemotherapy medication led people to perceive it as fast, light, or small (Abel & Glinert 2008:1863)
- Color impacted perception of time passing (Gorn et al. 2004:215)
- Impact of alcohol on inhibition differed based on familiarity of environment (Birak et al 2011:686)

The combined influence of these cross-sensory associations is greater than the sum of their parts (Spence et al. 2014:483). Given that language is inherently multimodal, also utilizing sight, hearing, touch, and motor actions (Gallese & Lakoff 2005:460, Krishna 2012:332), it seems reasonable to consider that language may be forming from cross-sensory inputs within the sensory-motor system. When discussing the role of a sensory-motor system we tend to consider perceptible features and action plans. Lakoff and Gallese's (2005:456) example of the word "grasp" invokes many features related to the concept of "grasp" with a central concept or schema for the word. However, there may not be a prototypical, central concept for cross-sensory input, yet these features may still build into prototypes across many concepts. Because sensory input can be almost imperceptible, we may not conceptualize these sensory inputs in the same way that we conceptualize words. This lack of traditional conceptualization shouldn't imply, however, that there isn't relevance for cross-sensory input as it applies to language.

Lakoff and Gallese (2005:460) also discuss how language codes location in relation to given actions. As an example, they discuss the sentence *he grasped the cup in front of him* and how the relation between the action and its location is part of the conceptual structure. This paper proposes that cross-sensory input is processed almost imperceptibly and added across many conceptual structures. However, unlike a cup that is in front of us in the moment, cross-sensory input is subtly washing over us each day as we move through our lives. Inevitably, some of these cross-sensory inputs may repeat themselves through frequent exposures and translate to language.

While Lakoff and Gallese (2005:460) discuss that *action simulation* is what integrates sensory modalities and triggers a "plan" for a specific purposeful action, this paper proposes that input from cross-sensory inputs themselves trigger integration without any one, specific plan. In other words, cross-sensory input does not produce one action, one association, or even one schema to correspond with each input. The almost imperceptible nature of cross-sensory input allows it to subtly spread across many associations. It is stored across these associations and we see its influence over time in language production. In the case of this study, it is seen in the non-routinized use of adjectives by HFVs to Starbucks who've had frequent exposure to a standardized, cross-sensory input. HFVs to Starbucks don't place coffee orders that comply to linguistic theories for how adjectives are ordered, nor do they place orders that comply with the cup-driven order that Starbucks repeats to its customers after each order is placed. Their orders become more unique as their visits increase, using adjectives that are not present on the Starbucks' menu 29 percent of the time.

5. SUMMARY. Collected data reveals that HFVs to Starbucks defy the patterns of adjective use that other linguistic theories might have led us to expect, as well as Starbucks' own, standardized order for adjectives used in ordering their coffee. Additionally, HFVs used a greater number of adjectives when ordering coffee than did DFVs and formed new adjectives that were not found on the menu. HFVs also used adjectives that reflected the cross-sensory intentions of Starbucks for their customers significantly more often than DFVs. Starbucks' cross-sensory input communicates with great frequency through world-wide branded coffee

houses, especially to HFVs, and appears to be a relevant factor in influencing adjective use in that setting.

As a final note, a coffee house in Edinburgh (The Elephant House 2014) is reportedly where J.K. Rowling (1997) wrote much of the famous *Harry Potter* books. Indeed, there is the perception that writers like to work from coffee houses. It may just be the caffeine and having a place to sit. But, perhaps, it's a stream of cross-sensory information that is resulting in an unexpected complexity of adjective use and novels filled with unique text.

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The influence of language transfer and L2 proficiency on the acquisition of argument structure constructions: An ERP study

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ABSTRACT. In this paper we report an event-related potential (ERP) experiment investigating the role of L1 constructions and L2 proficiency in the acquisition of L2 constructions. The subjects took a Grammaticality Judgment Test (GJT) of grammatical and constructional violating sentences that are similar (ditransitive constructions), different (resultative constructions) in first and second languages or unique (caused-motion constructions) in the second language. Both High proficiency group (H-group) and Low proficiency group (L-group) demonstrated different patterns in processing the three different constructions, which indicates the influence of language transfer. The comparative analysis of two groups shows the influence of L2 proficiency on the syntactic and semantic processing of constructions.

Keywords: argument structure constructions, ERP experiment, L2 proficiency, language transfer

1. INTRODUCTION. Construction grammar is the general term for a number of models of grammar (Berkeley construction grammar, cognitive grammar, radical construction grammar, embodied construction grammar, etc.) that all subscribe to the idea that knowledge of a language is based on a collection of "form and function pairings" (Croft 2007:463).

ARGUMENT STRUCTURE CONSTRUCTIONS are form-meaning/function pairings with comparatively complex structures. Goldberg (1995) points out that "simple clause constructions are associated directly with semantic structures which reflect scenes basic to human experience." Different languages may have different ways of expressing the same scenes. So will a learner's first language constructional knowledge influence their acquisition of second language constructions? This study addresses two research questions. First, is there an L1 transfer effect in the acquisition of L2 constructions in adult second language acquisition? Second, what is the relationship between language proficiency and L2 construction acquisition?

We use EVENT-RELATED POTENTIALS (henceforth ERPs) to investigate the influence of L1 constructions and L2 proficiency on the acquisition of L2 constructions. In ERP research of language acquisition ELAN (early left anterior negativity)/LAN (left anterior negativity) and P600 are the main components considered to index syntactic processing of adult native-language (Caffarra et al. 2015, Friederici 2002, van Hell & Tokowicz 2010, Kotz 2009). Some ERP experiments find that similar to native speakers, highly proficient learners show ELAN/LAN and P600. The lack of LAN of low proficient learners is considered to indicate the corresponding language processing (Hahne 2001, Ullman 2005) or indicate that learners

cannot achieve native-like processing (Clahsen & Felser 2006).

2. LANGUAGE TRANSFER EFFECT AND L2 PROFICIENCY INFLUENCE. Language transfer effects and L2 proficiency influence are well studied in ERP research of second language acquisition. Tokowicz and MacWhinney (2005) did an ERP experiment testing 20 low proficient Spanish L2 learners with three different constructions: tense-marking (similar in L1 English and L2 Spanish), determiner number agreement (different in L1 and L2) and determiner gender agreement (L2 unique). The learners were found to be sensitive to violations of similar constructions but not sensitive to violations of different constructions. There was a robust grammaticality effect in the ERP data for the construction that was unique to the L2. The researchers take this as the evidence of language transfer.

Sabourin and Stowe (2008) had similar findings in an ERP experiment comparing L1 and L2 speakers. Native Dutch speakers showed a P600 effect for both constructions tested. But, this effect only occurred in L2 speakers if L1 and L2 were similar. Kotz et al. (2008) examined L2 syntactic processing of a language-specific phenomenon of L2 and a construction similar in L1 and L2 in highly proficient L1 Spanish-L2 English readers. Kotz and colleagues found a comparable picture emerged in the non-native readers of English. Both critical syntactic conditions elicited a P600 only with the distribution and latency varied in the syntactic anomaly condition.

L2 proficiency also has an impact on L2 processing, especially for those constructions that are different in L1 and L2. Rossi et al. (2006) investigated the role of proficiency in late

second-language processing and concluded that late L2 learners with a high proficiency can show native-like neural responses with the timing approximating that of native speakers. In their experiments highly proficient L2 learners in both German and Italian showed ELAN and P600 for all syntactic violations but Low-proficiency L2 learners showed no LAN and delayed P600.

Tanner et al. (2010) investigated the processing of subject-verb agreement anomalies in native speakers of German and beginning and intermediate Anglophone L2 learners of German. They found that learners enrolled in third-year classes showed qualitatively similar brain responses to those found in native speakers. Learners enrolled in first year courses who performed well judging sentence grammaticality showed a P600, though with a later onset and smaller scalp distribution relative to native speakers; first year learners who performed poorer (but still better than chance) at judging sentence grammaticality showed a small N400 effect. They take these findings to indicate that learners pass through discontinuous stages during the acquisition of L2 agreement morphology: Learners process inflected verbs as unanalyzed units in the early stages of L2 acquisition, subsequently decomposing them into stem plus affix sequences and inducing a productive morphosyntactic rule. Since it is hard to separate the effect of language transfer and L2 proficiency, many experiments combine the factors and examine both the transfer effect and L2 proficiency and how they interact.

3. A COMPARISON OF ENGLISH AND CHINESE CONSTRUCTIONS.

We chose three argument structure constructions in our experiment: ditransitive construction, resultative construction and caused-motion construction.

3.1. DITRANSITIVE CONSTRUCTIONS.

Ditransitive constructions or double-object constructions are very common in both Mandarin Chinese and English with the same structure “SVN1N2”.

According to Goldberg the core constructional meaning of ditransitives is defined as “the agent argument acts to cause transfer of an object to a recipient” (1995:32) with some peripheral meaning such as ‘Agent enables recipient to receive patient (permit, allow),’ ‘Agent acts to cause recipient to receive patient at some future point in time (guarantee, promise)’, ‘Agent causes recipient not to receive patient (refuse, deny),’ etc.

Chinese ditransitives are more complicated than their English counterparts. Besides ‘recipient receiving the patient’ the basic sense of Chinese ditransitives includes ‘recipient losing the patient’ or ‘agent getting the patient’. See the examples below.

(1) a. 他 给了 我 一本书。

He gave me a book.

‘He gave me a book.’

b. 他 偷了 我 一本书。

He stole me a book.

‘He stole a book (from me).’

Sentence 1b does not mean that the person stole a book and gave it to me. On the contrary, it means that he stole a book from me (I lost my book because of his stealing). But some Chinese researchers argue that both the ‘recipient receiving the patient’ and ‘recipient losing the patient’ can be the polysemies of ‘transfer’ (Zhang 2006:32). Chinese and English ditransitives are similar constructions with similar syntactic form and constructional meaning.

3.2. RESULTATIVE CONSTRUCTIONS. Chinese and English resultatives are different in their structures, types and the specific constraints for sentence components. The English resultative construction has two types of formation: [Subj V Obj Comp] and [Subj V Comp]. See the following examples:

(2) a. He hammered the metal flat.

b. The river froze solid.

The central meaning is 'X causes Y to become Z by Ving'. Goldberg (1995:180) found that "the resultative can only apply to arguments that potentially (although not necessarily) undergo a change of state as a result of the action denoted by the verb." Goldberg and Jackendoff (2004) posited 4 major types of resultative constructions as follows:

Type	Example
a. Causative property resultative	Bill watered the tulips flat.
b. Noncausative property resultative	The pond froze solid.
c. Noncausative path resultative	The ball rolled down the hill.
d. Causative path resultative	Bill rolled the ball down the hill.

TABLE 1. Major types of English resultative constructions

Chinese resultatives are even more complex. The syntax of Chinese resultatives can be [Subj V Comp Obj] or [Subj V Comp], for example:

(3) a. 妈妈　洗　干净了　衣服.

Mom wash clean clothes.

'Mom washed the clothes clean.'

b. 小明　　玩　　累了.

Xiaoming play tired.

‘Xiaoming played himself tired.’

Many Chinese resultative clauses have been lexicalized such as 打死 (‘beat and dead’), 听懂 (‘listen and understand’), 学会 (‘learn and master’). See an example:

(4) 他　砍倒了　　大树。

He hack-fall a big tree.

‘He hacked the big tree and the tree fell (as a result).’

A tricky feature of Chinese resultatives is that the subject and the object in a resultative construction can interchange their positions with only slight change in style and no change in the constructional meaning. See the following examples:

（5）a. 老王　　喝醉了　　酒。

Laowang drink drunk the wine.

‘Laowang was drunk.’

b. 酒　　喝醉了　　老王。

The wine drink drunk Laowang.

‘Laowang was drunk.’

3.3. CAUSED-MOTION CONSTRUCTIONS. Causing something/somebody to move is a common

scene in daily life. But Chinese and English have very different ways to express it. The caused-motion construction is common in English with the syntax [Subj [V Obj Obl]], and the basic semantics of this construction is ‘X causes Y to move Z’. The extension of caused-motion construction can mean ‘X enables Y to move Z’ or ‘X helps Y to move Z’, etc. See the following examples.

(6) a. Frank pushed it into the box.

b. Frank kicked the dog into the bathroom.

(7) a. Sam allowed Bob out of the room.

b. Sam helped him into the car. (Goldberg 1995:161)

However, there is no such a construction in Chinese. Alternatively there are several constructions in Chinese such as ‘BA-construction’. To Chinese learners of the English caused-motion construction is a L2 unique construction.

(8) 她 把 书 放 到了 书架 上。

She BA- the book put to the shelf on.

‘She put the book onto the shelf.’

4. THE PRESENT STUDY. The present study examines the language transfer effect and the influence of second language proficiency on the acquisition of English argument structure constructions. We use ERPs to find out how high and low proficient L2 learners process English constructions. We hypothesize that both language transfer and L2 proficiency have an

impact on acquisition.

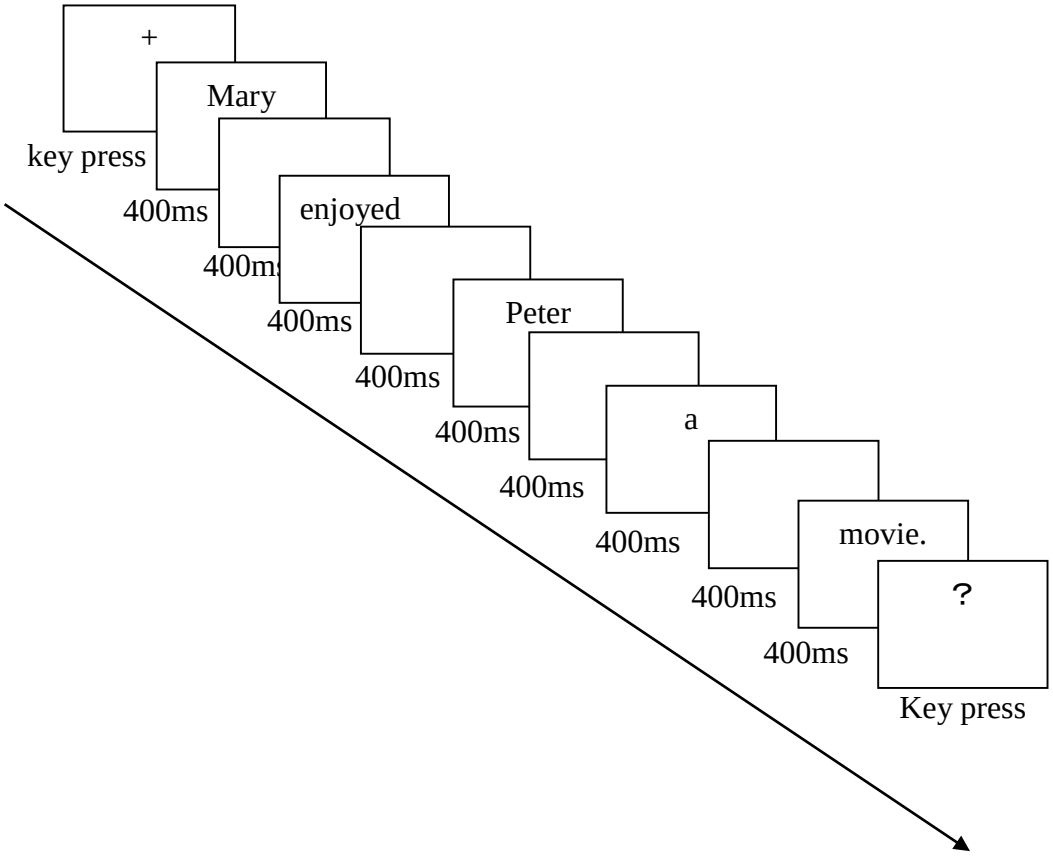
4.1. PARTICIPANTS. The participants in this experiment were 18 graduates (High-proficiency group, henceforth H-group) and 17 second-year undergraduates (Low-proficiency group, henceforth L-group) from the same university in China. They are all native speakers of Chinese and L2 English learners. Two participants from L-group were discarded because of too many artifacts (caused by blinks, muscle activity, etc.) in their neural records. In order to keep the number even we randomly deleted 3 participants from the H-group, thus making 15 participants for each group.

4.2. STIMULI. We examined 3 types of constructions: ditransitive construction (similar in L1 and L2), resultative construction (different in L1 and L2) and caused-motion construction (L2 unique). Every construction contains two versions: grammatical sentences and constructional violating sentences. There are altogether 360 trails for the subjects to make GJT. See the examples of the constructions in Table 2 (* indicating violation):

Construction	Similarity	Example
ditransitive	similar	*Ted runs Owen a hotel. Lily made Vivian a dress.
resultative	different	*Mary designed the clothes clean. She breaks the nut apart.
caused-motion	L2 unique	*Larry printed the file off the table. He hit the ball over the fence.

TABLE 2. Sample stimuli.

4.3. PROCEDURE. As shown in Figure 1, sentences were presented at the center of the computer screen, one word at a time. Each word remained on the screen for 400 milliseconds (ms) with a blank screen appearing also for 400 ms between words. The sentences were presented in a random order determined by the computer program E-Prime. The block of English sentences was counterbalanced. Participants read sentences on a computer screen. The participants indicated whether they thought the sentence was acceptable or not by pressing the buttons, "1" for acceptable, "3" for unacceptable.



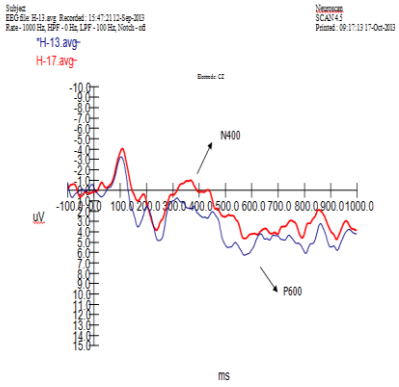
*Mary enjoyed Peter a movie.

FIGURE 1. Time line of events

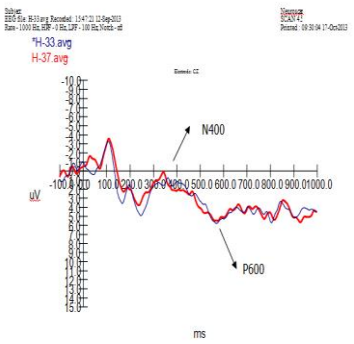
4.4. RESULTS: BEHAVIORAL DATA. Accuracy for each condition was calculated for each

participant. These data were analyzed with ANOVA using acceptability and type of construction as factors. The accuracy of both groups of grammatical sentences is higher than that of constructional violating ones. Overall, L-group has a lower accuracy and longer reaction time than H-group. However, the difference between two groups is not statistically significant in acceptability and reaction time.

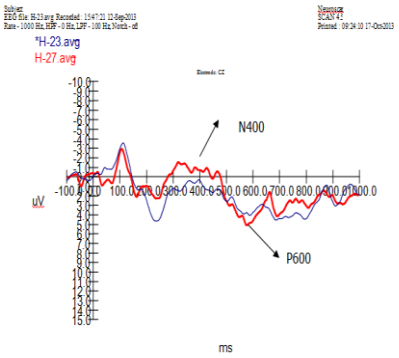
H-GROUP ERP DATA:



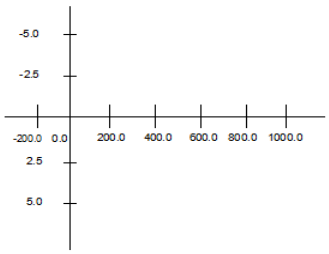
1. ditrasitives



3. caused-motion



2. resultatives



_____ *constructional violating*

_____ *grammatical*

FIGURE 2. Grand average wave-forms for the grammatical and constructional violating sentences of H-group

(1) DITRANSITIVES. Both grammatical and violating sentences elicit N400 and P600. Violating sentences have larger N400 but smaller P600. We expected that violating ditransitives should elicit larger P600 because they are similar in L1 and L2 and the subjects are familiar with them, but the results are different. The possible explanation is that it is caused by the simplicity of the GJT task. N400 comes from the mismatch of semantics and subjects' expectation of ditransitives constructions. Once they perceive the violation they can make the decision without finishing reading the whole sentence, thus lowering the complexity of syntactic processing, which leads to the smaller P600.

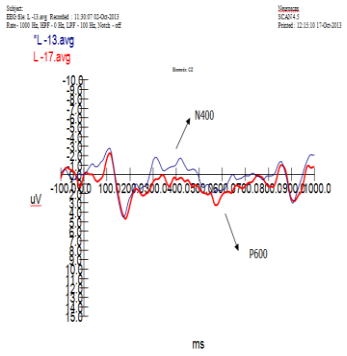
(2) RESULTATIVES. Both grammatical and violating sentences elicit N400 and P600, but the N400 effect is small and the P600 effect is large. The N400 effect, although small, indicates the perception of semantic mismatch. The P600 effect is quite obvious. The constructional violating sentences elicit P600 much larger than grammatical ones, which indicates the difficulty in syntactic processing. The fact that both grammatical and violating sentences have quite large P600 shows that even grammatical resultatives are hard for subjects to process. This is in accord with our understanding of the differences between Chinese and English resultative constructions. The differences lead to the difficulty in understanding and processing even for the grammatical sentences.

(3) CAUSED-MOTION CONSTRUCTIONS. Both grammatical and constructional violating sentences have very small N400 effect and very large P600 with very little difference under both conditions. The N400 effect of caused-motion constructions is much smaller than the other two constructions. This indicates that the subjects have a worse command of the constructional meaning. Both grammatical and violating sentences have large P600, showing the difficulty in processing. The tiny difference under both conditions shows that the subjects

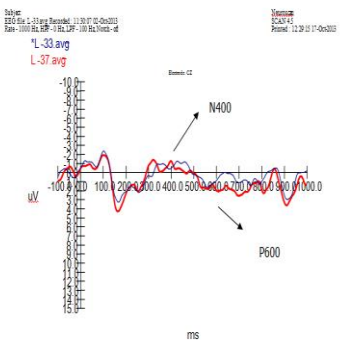
are not sensitive to violation which is possibly from the fact that they do not master the construction and are not familiar with both the structure and meaning.

The comparison of three constructions shows that a similar construction (ditransitives) is easy to process and make accurate grammatical judgments about while the syntactic processing of a different construction (resultatives) is difficult. L2 unique construction is hard to master.

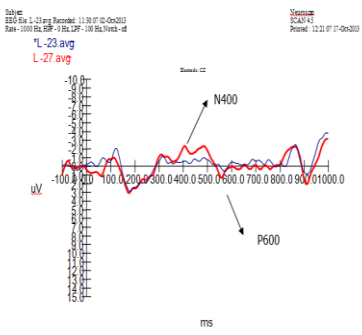
L-GROUP ERP DATA:



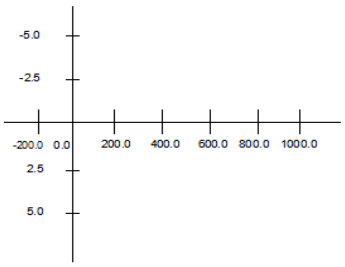
1. ditrasitives



3. caused-motion



2. resultatives



_____ *constructional violating*

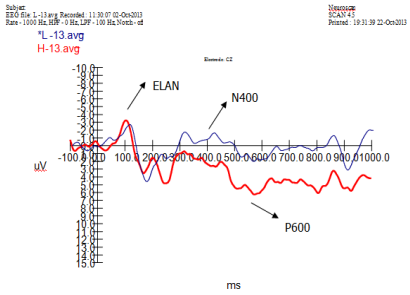
_____ *grammatical*

FIGURE 3. Grand average wave-forms for the grammatical and constructional violating sentences of L-group

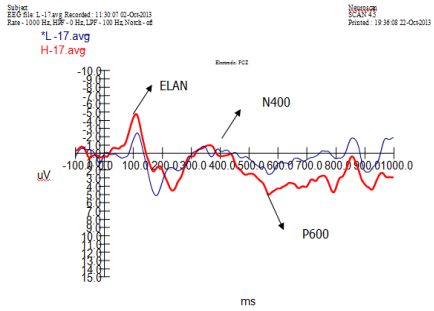
(1) DITRANSITIVES Grammatical sentences elicit N400 but violating ones elicit no N400 and very small P600, which indicates that L-group subjects are not sensitive to violation, the possible reason is that they depend more on lexical semantics and cannot understand and process the constriction as a whole.

(2) RESULTATIVES. Resultatives elicit very large N400 but no P600, which means the subjects are not sensitive to the construction and depend on lexical semantics.

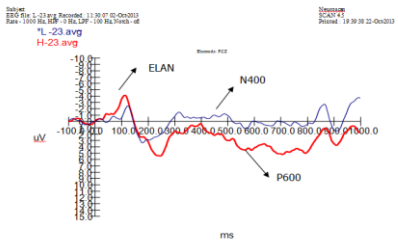
(3) CAUSED-MOTION CONSTRUCTIONS. The comparison of grammatical and violating sentences shows very small difference of N400 and P600. We can conclude that subjects have not mastered the construction.



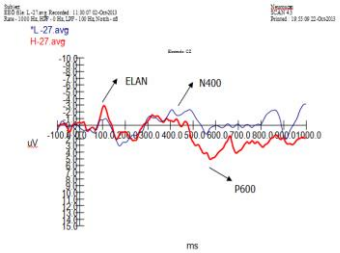
ditransitives (grammatical)



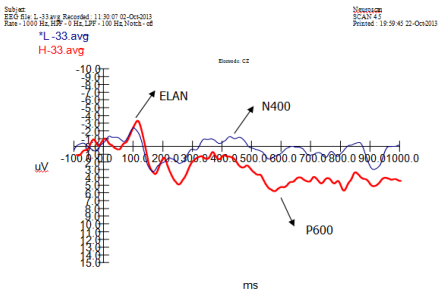
ditransitives (violating)



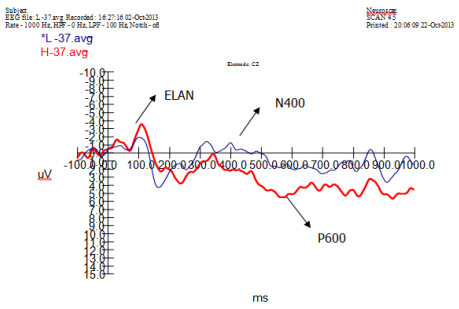
resultatives (grammatical)



resultatives (violating)



caused –motion construction (grammatical)



caused –motion constructions (violating)

FIGURE 4. Grand average waveforms for H-group and L-group. (H-group VS L-group)

When we compare the ERP data of three constructions of L-group we find that similar construction has N400 and P600, different construction has large N400 but no P600, L2 unique construction has no obvious N400 and no P600. L-group shows N400 in most sentences, which indicates their dependence on lexical semantics and lack of syntactic processing ability.

(1) DITRANSITIVES. For the grammatical sentences, H-group and L-group have a similar ELAN component while L-group elicits much larger N400 and much smaller P600. Violating sentences vary much in ELAN but little in N400. H-group elicits much larger P600 than L-group.

(2) RESULTATIVES. Grammatical sentences do not show much difference in two groups for ELAN and N400, with H-group having a slightly larger ELAN and smaller N400. But, H-group elicits much larger P600. Violating sentences have much larger ELAN and P600 but smaller N400 in H-group.

(3) CAUSED-MOTION CONSTRUCTIONS. The two groups show little difference in ELAN of grammatical sentences while H-group has a much larger ELAN for violating sentences. L-group has much larger N400 and smaller P600 under both conditions.

H-group shows ELAN-P600, which is similar to native speakers. P600 of H-group is much larger than L-group, indicating that H-group is much more sensitive to syntactic factors. L-group has only N400 effect under most conditions and shows no ELAN-P600, especially with the constructional violating sentences. This can be caused by the dependence on lexical semantics and lack of syntactic processing ability.

5. GENERAL DISCUSSION. Both language transfer and L2 proficiency have been the focus in second language research. This study uses ERPs to examine the influence of these two factors in

the acquisition of L2 constructions. The results obtained in this study provide proof of language transfer effect and L2 proficiency influence in L2 construction acquisition.

5.1. LANGUAGE TRANSFER EFFECT. First, in H-group we observed both N400 and P600 effects in three types of constructions under both conditions, but there are some differences among these constructions. Constructional violating ditransitives elicit larger N400 but smaller P600 than grammatical ones. We reason that H-group subjects do not need to complete syntactic processing to make the right decisions due to the simplicity of the task. Thus, we infer that H-group has already mastered this construction. Resultatives elicit similar N400 and larger P600 under two conditions, and the violating sentences elicit much larger P600 than grammatical ones, which indicates the processing difficulty even with the grammatical sentences. Being different constructions in L1 and L2, resultatives have different structures in Mandarin Chinese and English, which should be the main reason of L2 learners' processing difficulty. Caused-motion constructions elicit very small N400 but very large P600, even the grammatical sentences have large P600 effect, indicating the processing difficulty. Caused-motion is an L2 unique construction, and only when learners have mastered their form/meaning pairing (constructional meaning), can they process the construction with ease. We found that subjects are sensitive to violating ditransitives and resultatives but not to caused-motion constructions. From the results we can conclude that even the H-group subjects have not mastered caused-motion construction very well.

The processing patterns for the three constructions are different from one another. Ditransitives have N400 and small P600, and thus differ much from the other two. There are differences in processing patterns of resultatives and caused-motion constructions: the former shows different P600 effect for grammatical and violating sentences while the latter has none.

We attribute the different patterns to the constructional distance in L1 and L2, or language transfer effect. Although some behavioral research shows that L2 learners (especially highly proficient learners) can apply strategy similar to native speakers to process L1 and L2 different constructions and L2 unique constructions (see Hoover & Dwivedi 1998), online research on the processing of different constructions can help us determine language transfer effect. Chinese and English ditransitives are structurally and mechanistically similar, which is very helpful for learners. Resultatives in two languages differ in structure, usage and constructional meaning, which leads to the difficulty in acquisition. Caused-motion constructions are L2 unique. There are other constructions in Chinese to express the same constructional meaning, so it is the hardest one to acquire. The results of H-group demonstrate that even grammatical caused-motion constructions require processing effort. Dowens et al. (2010) had similar findings: similar constructions and L2 unique constructions have significant difference in ERP.

L-group also has three different processing patterns for three types of constructions. What is in common is the lack of P600 (only violating ditransitives have very small P600 effect). Grammatical ditransitives have large N400 while violating ones have none. Violating resultatives have very large N400 while both grammatical and violating caused-motion constructions have very small N400. The different patterns can also be explained by language transfer. L1 and L2 similar constructions are easy to acquire even for L-group subjects. There are the usual N400 and P600 effects for violating ditransitives. L1 and L2 different and L2 unique constructions are more difficult to process, which can be seen from the lack of P600. When we compare different and unique constructions we find the differences in processing. The subjects are more sensitive to violating resultatives (eliciting N400) than violating caused-motion constructions (showing almost no difference in violating and grammatical sentences). We believe this reflects the fact

that subjects have a better command of resultatives than caused-motion constructions. The acquisition of L2 constructions are correlated with the language distance.

ERP studies on L2 learners usually do not get as consistent results as native speaker subjects, which is due to the differences in tasks, materials, language proficiency and language distance, etc. Our findings are different from some other language transfer experiments, for example, Tokowicz and MacWhinney (2005) found that low proficiency learners have P600 in violating L1 and L2 similar and L2 unique constructions while no effect in different constructions. We think that the possible reason might be the difference in language proficiency. We infer that in Tokowicz and MacWhinney (2005) the L2 proficiency is higher than our L-group subjects. In Rossi et al.'s (2006) experiment high proficient subjects have LAN/P600, and low proficient subjects have similar response in morphosyntactic violating but violating agreement has only P600. Our L-group results are quite different from Rossi et al's, especially the P600 component. We infer that the language distance is a crucial factor. Chinese and English are much more different than German and Italian in language type.

5.2. L2 PROFICIENCY INFLUENCE. ERP data show the influence of L2 proficiency on learners' understanding and processing of L2 constructions. When we compare the ERP data between H-group and L-group, we find that violating sentences have ELAN-P600 in H-group but not in L-group, as can be seen in Figure 4. The latter has a large N400 effect. According to the current understanding of N400, we infer that L-group subjects rely more on lexical semantics and they do not have the corresponding syntactic processing ability. While H-group's processing pattern is quite similar to that of native speakers. Thus we conclude that L2 proficiency has a great impact on learners' processing and acquisition of L2 constructions.

6. CONCLUSION. The results of our ERP experiment indicate that H-group demonstrates ELAN/P600 which is the typical native speakers' response to syntactic violation. We conclude that subjects with high L2 proficiency have the syntactic and semantic processing ability. While the lack of ELAN and P600 shows that L-group subjects do not have the corresponding syntactic processing ability. From the N400 effect we conclude that low proficiency subjects rely more on lexical semantics and probably have not formed the concept of some constructions. Based on the previous ERP studies on language processing, we draw the following conclusions from the present study:

(1) The different processing patterns of three types of constructions indicate that H-group has good command of resultative constructions and better command of ditransitive constructions but probably no command of caused-motion constructions. We think that the language transfer effect can explain the different processing patterns, i.e., Ditransitives are similar in two languages and the similarity in structures and meaning can help learners in acquisition. Resultatives are different in two languages and the differences in form, meaning and usage are advantageous for learners to acquire English resultatives. Caused-motion constructions are L2 unique and without explicit instructions learners cannot acquire them (Littlemore 2006).

(2) The different processing patterns of different constructions of L-group also show the influence of language transfer. As H-group subjects, they have better command of ditransitives than resultatives and they do not acquire caused-motion constructions.

(3) The comparison between the two groups shows the influence of L2 proficiency. The ELAN/P600 helps us to infer that the H-group subjects have the semantic and syntactic processing ability similar to native speakers while the lack of ELAN/P600 in the L-group indicates the lack of corresponding processing ability. The N400 effect shows that L-group

depends on lexical semantics and has not formed the construction.

It is hard to determine the influence of language transfer and L2 proficiency from the behavioral data only. With the ERP data we find evidence of implicit language processing and come to more convincing conclusions.

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