Grammaticalization of Verbs of Cognition and Perception

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Seongha Rhee. 2001. Grammaticalization of Verbs of Cognition and Perception. ***Studies in Modern Grammar*** **24, 111-135.** This paper is an exploration of the grammaticalization phenomena displayed by the verbs of cognition and perception. Drawing upon cross-linguistically attested data, this paper shows that verbs of cognition and perception predominantly grammaticalize into epistemic markers. This is a natural consequence because the grammaticalized markers exhibit semantic residue of the source items, which, in this case, make direct reference to the sources of the human construal of the world affairs. This paper explicates how other grammatical functions are developed from these verbs. In so doing it also argues that the features that are selected for grammaticalization are those that are experientially salient features in conceptual event schemas.

Key words: grammaticalization, cognition, perception, evidentials.

1. Introduction

In accordance with the current research trend in grammaticalization, which aims at exploring the genesis and developmental journey of grammatical forms, this paper undertakes investigation of the developments of the verbs denoting cognition and perception into the forms that marks certain grammatical functions. Verbs of cognition and perception lend us an important insight to understanding human construal of the world and its linguistic representation since they directly refer to human's experiential basis of the world. This paper pursues the aim drawing upon examples cross-linguistically attested.

2. Grammaticalization of Verbs of Cognition

Verbs that denote human cognitive activities may be of broad range. In this paper the focus is largely limited to such verbs as THINK, UNDERSTAND and KNOW, since they make direct reference to the basic human mental activities or states. Verbs of cognition grammaticalize into evidential, desiderative, ability, habitual and temporal markers.

2.1 Evidential

Epistemic markers signal the degree of commitment the speaker has to the truth of the proposition (*a la* Bybee 1985: 165-166, Palmer 1986: 51, Traugott 1989). These are usually said to range from certainty to probability to possibility. Evidential markers largely coincide with epistemic markers in function, thus often used interchangeably, but differ slightly in that evidential markers signal sources of information.

Of a handful of grammaticalized functions of the verbs of cognition, evidential marking accounts for the most common function shared by the verbs of cognition. The most frequently grammaticalizing word is THINK.

2.1.1 English

Let us first consider grammaticalization of verbs of cognition in English with reference to the following examples.[1)]

(1) English (I think)
a. I think she's home. (Givón 1991: 83)

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[1] In this paper when interlinear gloss is given, the following abbreviations are used: Acc: accusative, Adn: adnominal, Allat: allative, Aud: auditory, Com: completive, Compr: comparative, Conn: connective, Dec: declarative, Def: definitive, Dub: dubitative, Evid: evidential, Excl: exclamative, Fut: future, Imp: imperative, Imperf: imperfective, Nom: nominative, Prog: progressive, Pst: past, Purp: purposive, Tent: tentative, Top: topic, and Vis: visual. A morpheme-by-morpheme gloss is not provided when it is not available from the original sources.

b. I think it's a spider. (Chafe 1986)
c. I think that a lot of the time I've been misjudging her. Chafe 1986)

As shown in the above examples *I think* has dual interpretations from its original main clause function and its more peripheral function, due to its preservation of linear sequence. However, its movement toward the peripheral function is obvious in that it tends not to receive stress; it can be dislocated; it often drops the complementizer *that*; and the main verb *think* does not refer to its original mental process of cogitation. In view of these, Givón's (1991: 83) reference to it as an epistemic hedge is to the point.

2.1.2 Tok Pisin

The close association of the grammaticalization of epistemicity with verbs of cognition is well manifested in Tok Pisin, a language spoken in Papua New Guinea. Tok Pisin has a word *ating* derived from English *I think*, which has a function of epistemic marking. According to Keesing (1991: 325) *ating* occurs in all three Melanesian Pidgin dialects, interchangeable with *maet* 'might' which also has evidentiality marking value.

2.1.3 Northern Iroquoian

Northern Iroquoian exhibits a similar pattern of grammaticalization. A reconstructed form of Northern Iroquoian word **-ihr-/-ehr-* is semantically equivalent to English words *think* and *believe*. Northern Iroquoian equivalents of English *I think*, i.e. *kyè:rih* (Tuscarora) and *khè:rv* (Mohawk), have the same grammatical function of epistemic marking as *I think* as shown in the examples below.

(2) Northern Iroquoian (**-ihr-/-ehr-* 'think/believe')
a. Tuscarora
Kyè:rih ú:'y vəaka'əv̀:ya't
I-think other I-will-hang-again
'I think I'll hang another drape.' (Mithun 1986: 97)

b. Mohawk
Khè:rv kv kv tá:'a tehayv́kya'ks.
I-think this maybe he-is-chopping-wood
'I believe he is out chopping wood.' (Mithun 1986: 99)

As is evident in their English gloss, *kyè:rih* in the Tuscarora example and *khè:rv* in Mohawk example, i.e. 'I think' and 'I believe,' do not refer to the mental activity of cogitation, but indicate the speaker's attitude toward the proposition that follows.

2.1.4 Discussion

The examples presented in the previous sections provide interesting phenomena in terms of grammaticalization.

Interrelatedness of Senses: The first point that deserves discussion is interrelatedness of senses involved in these source lexemes. As we have seen in the above, Northern Iroquoian verb close to English *think,* in fact, has two semantic equivalents in English, i.e. *think* and *believe,* and we observed that in its either sense it developed into an epistemic marker. This should not be surprising considering the close semantic relationship between the two senses. Cross-linguistically this is widely attested. For example, verbs denoting KNOW, UNDERSTAND, SUPPOSE, GUESS, etc. that are closely related to THINK are often found to have grammaticalized into epistemic markers. This is evident in the following examples in English.

(3) English
a. She's left, y' know.
b. I understand he's leaving. (a & b, Givón 1991)
c. The idea is that Christ followed this pattern, and Moses, I suppose.
d. I guess I was thinking about it in a different way.
(c & d, Chafe 1986: 266)

This kind of grammaticalization phenomenon has cross-linguistic attestation, as shown in the following example in Seneca, a North Iroquoian language.

(4) Seneca (*-ɛnǫthǫ′ 'know')
Ak-ɛnǫthǫ′ ɛthe′.
I-know he-will-come
'I know he is coming.' (Mithun 1986:98)

In the above example the verb KNOW is used as an epistemic marker, thus resembling THINK or SUPPOSE.

Formal Bondedness: Secondly, the forms used for epistemic marking tend to show internal bondedness. For example, what interests us in the examples of *know, understand, suppose, guess* in English is that they tend to form tightly bonded forms with the subject. This kind of formal bonding contributes to their acquisition of positional freedom, which results in forming epenthetical elements. This type of formal bondedness results in relative positional freedom, an extreme case of which is manifested where such elements are transposed at the end of an utterance as in the following example from a spoken English corpus.

(5) It's just your point of view you know what you like to do in your spare time I think. (Thompson & Mulac 1991: 313)

In their investigation of epenthetical uses of verbs of cognition in English, Thompson & Mulac (1991) state that *think* and *guess* are the most common source items of epenthetical forms. In Thompson & Mulac (1991), in a statistical study of a large spoken corpus, it was shown that 53% of the main verbs was *think* and 12% was *guess*. Furthermore, epenthetical uses of these two verbs are 47% and 38% respectively, thus accounting for a total of 85% of the relevant corpus. It has been reported that *think* tends not to accompany complementizer *that* 91% of the times, *guess* 99% of the times. The subjects are the first person singular (*I*) for 83% of the times in case of the main subject, and 95% in case of epenthetical uses.

Forces of Assertion: There are interesting peculiarities in linguistic coding of evidentiality. One peculiarity of evidential uses of cognition verbs is that there is discrepancy in terms of forces of assertion between *I think* and *I guess*. Noticeably *I think* asserts more than *I guess*. This problem is closely related to

the fact that despite that all human utterances are the product of human thought processes, therefore all utterances have underlying performative verb, *think*, explicit linguistic manifestation of that fact considerably reduces the forces of assertion. To illustrate the point let us refer to the following examples.

(6) a. _____ She is home.
b. I think she is home.
c. I guess she is home.

In the above examples, the forces of assertion decrease in the order of (a) > (b) > (c). For ease of discussion let us first compare (b) and (c). The difference of forces of assertion seems to directly stem from the fact that the two verbs, *think* and *guess*, whose semantics make clear distinctions in terms of speaker's conviction. The semantics of the verb *think* refers to the use, exercise, of the mind in order to form opinions, and come to conclusions. The semantics of the verb *guess*, on the other hand, refers to forming an opinion, giving an answer, making a statement, based on supposition, not on careful thought, calculation, or definite knowledge. The difference of the forces shown in the semantics of the verbs directly contributes to the difference of the forces of evidentiality encoded by the epistemic expressions. From a grammaticalization perspective this is an instance of persistence.

Secondly, let us consider the differences between (a) and (b). This seems to involve human cognition more than simple linguistic coding. Normally humans give full credit to an utterance, which seems to be deeply ingrained in human psychology. This tendency, either inherent or acquired, dictate initial full acceptance of a heard utterance, which may only be later repealed or doubted after sufficient reasoning with all available information. This type of human reasoning in linguistic interaction can be formulated as in (7).

(7) Full Credit Principle
"Give maximally valid and enriched interpretation to the speaker's utterance."

The Full Credit Principle may be regarded as a blending of the conversational principle of co-operation and the quality maxim. This tendency, either inherent or acquired, dictate initial full acceptance of a heard utterance, which may only be later repealed or doubted after sufficient reasoning with all available information. This principle well explains why we are no less irritated by a dishonest person by knowing very well that the person is an incurable liar.

2.2 Desiderative

The verbs of cognition have been found to have grammaticalized into a desiderative marker encoding the wishes as shown in the following example in Lahu.

(8) Lahu (gâ 'think/desire)
a. qay gâ 'want to go'
b. šī gâ 'want to know'
c. ɂgɨ gâ 'want to laugh' (Matisoff 1991: 394-395)

The development of verbs of cognition into desiderative markers indicates that human mental cogitation has close connection with desideration. That is, humans tend to think about what they want. In its extreme formulation it can be said that humans want what they think about, and humans think about what they want. Therefore, if one 'thinks about going' the person is likely to 'have a desire to go'. This seems to have intuitive validity. Since we can consider 'wanting' is a part of broadly defined 'thinking,' this type of grammaticalization can be interpreted as metonymically motivated. This is true with nominals. For example, Korean nominal phrasal expressions such as *ka-l sayngkak* [go-Adn thought] and *swul sayngkak* [liquor thought] are largely synonymous with 'a desire to go' and 'a desire to drink' respectively.

This development also suggests that humans tend to ascribe purposefulness to human cogitation. This tendency has ontological and biological grounding in that humans are propelled to sustain life by deliberately seeking means of survival through active thinking. In other words, all human thinking is thought to have

purposes.

Another point suggested by this development is that humans also tend to ascribe prospection to human cogitation. It is logically possible that human cogitation may not form any distinct patterns in terms of temporal orientation. In other words, human thought may refer to the past, the present, or the future. However, it is a human tendency to regard human thinking as having prospective (contra retrospective) orientation. This tendency, whether real or imagined, has biological grounding in that deliberation about future actions or states clearly has survival value. This also has orientational grounding in that when a human is schematically imagined, people, following the anthropomorphic orientational model, imagine the person as 'facing the front' or 'facing the future', rather than 'facing the rear' or 'facing the past' (cf. Heine 1997: 35-65, Rhee 1997: 88-89).

2.3 Ability

It has been found cross-linguistically that the verbs of cognition grammaticalize into ability markers. An excellent case is attested in English as in the following examples.

(9) English (know)
a. I know how to speak French. (Mental ability)
b. I know how to shoot a crossbow. (Mental & Physical ability)
(Bybee *et al.* 1994)

In the above examples, the verb *know* marks mental ability in (a) and mental and physical ability in (b). This type of grammaticalization is followed by Baluchi, Danish, Tok Pisin, Mwera, Nung, etc., where the verbs denoting 'knowing' mark 'being mentally able'; and by Motu, Tok Pisin, etc., where the verbs denoting 'knowing' mark 'being mentally and physically able.'

According to Bybee *et al.* (1994) the markers of ability may be further divided into subgroups as those marking mental ability, general ability, and root possibility, and the grammaticalization phenomena form a pattern along these

subgroups in the following direction.

(10) mental ability > general ability > root possibility

The general direction of semantic change accompanying the grammaticalization of these verbs is best characterized as semantic generalization (Bybee *et al.* 1994).

The development of ability markers from the verbs of cognition suggests that humans ascribe supremacy to cogitative faculty. That is, humans evaluate highly 'thinking' as uniquely powerful. It is widely accepted that a person who 'thinks' well is one who has commendable 'abilities.'

2.4 Habitual

The verbs of cognition have been attested to have developed into habitual markers. Alexandre (1953) reports the following examples in Moré, a Niger-Congo language.

(11) Moré (ka)
a. f ka mi fwi
'I know nothing.'
b. a mi n loda ka
'He usually passes here.' (Alexandre 1953)

In the above examples the verb *ka*, which denotes 'knowing' as in (a), carries a grammaticalized meaning of habitual as in (b). This kind of grammaticalization reflects the human conception of the reiterative nature of cogitation. It is true that human thoughts (i.e. 'thinking' or 'knowing') tend to linger or revolve, thus engaging the thinker for an extended length of time. It also reveals that humans acknowledge the existence of pattern-forming nature of thought processes, thus suiting the verbs of thinking for marking habitualness.

In addition, the grammaticalization pattern shows that people ascribe the explorative nature to human cogitation. This has a biological grounding. It has

been established that humans, indeed all primates according to primatologists, have a defining characteristic of curiosity and explore their environments. The typical and primary means of exploration involve cogitation. It can be thus said that humans are curious animals, explore their environment by thinking, which forms a habitual pattern.

2.5 Temporal

It has been also noted that the verbs of cognition sometimes grammaticalize into temporal markers, as illustrated in the following example.

(12) Chamus dialect of Maa (i-yyolo)
yyolo e-ok-uto ninye naico n-a-ret ninye
'While he is drinking beer I help him.' (Heine *et al.* 1993)

In the above example, *i-yyolo,* which means 'think', has been grammaticalized into a temporal marker, here leading an adverbial clause as a clausal connective. However, in the lack of context, it is not at all clear how this type of grammaticalization came about. It is definitely true that human cogitation has some temporal dimension and has durative nature (as indicated in the development of habitual), but it is hard to conceive, e.g. in the above, how a phrase like 'thinking-drinking-beer' can be developed into 'while-drinking-beer.' This should remain for a future investigation.

3. Grammaticalization of Verbs of Perception

Verbs that denote human perception may be of broad range encompassing visual, auditory, olfactory, tactile, and gustatory senses. In this research largely focuses on such verbs as SEE, LOOK, HEAR, and FEEL since they are primary sensory verbs in experiencing the states of the world. These perception verbs grammaticalize into evidentials, allatives, comparatives, tentatives, and locatives, among others.

3.1 Evidential

Among the grammaticalized markers derived from the verbs of perception the evidential markers constitute the largest category. The evidential markers are widely attested across languages.

3.1.1 Wintu

In Wintu, an American Indian language spoken in northern California, the visual perception verb grammaticalized into an evidential marker as in the following examples.

(13) Wintu (wine 'see/look' > -re・)

a. Heke ma・n hara・kire・ m
somewhere Excl go Com.Dub
'He must have gone somewhere (I don't see him).

b. Piya mayto・n dekna・sto・n piya ma・n biyakire・m
those feet steps that Excl be.Com.Dub
'Those tracks of steps! That must have been him.'

c. Hadi wint^{h}u・h minelbire・m
why! person die.Imperf.Dub
'Why, a person must have died (I see or hear someone cry)!'
(a-c, Schlichter 1986: 51)

As seen in the above examples, *wine*, which means 'see' or 'look', developed into an evidential marker, glossed as a dubitative marker. As noted in the parenthetical gloss (by the original author), the evidential strongly suggests the source of such information, i.e. visual evidence. This is reminiscent of the Korean evidential *-in keschelem pointa* or *-na/ka/kka pota* 'it appears that...', which also resorts to visual information as a basis of evaluation (cf. §3.4 & § 3.6).

3.1.2 Maricopa

Maricopa, a language in the Yuman family, has a complex set of evidential suffixes which are transparently derived from independent verbs that indicate sensory source of the informations contained in the sentence (Gordon 1986: 75-76). For example, visual and auditory perception verbs have been grammaticalized as evidential markers as in the following examples.

(14) Maricopa (yuu 'see' > -(k)'yuu 'visual evidential')
a. M-iima-'yuu.
2-dance-Vis=Evid
'You danced (I know because I saw it).'
b. Iima-'yuu.
dance-Vis=Evid
'He danced (I know because I saw it).'
c. '-iima-k'yuu.
1-dance-k=Vis=Evid
'I danced (for sure, in the past).' (a-c, Gordon 1986)

(15) Maricopa ('av 'hear/sense' > -(k)'a 'hearing/non-visual sensory evidential')
a. M-ashvar-'a
2-sing-Aud=Evid
'You sang (I know because I heard it).'
b. Ashvar-'a
sing-Aud=Evid
'He sang (I know because I heard it).'
c. '-ashvar-k'a
1-sing-k=Aud=Evid
'I sang (for sure, in the past; I heard/felt myself).
(a-c, Gordon 1986)

As seen in the above examples, the visual perception verb *yuu* has been developed into a visual evidential marker, and the auditory perception verb *'av*

has been developed in a hearing or non-visual sensory evidential, an instance that clearly exhibits semantic persistence.

3.1.3 English

English also shows grammaticalization of perception verbs. As with similar cases in other languages, English evidentials derived from perception verbs transparently encode the sources of such information.

(16) English (see, feel, looks like, feels like, hear, sound, smell)
a. I see her coming down the hall.
b. It feels sort of creepy.
c. She looks like she's asleep.
d. It feels like the door is open.
e. I hear her taking a shower.
f. He sounds like he's mad.
g. He sounded like he thought very very slowly.
(a-g, Chafe 1986: 264-268)
h. It smells like dried fish.
i. It smells/looks/feels FRESH.
j. I smell a pie baking. (h-j, Anderson 1986: 277)

In the examples above, we can see that most perception verbs have evidential uses. These grammaticalized evidential markers signal, depending on their original lexical sources, the sources of such information that appears syntactically as the complement of the verbal phrase. Thus, verbs encoding visual, tactile, auditory, and olfactory sensual perceptions all occur as grammatical markers. It is interesting to note that the verb of gustatory sense, i.e. taste verb as *taste*, is rarely listed as an evidential marker among grammaticalization scholars (cf., however, the Makah example in §3.1.4). However, it is possible to use *taste* as in the following.

(17) It tastes like fish.

When the above example is used to assert 'It is a fish' instead of 'It has a certain taste', this is clearly an evidential use, which signals that the assertion of the proposition is based on its gustatory perception. Its relatively lower level of grammaticalization may be purely pragmatic in that tasting, unlike other sensory perceptions, involves active voluntary control of the object, and therefore, it is less likely that someone puts something into his or her mouth not knowing what it is.

3.1.4 Makah

In Makah, an American Indian language spoken in the Northwest Coast region, also shows a rich evidential system developed from sensory perception verbs as in the following examples.

(18) Makah (-caqiƛ 'look/pay attention to' > uncertain visual evidential)
a. 'čapaccaqil
'It looks like a canoe.'
b. ʔaƛi'tq^{w}ałbadaxcaqil
'It looks like bears.'
c. łapsčiƛcaqil
'It looks like something dived.' (a-c, Jacobsen 1986: 15)

(19) Makah (-ɬał 'smell/taste' > evidential)
a. ba'dawi'ɬał.
'It smells like smelt.'
b. ƛušaktɬał
'It smells like dried fish.' (a & b, Jacobsen 1986: 23)

(20) Makah-Nitinat (pih 'see/observe/study' > -pi:t:evidential (from physical evidence)
a. wiki'c'xakpi'd
'It looks like bad weather.' (inference from physical evidence)
b. cax^{w}i'ʔasaƛpi'd
'It must have run over it.' (seeing results, remains, damage..)

c. diqšiǰe'?ispi'd
'It looks like he's going to sew.' (evidence implying future intention/action) (a-c, Jacobsen 1986: 10-12)

(21) Makah (>'qadi 'auditory evidential')
a. wiki''caxak'qad?i
'It sounds like a bad weather.'
b. qi'qeyač'qad?i
'It sounds like thunder.'
c. babałdi'qad?i
'He sounds like a white man.' (a-c, Jacobsen 1986: 10-13)

The examples above show that visual, auditory, and olfactory perception verbs have developed into evidentials respectively coding the sources of information. A similar grammaticalization phenomenon is also attested in Nitinat and Nootka, where 'smells' and 'tastes' developed into evidential markers (Jacobsen 1986).

3.1.5 Patwin

Patwin is an American Indian language that belongs to the Southern Wintun language group in California. Patwin has a polysemous verb *mut*, which means 'hear', 'feel', 'sense', and 'perceive', which grammaticalized into an evidential marker as in the following examples.

(22) Patwin (mut 'hear/feel/sense/perceive' > -mt^{h}er/mut^{h}er validational)
(mut 'hear/feel/sense/perceive' > -mte/mute inferential)
a. muhu-mt^{h}ere-s pi
sing-might-s he
'I think he'll sing.' 'I think he's singing.'
b. loti-ti-mt^{h}ere-s
storm-Def.Fut-might-s
'Looks like it's gonna storm.' (a&b, Whistler 1986:71)

Whistler (1986) labeled the grammatical markers derived from the perception verb *mute* as 'validational' and 'inferential', which clearly function as

evidentials. This kind of development is also attested in Washo, where *damal* 'hear' became *-delem*, which marks auditory evidential (Jacobsen 1986:15), and in Makah, where a word that denote 'make sound' or 'thing's sound' developed into *-qadi*, which serves as 'auditory evidential' or 'feeling evidential' (cf. § 3.1.4).

3.1.6 Korean

In Korean, a visual perception verb, *po-*, shows grammaticalization with various complementizers, thus generating *-ka po-*, *-na po-*, *-kka po-*, etc., as in the following examples.

(23) Korean

a. ku-ka aphu-nka po-ta (evidential)
he-Nom be.sick-Evid-Dec
'He seems to be sick.'

b. sewul-ey ta wa-ss-na po-ta (evidential)
Seoul-Loc all come-Pst-Evid-Dec
'It looks like that (we) are very close to Seoul now.'

c. kunye-ka o-l kka po-a kitali-ko iss-ta. (probability)
she-Nom come-Evid-Conn wait-Prog-Dec
'(I) am waiting for her because she might come.'

d. iman ka-l kka-po-ta (non-preferential intentionality)
this.much go-Evid-Dec
'I might as well leave now.'

In the above examples, the units with the internal structure of [complementizer-SEE] are evidential markers. They signal conjecture or possibility in (a) and (b); mark the probability modality derived from visual evidence in (c); and mark the non-preferential intentionality derived from the evaluation of the situation through visual evidence in (d).

3.2 Allative

The Korean verb *po-* also shows grammaticalization of various functions as has been illustrated in Svorou (1994[1988]) and Yang (2000) among others. For example, it developed into *-poko*, from [SEE-connective], which serves as an allative marker as in the following examples.

(24) Korean (po- 'see/look' > poko)
kusalam-i na-poko yok-ul ha-yss-ta
the person-Nom me-Allat curse-Acc do-Pst-Dec
'He cursed me.' (Yang 2000)

The marker *-poko*, in fact, has many different functions. Yang (2000), for example, lists them as Sequence, Target/Goal, Affection/Influence, Beneficiary, Embedded-subject, Requestee markers.[2)]

A similar type of grammaticalization, from visual perception verb into an allative marker, is also attested in Halia and Bihari (Svorou 1988). For example, a verb in Halia that denotes 'see', became a grammatical marker which encodes 'towards'. Similarly, in Bihari the verb 'see' became a marker that designates the end-point location.

3.3 Comparative

The visual perception verb in Korean, *po-*, also developed into a comparative marker *-pota,* which historically derived from *potaka* [SEE-transferentive] that replaced the formerly common comparative marker *-twukon* and its variants (Rhee 1996:27-30). Such use is shown in the following example.

(25) Korean (po-)
ku-nun na-pota khi-ka khu-ta
he-Top me-Compr stature-Nom big-Dec
'He is taller than me.'

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[2] It seems that the grammaticalization of various functions from *-poko* involves semantic influence of the connective marker *-ko*, since it has unique semantics that often displays interplay with the verb (cf. Koo 1987, Rhee 1996).

Svorou (1994: 219) presents a Bihari example, where previous **cahia* 'having seen' has become modern *cahi*, which means 'than' or 'on account of'.

3.4 Tentative

Though not so common, visual verbs sometimes grammaticalize into tentative markers, as exemplified in the following Lahu and Korean examples.

(26) Lahu (ni 'look at' > tentative)
vəʔ ni 'wear and see; try on' (Matisoff 1991: 407)

(27) Korean (-e po-, -na po-, -ka po-)

a. i os-i mac-na ip-e po-ala
this clothes-Nom fit-if wear-Tent-Imp
'Try this clothes on and see if it fits.'

b. ney-ka cal iss-na po-lyeko cenhwaha-n-ke-ya
you-Nom well be-Tent-Purp call-Adn-thing-Dec
'I just called you to see if you are doing fine.'

c. ppye-ka kwaynchanhu-nka po-lyeko x-ray-lul ccik-ess-ta
bone-Nom okay-Tent-Purp x-ray-Acc take-Pst-Dec
'I took an x-ray in order to see if the bones are okay.'

In the Lahu example and the Korean example (a), the tentative meaning clearly comes from the verb 'see' which contributes to the phrase a meaning 'do x and see'. Here 'see' suggests evaluation of the result of the action denoted by the preceding verb. In the Korean examples (b) and (c), on the other hand, the tentative meaning is largely due to the complementizers that get combined with the visual perception verb.

3.5 Locative

In her seminal work listing various grammaticalization phenomena related to the spatial concept, Svorou (1994 [1988]) presents numerous examples from languages of the world, where visual perception verbs developed into locative

markers as in the following.

(28) (visual perception > locative)
a. Bihari: taak 'see' > taka 'up to/by/for'
b. Bihari: taak 'see' > takaa/takae 'at/on'
c. Halia: tara 'see'
d. Tigre: sbb 'look out' > səbab 'opposite'
(Svorou 1994: 116-117, 1998: 201)

Incidentally, it is also interesting to note that body part nominals of visual or auditory perception, i.e. 'eye' and 'ear', grammaticalize into locative markers in many languages as shown in the following examples.

(29) ('eye'/'ear' > locative)
a. Papago: eye > 'to/toward' (Svorou 1994: 73)
b. Abkhaz, Vai: eye > 'in/in front of/at' (Svorou 1994: 250)
c. Papago: eye > 'located on the face' 'support/contiguous' (Svorou 1994: 260)
d. Bari: ear > 'at the side of' (Svorou 1994: 255)

Such findings of spatial markers grammaticalizing from sensory body parts are largely in accord with general grammaticalization patterns across languages (Heine *et al.* 1991; Bybee *et al.* 1994).

3.6 Discussion

In the preceding sections we have examined examples from many languages that show grammaticalization of perception verbs into various grammatical markers. Now an exploratory discussion for this phenomenon is in order.

Primacy of Perception: It is evident in the examples that sensory perception is deemed primary human experience. It is so because sensory perception is the primary source of information as a basis of evaluating states of the world. This has biological and experiential grounding in that humans are to perceive the world and organize the perception into an individually constructed reality.

Primacy of Visual Perception: It is noteworthy that among various senses visual perception is given the highest primacy. It has been established from cross-linguistic researches that 'see' is the most prominent verb of perception and that 'seeing' is the primary sense of experiencing the world (cf. Sweetser 1990: 33). From the grammaticalization phenomena we see a pattern of ascribing the nature of prospection to visual perception. This has to do with human biology in that the direction of human vision is invariably identical with the direction of human locomotion. Therefore, seeing is viewed as a part of 'forward' nature of human activity. At the same time, from the examples of development of allative markers from the visual perception verbs (also from nominals, in the same vein) we can see that humans perceive vision as comprising source, trajectory, and goal. In other words, 'seeing' is construed schematically as having the start point of vision (eye), the trajection of sight (vision), and the terminus of the travel of the sight (object seen). This is an instance of grammaticalization of ontological metaphor of seeing in that it dictates metaphorical existence of vision as if it is a tangible object.

Non-Conclusive Nature of Perception: Another point that emerges prominently in the grammaticalization phenomena is that humans ascribe non-conclusiveness or non-definiteness to perception as illustrated in the grammaticalization of tentative markers. In other words, despite that humans consider the sensory perception as primary means of experiencing the world, thus granting primacy to sensory perception, there is a strong tendency not to grant the highest level of conviction to the information thus gathered. This has to do with the mutual contradiction in the human mind in terms of final validation of information between the sensory perception and mental reasoning. Therefore, it is often seen that humans place perceiving above reasoning as in saying that thousands of reasoning words are not as good as one seeing; and conversely, humans place reasoning above perceiving as in common practices that all perceived information must be validated by clear reasoning. This is just indicative of the plain fact that human cognition is less than consistent.

One thing, however, seems to have a bearing on this issue. When the tentative markers are developed from the perception verbs, they tend to be either marked

with the present tense in many languages or unmarked for tense or aspect as in Korean. This seems to be important because such forms with the present tense marking or without tense or aspect marking may be interpreted as non-complete, i.e. cursory, lacking active extended exploration through sensory perception. In the real world situation, the sensations caused by 'seeing', 'hearing', 'smelling', etc. tend to be instant rather than durative. For this reason Korean tentative markers derived from the visual perception are fossilized units and have cooccurrence restriction with any explicit tense markers or aspect markers as shown in the following examples.[3)]

(30) Korean

a. ku-ka aphu-nka po-ta
he-Nom be.sick-Tent-Dec
'He seems to be sick.'

b. *ku-ka aphu-nka po-ass-ta
he-Nom be.sick-Tent-Pst-Dec
(intended) 'He seemed to be sick./He seems to have been sick.'

b'. ku-ka aph-ass-nunka po-ta
he-Nom be.sick-Pst-Tent-Dec
'He seems to have been sick.'

c. *ku-ka aphu-nka po-l kesi-ta
ku-ka aphu-nka po-keyss-ta
he-Nom be.sick-Tent-Fut-Dec
(intended) 'It seems that he will be sick.'

c'. ku-ka aph-ulye-na po-ta
he-Nom be.sick-Fut(Purp)-Tent-Dec
'It seems that he will be sick.'

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[3] The examples in (b), (c) and (d) are grammatical if the visual perception verb *po-* 'see' is interpreted literally, i.e. (b) 'I looked at him to see if he was sick', (c) 'I will see if he is sick', and (d) 'I am looking at him to see if he is dying'. However, the tentative evidential meaning is not available from these examples.

d. *ku-ka cwuk-nun ka po-ko iss-ta
he-Nom die-Tent-Prog-Dec
(intended) 'He seems to be dying.'

d'. ku-ka cwuk-ko iss-nun ka po-ta
he-Nom die-Prog-Tent-Dec
'He seems to be dying.'

As shown in (b) and (c), the tentative marker cannot be marked with the past tense or future tense. It is imperative that the tentative markers be unmarked in terms of tense and aspect. This restriction to forbid non-complete, non-durative marking seems to be crucial in development of tentative markers from the perception verbs.

4. Remaining Issues

The investigation of grammaticalization phenomena from the verbs of cognition and perception gives rise to a number of research issues. The first problem posed by this type of research is that the verbs of cognition and perception are closed linked to other classes of verbs such as verbs of affection/emotion, verbs of desideration, etc. For example, LOVE and LIKE are often found to have grammaticalized into markers of intention, ALMOST-aspect, epistemicity, and adjectivizer; and DESIRE and WANT into markers of futurity, intention, ALMOST-aspect, negation, alternative, pretence, and adjectivizer.

The second problem in this cross-linguistic investigation is paucity of contextual information. Since this research is entirely based on available grammatical description of individual languages, it is empirically difficult to establish contexts where grammaticalization of these verbs occurs. Considering that grammaticalizing units are in fact contextually formed phrasal units (or constructions) rather than individual words (cf. Bybee *et al.* 1994), contextual information is crucial in identifying motivations of grammaticalization. Therefore, more fine-grained research on the motivations and mechanisms of grammaticalization should constitute a future research.

5. Conclusion

This paper explored grammaticalization phenomena from the lexical sources that denote cognition and perception. We observed that such verbs predominantly form epistemic marking function mostly encoding evidentiality. The types of evidentiality encoded by such markers often reveal their lexical sources in identifying the source of information being predicated by the cognitive/sensory evidential markers.

One of the recurring patterns of grammaticalization of verbs in these semantic fields is that the semantics of source items tend to remain in the grammaticalized forms, thus exhibiting the persistence phenomenon. We also saw that linguistic representations have strong experiential basis in that grammaticalizing components are usually experientially salient features.

A future research is called for in order to establish grammaticalization contexts and to identify cognitive strategies that give rise to grammaticalization of verbs of cognition and perception.

References

Alexandre, R. P. 1953. *La Langue Moré. Dictionnnaire Moré-Français.* Dakar: IFAN.

Anderson, Lloyd B. 1986. Evidentials, paths of change, and mental maps: Typologically regular asymmetries. In Chafe & Nichols (eds.), 273-312.

Bybee, Joan. 1985. *Morphology: A study of the relation between meaning and form.* Amsterdam/Philadelphia: John Benjamins.

Bybee, Joan, William Pagliuca & Revere Perkins. 1994. *The Evolution of Grammar: Tense, Aspect, and Modality in the Languages of the World.* Chicago/London: The University of Chicago Press.

Chafe, Wallace. 1986. Evidentiality in English conversation and academic writing. In Chafe & Nichols (eds.), 261-272.

Chafe, Wallace, & Johanna Nichols (eds.) 1986. *Evidentiality: The linguistic*

coding of epistemology. Norwood, NJ: Ablex Publishing.

Givón, Talmy. 1991. Serial verbs and the mental reality of 'event': Grammatical vs. cognitive packaging. In Traugott & Heine (eds.) vol. 1, 81-127.

Gordon, Lynn. 1986. The development of evidentials in Maricopa. In Chafe & Nichols (eds.), 75-88.

Heine, Bernd. 1997. *Cognitive Foundations of Grammar.* Oxford: Oxford University Press.

Heine, Bernd, Ulrike Claudi, & Friederike Hünnemeyer. 1991. *Grammaticalization: A Conceptual Framework.* Chicago: The University of Chicago Press.

Hopper, Paul. 1991. On some principles of grammaticalization. In Traugott & Heine (eds.) vol. 1, 17-35.

Jacobsen, William H. Jr. 1986. The heterogeneity of evidentials in Makah. In Chafe & Nichols (eds.), 3-28.

Keesing, Roger M. 1991. Substrates, calquing and grammaticalization in Melanesian Pidgin. In Traugott & Heine (eds.) vol. 1, 315-342.

Koo, Hyun Jung. 1987. Ssikkuth {-a, -key, -ci, -ko}uy ssuimkwa uymi (The usage and semantics of suffixes, *-a, -key, -ci,* and *-ko*'). *Konkuk Emwunhak* 11-12, 167-188.

Krönlein, J. G. 1889. *Wortschatz der Khoi-Khoin.* Berlin: Deutsche Kolonialgesellschaft.

Matisoff, James A. 1991. Areal and universal dimensions of grammaticalization in Lahu. In Traugott & Heine (eds.) vol. 2, 383-454.

Mithun, Marianne. 1986. Evidential diachrony in Northern Iroquoian. In Chafe & Nichols (eds.), 89-112.

Palmer, Frank Robert. 1986. *Mood and Modality.* Cambridge: Cambridge University Press.

Rhee, Seongha. 1996. *Semantics of Verbs and Grammaticalization: The development in Korean from a cross-linguistic perspective.* Ph.D. dissertation. The University of Texas at Austin.

Rust, F. 1965. *Praktische Namagrammatik.* Cape Town: A. A. Balkema.

Schlichter, Alice. 1986. The origins and deictic nature of Wintu evidentials. In Chafe & Nichols (eds.), 46-59.

Svorou, Soteria. 1988. *The Experiential Basis of the Grammar of Space:*

Evidence from the Languages of the World. Ph.D. dissertation. University of New York at Buffalo. Published as Svorou 1994.

Svorou, Soteria. 1994. *The Grammar of Space*. Amsterdam/Philadelphia: John Benjamins.

Sweetser, Eve E. 1990. *From Etymology to Pragmatics.* Cambridge: Cambridge University Press.

Thompson, Sandra & Anthony Mulac. 1991. A quantitative perspective on the grammaticization of epistemic parentheticals in English. In Traugott & Heine (eds.) vol. 2, 313-330.

Traugott, Elizabeth. 1989. On the rise of epistemic meanings in English: An example of subjectification in language change. *Language* 65, 31-35.

Traugott, Elizabeth & Bernd Heine (eds.) 1991. *Approaches to Grammaticalization* 2 vols. Amsterdam/Philadelphia: John Benjamins.

Whistler, Kenneth W. 1986. Evidentials in Patwin. In Chafe & Nichols (eds.), 60-74.

Yang, In-Seok. 2000. The emerging particle *POKO* in Korean: A grammaticalization. In *Grammatical Analysis of Austronesian and Other Languages: Studies in Honor of Stanley Starosta.* Hawaii: University Press of Hawaii.

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Received: March 26, 2001
Revised version: May 29, 2001