What's happening with HAPPEN? The Grammaticalization of HAPPEN in American Sign Language

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ABSTRACT. In grammar books and dictionaries of American Sign Language (ASL), the word HAPPEN is generally described as a conjunction. We challenge the idea that HAPPEN functions as a 'conjunction' and instead propose an analysis of meaning and form which results in the conclusion that HAPPEN is rather functioning as an evidential marker which is grammaticalizing from the canonical verbal use. Based on the Morford, MacFarlane Corpus (2003) of 4,000 words in ASL, as well as ASL video blogs (VLOGs), interviews, and public service announcements (PSAs) collected from public YouTube channels, we extracted 50 tokens of HAPPEN from various native signers. Our analysis bears out at least three distinct uses of HAPPEN based on syntactic distribution; verbal (34%), nominal (12%) and what we will call an evidential marker (54%); denoted respectively by the following notation: HAPPEN, HAPPEN+, and HAPPEN$_1$. In addition to varied syntactic distribution, we also observe variations in phonological form and a shift in semantics toward a more subjective meaning in HAPPEN$_1$. We conclude that the canonical form of HAPPEN is undergoing a grammaticalization process evidenced by reduction in the phonological form, syntactic constriction, and semantic bleaching.

Keywords: signed languages, grammaticalization, usage-based grammar, discourse markers, conjunctions, evidentials

1. INTRODUCTION. The study of grammaticalization in signed languages is a field with potential to illustrate how diachronic changes are manifested in the lexicon of a visual modality. Though spoken language linguists have documented countless examples of grammaticalization, little work has been completed on understanding this process in signed languages. Pioneers in the field of signed language grammaticalization have shown that, like spoken languages, signed languages follow similar paths of grammaticalization with the additional caveat that signed languages also have a modality-specific pathway to grammaticalization originating in gesture rather than from within the lexicon itself (Armstrong et al. 1995, Janzen 1999, Janzen & Schaffer 2002, Wilcox et al. 2000, Wilcox 2007, Schaffer & Janzen 2012).

The set of ASL lexical items HAPPEN, UNDERSTAND, HIT, FIND, FINISH, and WRONG have traditionally been analyzed as conjunctions (Fischer & Lillo-Martin 1990, Valli 2005). Second language learners of ASL are taught that these signs occur in coordinate positions and link the content from the first clause to the second clause. The following constructed examples of HAPPEN and HIT from Humphries & Padden (1994:188) illustrate the traditional analysis for this group.

(1)   PRO.1 WALK, **WRONG** RAIN
'As I was walking, **it suddenly** started raining.'

(2)   PRO.3 GO-AWAY VACATION, **HIT** LAID-UP SICK.
'He went on vacation **then unexpectedly** became ill.'

(3)   PRO.1 CHAT **HAPPEN** $_3$TELL$_1$ PRO.3 FROM WASHINGTON.
       'I was talking with him **and it happened** he told me he was from Washington.'

       While we agree with the glossing of the examples listed above, we have documented, alongside other linguists (Janzen 2007, Fischer & Lillo-Martin 1990), that the sign HAPPEN exhibits unique phonological, syntactic and pragmatic characteristics not included in Humphries & Padden's description of the sign. More specifically, the distribution of HAPPEN varies depending on the grammatical function the sign plays in a sentence. The three distinct phonological forms found in our data seem to correspond to three distinct functions: noun, verb, and evidential marker. Moreover, our data suggests that the use of HAPPEN as an evidential marker has grammaticalized from the original verbal form *to happen* and become phonologically and syntactically restricted, while also undergoing semantic modification.

2. BACKGROUND

2.1. GRAMMATICALIZATION. Using large corpora of primary source data has allowed linguists to look at language as it naturally occurs, within a discourse context. Corpus-based studies of linguistics can show how language truly functions, not just the linguist's best guess. It is through such an approach that the study of grammaticalization has arisen. Although the term arose in the early twentieth century, our current theoretical conception of grammaticalization was not formed until the end of the twentieth century by linguists such as Givón (1971), Lehmann (1983), and Traugott (1989), among others.
       Grammaticalization seeks to explain the nature of grammar through an examination of how it is created over time (Bybee 2006:712), no longer treating grammar as a synchronous set of rules. Research on grammaticalization has helped us to see grammar as a living, breathing organism, dynamic and emergent. In his 1991 article, Hopper suggests five principles which are indicative of the early and medial stages of grammaticalization: LAYERING, DIVERGENCE, SPECIALIZATION, PERSISTENCE and DE-CATEGORIALIZATION. Here we will briefly review the definitions of these principles of grammaticalization, in order to set the stage for our analysis of HAPPEN as it shows evidence of grammaticalization.[2] The following definitions are based on Hopper's original explanation for each principle.

       1) Layering: Refers to the idea that synchronically, several forms may fulfill a single linguistic function. New functions are added to the older functions so that additional layers emerge within the functional domain.
       2) Divergence: Describes the state of affairs after a split in meaning occurs.
          'When a lexical form undergoes grammaticalization to a clitic or affix, the original form may remain as an autonomous lexical element and undergo the same changes as ordinary lexical items' (22).
       3) Specialization: Is the decrease in scope of the meaning of a lexical item as it grammaticalizes. Eventually, specialization leads to a generalized grammatical meaning, different in specificity and scope from the original lexical form.
       4) Persistence: Conveys the idea that during the process of grammaticalization, it can be expected that a form may be polysemous, and that one or more of its meanings will reflect a dominant earlier meaning.

5) De-Categorialization: Describes the process that occurs as a lexical item moves toward grammaticalization, and experience a semantic shift. Generally, this can be the loss of noun-like or verb-like grammatical markers such as case or tense, an item becoming more syntactically constrained as compared to their lexical progenitor, or the loss of the autonomy afforded to members of its grammatical class, and often, the acquisition of discourse-type functions.

2.2. GRAMMATICALIZATION IN ASL. Cross-linguistically, researchers have proven that grammaticalization is a universal tendency. Looking at the process of grammaticalization in signed languages is a burgeoning field (e.g. Janzen 1995, Wilcox 2007). One of the tribulations of grammaticalization studies in signed languages is the lack of historical documentation, often going back only hundreds, rather than thousands, of years. There are precious few resources available documenting historical forms of ASL. Material comes from early illustrated dictionaries of sign language (Long 1910), archival video, and dictionaries of Old French Sign Language, as the two languages are intimately related and share many cognates.

Regardless of the limited historical resources, linguists have made progress in describing grammaticalization processes in signed languages. Wilcox (2007) has shown that signed languages have two different pathways through which grammaticalization can progress. While the first pathway is not unlike the grammaticalization process in spoken language, in which a lexical item can become a grammatical item, the second pathway seems to suggest that signed languages can skip over the lexical stage and move directly from gesture to a grammaticalized item. This is a type of grammaticalization not seen in spoken languages. An example of this is the gesture of surprise, eyes wide open, eyebrows raised, perhaps head tilted forward or mouth open. Wilcox (2007) makes the connection between this surprise gesture and the marking of a polar question. It seems that when you ask a polar question you are anticipating a response and thus the gesture of raised eyebrows or widened eyes naturally accompanies the question. This natural expression then becomes grammaticalized over time to be the grammatical marker of a polar question. Janzen (1999) has proposed that this grammatical marking for polar questions in ASL has grammaticalized over time to also become a grammatical marker for topic.

The connection between these two seemingly different constructions of the polar questions and topic marking in ASL is in the idea of shared information between the signer and the addressee. In both constructions it is clear that some amount of information is shared between the speaker and addressee concerning previously accessible and identifiable content. While there is a loss of interactivity between the signer and addressee in the topic marking construction, in that no response is required, the topic construction still functions similarly to the polar question function, in that it assumes that there is previous information that is accessible and identifiable to the addressee.

2.3. TOPICALIZATION. The way in which speakers of a given language package information and organize discourse units depends largely on how the language codifies such information. Sandler and Lillo-Martin (2006) suggest that one such way is a topic/comment construction. In some languages, such as English, topics are grammatically tied to the subject; such languages are often dubbed subject prominent. In subject-prominent languages the subject is a fully grammaticalized category and functions as the clause topic. This is not, however, a language's only option; in fact, topic-prominent languages do not have a formalized subject category but instead have grammaticalized the topic/comment construction itself.[3]

ASL has long been considered an SVO language, albeit one which makes heavy use of topicalization as an information packaging strategy. Janzen (1995) has argued that ASL has more in common with Mandarin, in terms of sentence structure of topic marking, than it does with English, and concludes it is in fact a topic-prominent language.

2.4. TENDENCIES OF TOPIC MARKING. In his 1978 treatment of conditionals and topics cross-linguistically, John Haiman convincingly demonstrated that disambiguation of the two is spurious. In actuality, topics and conditionals often share a common definition, common form (phonologically),[4] and common function (syntactically), with both identifying a frame of reference in which the main clause is either true or false. Haiman proposed that the reason these similarities are not often recognized in English is because of a superficial difference between *if* and *given that*. In reality, conditionals add to your stock of knowledge irrespective of whether the proposition is true or false, as is the case with *if*. In other words, a conditional construction selects a single instance from the sum of all possible worlds.

Strong support for the argument that HAPPEN is functioning as an evidential marker in ASL comes from Haiman's treatment of Chafe (1976), where discourse is considered a stage upon which a speaker introduces themes; 'The topic sets a spatial temporal or individual framework (...) which limits the applicability of the main prediction to a certain restricted domain' (Haiman 1978:585). We find the topic marked use of HAPPEN to function in this way.

2.5. TENDENCIES OF SEMANTIC AND PRAGMATIC CHANGE. In the following we discuss tendencies of semantic and pragmatic meaning common to grammaticalization processes and their relation to the observed functions of HAPPEN. According to Traugott 1989, propositional meanings may evolve over time to become textual (lending cohesion to a discourse) or expressive (having pragmatic or presuppositional meaning). We see this tendency for HAPPEN in our data.

Traugott represents this tendency schematically as: propositional > ((textual) > (expressive)). An example is the progression of an Old English (OE) collocation through Middle English (ME) to Present Day English (PDE), as seen in figure 4 below.

(4)   while be   while   while
      'at the time that'   'during'   'although'
      OE   ME   PDE

Traugott extends her hypothesis to propose there are highly general principles underlying lexical and grammatical items' change into expressions of epistemicity. The first part of this argument is that paths of semantic change treat epistimicity and evidentiality in identical ways. There is a degree of nebulousness in disambiguating these terms. Deontic meanings have to do with will, obligation and permission while epistemic meanings with knowledge, belief, possibilities and probabilities. Evidentiality and epistimicity both arise from auxiliary verbs, speech act verbs and modal adverbs. They both mark the state of the speakers' belief/knowledge and both mark the source of information. In summary, deontic and epistemic modals are concerned with the nature and source of knowledge; hence, despite differences in marking time and place vs. perception, they have more similarities than they do differences.

Pragmatically we tend to observe a strengthening of informativeness and relevance when lexical items undergo deontic and epistemic changes. According to Traugott (1989:51), 'Pragmatic strengthening & relevance as I use the terms largely concern strategic negotiation of

speaker-hearer interaction and, in this connection, articulation of speaker attitude.' The paths of semantic change outlined are as follows:

Tendency I: External Situation > Internal Situation (e.g. 'touch').

(5) a. John touched the jar.
     b. John was touched by the melody.

Tendency II: External/Internal Situation > Textual/Metalinguistic (e.g. 'observe').

(6) a. John observed the sails of the ships.
     b. Observe that John is a shipwright.

Tendency III: Meanings become more based in speaker subjective belief-state/attitude toward the proposition (e.g. 'while').

(7) a. John waited for a while at the harbor.
     b. While that may be true, John disagrees.

Furthermore, these tendencies proceed consecutively over the course of semantic shift. It is our analysis that HAPPEN is in the process of undergoing the third kind of change. In its grammaticalized form, HAPPEN exhibits both pragmatic strengthening—it signifies the following content as relevant and an increase in subjectivity; based in the speaker's own experience and emotions. As an evidential marker, HAPPEN also seems to function as evidential, providing information about the source of the utterance and its verifiability.

3. METHODOLOGY

3.1. DATA COLLECTION. ASL does not have a large, publicly available corpus from which to collect tokens of native speech; as a result, ASL researchers are forced to create their own corpora. One such way is to compile a collection of publicly available ASL video recordings which can later be transcribed and analyzed. We extracted 50 tokens of HAPPEN, a small number from the Morford – MacFarland Corpus (2006) of 4,000 ASL words, as well as a larger portion from Video Blogs (VLOGS), ASL interviews, and public service announcements (PSAs) collected from YouTube channels, which are open access and publically available. Speaker nativeness was judged based on conversational content including the VLOGers discussions of growing up with Deaf parents and being immersed in Deaf culture, having experiences as a Deaf person growing up, or from biographical information listed in the VLOGers online biographical sketches associated with their YouTube channel.

3.2. DATA TRANSCRIPTION. The conversations were transcribed using ELAN annotation software, originally for language and gesture studies, now widely used by signed language linguists. ELAN has grown in popularity in recent years in signed and spoken language corpus-based studies due to the many advantages it offers over traditional methods. ELAN allows real time, synchronized annotation of the primary source rather than the traditional creation of a separate transcription file, which inevitably becomes the primary reference for analysis, even though it is a secondary source.

Data were tagged for grammatical function, phonological form, and syntactic position as well as any additional pragmatic information added to the usage event for each token of HAPPEN.

4. RESULTS. From the 50 transcribed tokens, three distinct uses of HAPPEN arose; namely verbal, nominal and an evidential marker; each of which had distinct phonological forms. Each type of HAPPEN is denoted by the following notation: HAPPEN for the canonical verbal form, HAPPEN+ to denote the nominal form (often glossed as EVENTS) and HAPPEN$_1$. Description and distribution shown in Table 1:

Gloss	HAPPEN	HAPPEN+	HAPPEN$_1$
Tokens (n = 50)	17	6	27
Part of speech	Verb	Noun	Discourse marker
Translation	to happen	events	then, one time, once
Syntactic dist.	Unrestricted	Unrestricted	Clause initial
Phonological marking	[pivot] [orientation]: *pronation → abduction*	[pivot] [orientation]: *pronation → abduction* [repeat]	*either/or* [pivot] only [orientation] only: *pronation → abduction*

TABLE 1. Description and Distribution of HAPPEN data.

Examples of their use in context are as follows:

(8) PRO.3>wife SUPPOSE SOMETHING **HAPPEN** TO PRO.3
(wife saying): 'What if something had happened to you?' (Letsgofly08)

(9) PRO.1 SIGN TELL-STORY THAT FUNNY **HAPPEN**+
I was telling a story about some funny events.' (KeithWann)

(10) $\overline{\text{HAPPEN}_1}^{\,t}$ PRO.1 WORK FOR GALLAUDET (...)
'I was working for Gallaudet University.' (Dndmartin)

4.1. PHONOLOGICAL REDUCTION. Our data shows a progression of reduction from HAPPEN to HAPPEN$_1$ in which the verb is rarely reduced but evidential marker forms are frequently reduced. The forms HAPPEN and HAPPEN+ are examples of a common process in ASL identified by Supalla & Newport (1978) as VERB/NOUN PAIRS. In these pairs, semantically related processes and things (verbs and nouns) are differentiated in their form by a larger single movement for verbs and smaller reduplicated movements for nouns. Examples of this verb/noun paradigm from ASL are PRINT/NEWSPAPER, CHIRP/BIRD, SIT/CHAIR, and FLY/AIRPLANE. It is common in these pairs for the reduplicated movement to be partially reduced in manner or

degree. For example in SIT/CHAIR, the pointer and middle finger are bent on the dominant hand (representative of bent legs) which then move downward to contact the same two fingers of the non-dominant hand (representative of a chair seat). In the verbal form the distance the dominant hand travels before contact is greater than any single token of the noun's reduplicated movement. Additionally, we can describe the verbal movement as more PROXIMALIZED while the nominal movements are more DISTALIZED.

We see this same tendency in HAPPEN/HAPPEN+. The degree of movement in the noun is reduced as compared to that of the verb. In our data we found variation where the full form has both a twisting articulation at the elbow and a twisting articulation at the wrist. This form is based on the earliest documented uses of verbal HAPPEN (Long 1910). This twisting often reduces to wrist only articulation in the nominal and evidential marker tokens of HAPPEN. The parameters that vary in our analysis are PRONATION, when the hand and wrist have not been modified (i.e. are at a neutral position with wrists facing inward as they would be held at rest), and ABDUCTION, in which the hand is facing down without movement of the wrist, but rather with a movement of the forearm which originates from articulation at the elbow.

FIGURE 1. Early attested form of HAPPEN (Long 1910).

The manner of reduction seen in HAPPEN+ is often identical to that in HAPPEN$_1$ with the notable exception that HAPPEN$_1$ has no reduplication of movement. Either the abduction or pronation may be elided. One type of phonological reduction, common across signed languages occurs when the movement of a sign, which is canonically produced closer to the body (proximally), is produced further from the body (distally) (Brentari, 1998). Thus, we should expect the absence of abduction to be the more common form of reduction (as opposed to pronation) as well as an indication of a higher degree of reduction.

We found no clear tendency in the direction of either abduction or pronation absence and so categorized either type simply as phonological reduction. We did find significant reduction in phonological form for evidential markers 63% (17/27) compared to 6% (1/17) for verbs and 0% 0/6 for nouns (p < .001).

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	HAPPEN/HAPPEN+	HAPPEN$_1$
Phonological full form	22	1
Phonological reduction	10	17

TABLE 2. The relation between phonological reduction verses discourse uses of HAPPEN.

4.2. SYNTACTIC RESTRICTION. Neither HAPPEN nor HAPPEN+ show restrictions in their possible syntactic environments. We found both verbal and nominal forms of the sign in phrase medial and final positions. Our analysis does not preclude them from occurring phrase initially but in our data we did not encounter any such instances. In the following we see HAPPEN used medially in example 11 and finally 12 as well as HAPPEN+ used medially 13 and finally 14 while the evidential marker HAPPEN$_1$ overwhelmingly occurs phrase initially.

(11) PRO.1 WANT INFORM ONE STORY **HAPPEN** TRUE-BIZ HAPPEN
       TERRIBLE EXPERIENCE
       'I want to tell you about one true story that **happened** to me, was a
       terrible experience.' (Dndmartin)

(12) #WHAT **HAPPEN**?
       'What **happened**?' (Morford-MacFarlane)

(13) THAT TRUE CONNECTION U-N-I-T-Y THAT FINISH **HAPPEN+**
       UP-TIL-NOW FINISH SEE+
       'Now that is true unity, **those things** you often see.' (Ella Mae Lentz)

(14) PRO.1 SIGN TELL-STORY THAT FUNNY **HAPPEN+**
       'I was telling a story about some funny **events**.' (Keith Wann)

Any exceptions to the initial position of HAPPEN$_1$ were instances in which the preceding constituent is a time adverbial. Pragmatically, time adverbials and HAPPEN$_1$ perform similar functions, so it is unsurprising to find their order to be interchangeable as in 15. Additionally, HAPPEN$_1$ was followed by an NP in most cases (n=21). In the few instances where we did not find HAPPEN$_1$ to be followed by an NP (n=24), time adverbials present. Such adverbials appear to be interchangeable with HAPPEN$_1$ as they serve very similar functions. Alternately, we did have an additional three instances where the following consitutent was a verbal phrase (VP). We were forced to exclude these tokens due to low token frequency; there were not enough instances to form any kind of generalization. We believe that HAPPEN may have a fourth grammatical use, that is, when used in these pre-verbal phrases it seems to be functioning as a type of modal or auxiliary verb. The approximate translation in such instances may be 'was' or 'did' HAPPEN. Though we have too few tokens to make strong predictions about this other usage, modals and auxiliaries are common candidates for grammaticalization processes, and including this use in our grammaticalization argument would not be counter-intuitive (see 15 for an example).

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       _____

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(15) ALWAYS **HAPPEN₁** HIT ONE HEARING MAN STARE MEAN MOCK DEAF
       'Then it always **happens that** suddenly a mean hearing man will see the fire and mock
       the Deaf.' (Olsenterp)

Here the ASL sign HIT is not the verb 'to hit', but the adverb HIT which commonly is
glossed as SUDDENLY. Here our token of HAPPEN occurs between two adverbs, suggesting an
additionally restricted syntactic environment for the reduced form.

4.3. SEMANTIC/PRAGMATIC SPECIALIZATION. We find HAPPEN₁ to function as an evidential.
Following Traugott's (1989) definition of evidentials, HAPPEN₁ serves to mark the source of
information and the speaker's belief about the validity of that source. Namely HAPPEN₁,
occurring before the recitation of a narrative, tells the interlocutor that the speaker has a personal
interaction with the content following and that they believe it to be true. HAPPEN₁ also clearly
grounds the statement in the past (except in conditional use).

Additionally, subjectivity is common of evidentials. We suspect HAPPEN₁ along with
the other 'conjunctions' discussed in the introduction of this paper, give information about the
emotional state of the speaker. This tendency is clear with examples like WRONG or HIT where
distress and surprise are conveyed respectively. With HAPPEN₁ subjective content is slightly
more nebulous, but there are intimations of speaker interest in the topic, and a desire to convey
relevance. The marking of relevance is one of the properties of Traugott's third tendency of
semantic change.

Using HAPPEN₁ at the beginning of a story or phrase alerts the listener as to what the
speaker wishes to talk about. This is clearly the domain of topic marking; therefore,
unsurprisingly we find near total co-occurrence of HAPPEN₁ and topic marking in our data.
Janzen (2007) has called these FORWARD-LOOKING or TRANSITION PIVOTS that suggests they add
coherence and cohesion to the discourse. With the following chain of relations in mind we
conclude that HAPPEN₁ is a grammaticalized evidential marker. HAPPEN₁ exhibits reduction in
form, reduction of syntactic distribution, specialization of its semantic content, and functions in
discourse significant constructions.

This type of grammaticalization process is not limited to ASL. The verb, 'to happen,'
exhibits a crosslinguistic tendency toward grammaticalization into an evidential marker, or
marker of evidentiality. We see evidence of a similar construction grammaticalizing in Curnow
and Travis (2009:22). The Spanish verb *pasar* (to happen) appears in a similar context to
HAPPEN₁ as a focus element in pseudo clefts.

(16) *lo que pasa es que estaba= mal conectado*
       'The thing (lit. 'what happens') is that it is badly connected.' (Curnow and Travis 2009)

Significant pragmatic strengthening, following the definition discussed above, was found
for the reduced forms of HAPPEN more often than for unreduced forms; 100% (27/27) for
HAPPEN₁, compared to 6% (1/17) for verbs (HAPPEN) and 0% (0/6) for nouns (HAPPEN+) (p
< .001). The associations between the forms (reduced vs. full) and semantic-pragmatic use
(verb/noun vs. discourse uses) is illustrated in Figure 2. The size of the circles corresponds to the
frequency of the given type. The thickness of lines indicates the strength of the association,
based on the numbers in Table 2. The strongest association are from reduced forms to discourses
uses (HAPPEN₁)and full forms to canonical uses (HAPPEN and HAPPEN+), supporting our

categorization of form and meaning relations (Table 1). In this way variable discourse situations can be resolved toward disambiguition where an innovative phonetic form has a narrowed meaning/sense. This is precisely the traditional characterization of grammaticialization processes (Bybee 2006:726).
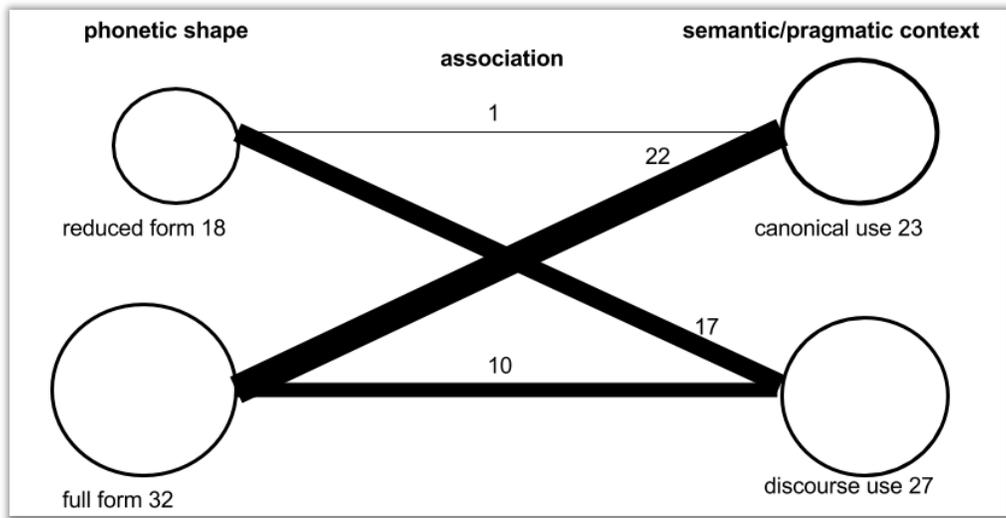

FIGURE 2. Phonetic and semantic/pragmatics in tokens of HAPPEN.

5. CONCLUSION. Though our sample size is smaller than most literature on grammaticalization processes we found a clear tendency for HAPPEN$_1$ to function as an evidential marker, possibly including co-occurrence of topicalization. In the future, as larger ASL corpora become available, we would like to test this tendency against a bigger corpus to see if the pattern persists. Janzen (1999) and Fischer & Lillo-Martin (1990) have demonstrated the tendency of other verbs to follow a similar path as HAPPEN, namely FINISH and UNDERSTAND respectively, shifting their function and usage toward a discourse level marker. All three of these verbs belong to the same category; signs previously considered to be conjunctives. While this usage as a conjunctive may have been the primary stage of their grammaticalization, from verb to subordinating conjunction, it seems clear that these words have continued to grammaticalize, picking up more pragmatic function along their path. Fischer & Lillo Martin (1990) have suggested that other verbs, such as WRONG and SUPPOSE, have also made the transition to subordinating conjunctions. If we are to assume that the shift toward subordinating conjunction is only the first step in the process of grammatical change, perhaps these word too have followed FINISH and HAPPEN to become further grammaticalized into evidential marker. Regardless, it is clear that the grammaticalization path from full content word to functional item – well established cross-linguistically in the spoken modality – holds true within the manual modality of ASL as well.

NOTATIONAL CONVENTIONS: IDENTIFYING SIGNS

Symbol	*Example*	*Use*
SIGN	CAT	A single uppercase English word identifies a single ASL sign. Using the gloss CAT to identify a sign 'cat' does not mean that the sign has the same morphological, syntactic, or semantic characteristics as the English word *cat*.
SIGN-SIGN-SIGN	OH-I-SEE	Uppercase English words separated by hyphens also represent a single sign.
SIGN^SIGN	HOME^WORK	The symbol ^ indicates that two signs have been combined into a single compound sign.
SIGN+++	TREE++	Plural form of a noun, denoted by repeated morphemic movement.
SIGN+	HAPPEN+	
S-I-G-N	B-U-D-G-E-T	Hyphens between uppercase letters indicate a sequence of alphabetic character signs used to spell a word.
#SIGN	#WHAT	A word beginning with the symbol # indicates a lexical sign whose origin is ultimately traceable to a sequence of alphabetic character signs.
PRO.#	PRO.1	The notation -1 indicates a first person form. Number represents person.
POSS.#	POSS.1	Denotes a possessive form. Number represents person.
SIGN$^{[ASPECT]}$	WORK$^{[DURATIONAL]}$	A sign derived from WAIT. The label in the square brackets identifies the grammatical process underlying the sign being represented.
SIGN$_1$ . . . SIGN$_n$ THEME----------	EVERY-WED CALENDER------	The top line represents the signing of the strong hand while the bottom line represents the signing of the weak hand. Here the weak hand maintains the THEME buoy in place during the sign sequence SIGN$_1$ . . . SIGN$_n$ This serves as a form of anaphoric schematization.

'gesture'	'wave'	Denotes a gesture without specified lexical form.
(a) _____ x $SIGN_1$ . . . $SIGN_n$ (b) $[SIGN_1 . . .SIGN_n]$-x	(a)_____ t BOOK RED (b) [BOOK RED]-t	The sequence of signs from $SIGN_1$ to $SIGN_n$ is accompanied by a non-manual signal, in this case for topicalization. Other non- manual signal categories include n (negation), q (y/n, rhetorical, wh question), cond (conditional), and certain adverbials. [1]

NOTATIONAL CONVENTIONS: DIRECTION AND PLACEMENT

Symbol	*Example*	*Use*
(a) $PRO_{→x}$ (b) [PRO]>x	(a) $PRO_{→girl}$ (b) [PRO]>girl	→x indicates that the sign is directed toward entity x. Entity x will be either an element of real space or a real-space blend. [1]
$PRO_{→|x|}$	$PRO_{→|aunt|}$	→|aunt| indicates that the sign is directed toward the blended entity |aunt|.
$PRO\text{-}PL_{a-b-c}$	$THEM_{John - Mary - Ed}$	a - b - c indicates that the hand moves along a path, such that the extent of the path points toward entities a, b, and c.
$_xSIGN_y$	$_3GIVE_1$	Indicates that the sign begins nearer to and/or directed toward x, then moves toward y.
$[SIGN]_{→L}$	$[COLLEGE]_{→L}$	The nondirectional sign enclosed the square brackets is directed toward location L.

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NOTES

[1] Authors listed alphabetically.
[2] For a more in depth discussion of these 5 principles of grammaticalization see Hopper 1991).
[3] Janzen (1999) provides a description of Li and Thompson's article on formalized topic-comment structure in Mandarin Chinese and its relation to ASL topic/comment structure.
[4] Of course this varies typologically, though topic and comment do have a strong tendency to be marked the same within a given language.