

On the Nature of the Path-related Functions of Languages

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The aim of this paper is to reveal the nature of the path-related functions displayed by natural languages. More specifically, based on many genetically and geographically unrelated languages, we will attempt to answer the following questions.

- (a) What conflation patterns of path grams (adpositions or cases whose primary functions are to express the concept of 'path') are possible in languages?
- (b) What are diachronic (or grammaticalization) paths of semantic functions in the path grams of languages?
- (c) What kind of implicational universals can be found among semantic functions displayed by the path grams of languages?

Key words: Agent, Cause, Function, Instrument, Path, Primary/Secondary sample, Semantic (change)

1. Introduction

The aim of this paper is to suggest a universal semantic space of path-related functions. The path-related functions discussed in this paper are the path sense (e.g. 'The train went *through* the tunnel. '), the instrument/means sense (e.g. 'He could talk *through* an interpreter. '), the agent sense (e.g. 'Taro was kicked *by* Hanako. '), and the cause sense (e.g. 'He failed *through* laziness. '). This paper will also show how these semantic functions are related to one another, or developed from other functions, allowing us to formulate an implicational universal on the path-related functions of languages. This study assumes that semantic nature of grammatical categories such as adpositions or cases of languages, irrespective of their geographical or genetic characteristics, is the same in many respects, as shown by many previous studies, and that this leads us to the construction of a universal path-related space.

2. On methodology⁽¹⁾

2.1 Language sample

In order to find some nature of syncretism in the path-related space of languages in general, we must investigate relevant (grammatical) categories of languages, but a question is what languages, or how many languages should be examined. Obviously, it is impossible to examine every possible language because of limitation of time, money, existence (i.e. some languages no longer exist and others have not yet developed), or availability of description (i.e., the number of adequate descriptions of the world's languages is not sufficient). Accordingly a certain number of languages must be selected for a language sample from the

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universe of languages. With the belief that in order for a language sample to be appropriate, languages should be randomly selected, and should be genetically and areally as distant as possible, this study chose the following twenty-six languages.

Table 1

Abipon (Ge-Pano-Carib), Abkhaz (Caucasian), Alyawara (Australian), Bari (Nilo-Saharan), Buriat (Ural-Altaic), Chacobo (Andean-Equatoria), Cheyenn (Macro-Algonquian), Dakota (Macro-Siouan), Guaymi (Macro-Chibchan), Inuit (Unaffiliated), Karok (Hokan), Koho (Austroasiatic), Kui (Dravidian), !Kung (Khoisan), Lahu (Sino-Tibetan), Margi (Afroasiatic), Modern Greek (Indo-European), Motu (Austronesian), Mwera (Niger-Kordofanian), Palantla Chinantec (Oto-Manguenan), Papago (Aztec-Tanoan), Shuswap (Salish), Slave (Na-dene), Tok Pisin (Creoles), Yagaria (Indo-Pacific), Zuni (Penutian)

According to the Voegelin and Voegelin (1978)'s classification of the world languages, the languages above, no two languages belonging to the same phyla, avoids every possible genetic bias, but this ideal situation is only attainable by limiting the number of languages far from being sufficient: fewer than thirty languages may not provide sufficient information. For this reason, another kind of supplementary sample will be suggested and called 'the secondary sample' to contrast this with the first sample, which will be called 'the primary sample'. Our secondary sample consists of the following thirty-eight languages.

Table 2

Arabic (Afroasiatic), Baka (Afroasiatic), Bihari (Indo-European), Burushaski (Language Isolates), Diyari (Australian), Dogon (Niger-Kordofanian), English (Indo-European), Ewe (Niger-Kordofanian), Evenki (Ural-Altaic), Finnish (Ural-Altaic), French (Indo-European), Ga (Niger-Kordofanian), German (Indo-European), Hausa (Afroasiatic), Hualapai (Hokan), Hungarian (Ural-Altaic), Indonesian (Austronesian), Island Carib (Andean-Equatorial), Japanese (Unaffiliated), Kashmiri (Indo-European), Kannada (Dravidian), Korean (Unknown), Lingala (Niger-Kordofanian), Malayalam (Dravidian), Maltese (Afroasiatic), Marathi (Indo-European), Mongolian (Ural-Altaic), Ngiyambaa (Australian), Punjabi (Indo-European), Spanish (Indo-European), Sumerian (Language Isolates), Tibetan (Sino-Tibetan), To'aba'ita (Austronesian), Turkish (Ural-Altaic), Vayu (Sino-Tibetan), Welsh (Indo-European), Yoruba (Niger-Kordofanian), Zande (Niger-Kordofanian)

It must be admitted that the secondary sample is not as carefully controlled as the primary one to show as little bias as possible. But the use of the secondary sample may still be justified because of its advantage of providing a greater range of language data to supplement the small size of the primary sample.

2.2 How and what to code?

After the language sample being determined, our next task is to define which forms of these languages should be examined for revealing nature of the path-related space. This study has made careful observation on explicit and identifiable grammatical categories that display types of semantic relationship a noun has to the verb, such categories as prepositions, postpositions, or cases. The term 'explicit' excludes word order, and the term 'identifiable' leads us to the exclusion of what has traditionally been called 'case' in highly inflectional languages such as Latin and Greek. The main reason to eliminate these

traditional cases of highly inflectional languages is a practical one: it is notoriously difficult to determine their case system.

2.3 How to decide diachronic development of path-related semantic roles?

The next issue to be considered is how to reconstruct semantic developments of the path-related functions. Reconstruction on appropriate procedures is necessary because although the ideal reconstruction of semantic changes should be based solely on historical facts of the languages in our samples, it is impossible for the obvious reason that historical documents are limited to a small number of languages: for most languages of the world, one would have to rely on reconstructions rather than historical attestation. For this reason, it is inevitable that the aim of this subsection becomes only suggestive. The following procedures, however tentative they are, may help us to find *general tendencies* of diachronic developments of the path-related functions in languages.

The first procedure is to generalize historically attested documents of as many languages as possible to languages that do not have any relevant historical documents. Re-establishment of semantic roles on this procedure may be justified by the assumption that similar developments of senses in grammatical categories can be found cross-linguistically, and in fact, a number of unidirectionality of semantic developments, or universal principles, have been reported (see Bybee et al. 1994, Croft 1991, Heine, 1997, Heine et al. 1991, Traugott 1982). And evidence of historical developments may be gained by "internal reconstruction and a comparison with closely related languages" (Greenberg 1978: 79).

The second procedure can be characterized as localistic: this study assumes that semantic roles of some spatial relation are linguistically and psychologically more basic than other non-spatial ones, and other senses may be appropriately hypothesized as ultimately derived from spatial senses (e.g. Anderson 1971, Croft 1991: 192, Lyons 1977: 718, Stassen 1985: 36-37). This procedure may be supported by the following three reasons. First, this has been in fact assumed by most functionally and cognitively oriented approaches, probably because this assumption meets these researchers' intuition, and their linguistic knowledge. Secondly, our primary and secondary samples justify this assumption: all the available data in our samples show that spatial meanings always develop to non-spatial ones, and never vice versa. The third reason is derived from a study on language acquisition. Children come to acquire the locative use before any other, more abstract, use (Clark and Carpenter 1989: 11). One natural question may be 'why are the spatial senses the sources for other (abstract) senses?'. Concerning this kind of question, Jackendoff (1983: 210) argues that "if there is any primacy to the spatial field, it is because this field is so strongly supported by non-linguistic cognition; it is the common ground for the essential faculties of vision, touch, and action. From an evolutionary perspective, spatial organization had to exist long before language". However, it should be noted at this point that source functions, on the basis of which other functions would be derived, might not be spatial. For example, more often than not, the benefactive sense is derived from the verb 'give' which, in

a strict sense, may not be considered spatial.

The third procedure is to assume that given that a gram X displays three roles, A, B, and C, and the co-occurrence of A and C always implies B, then B is considered the one created at intermediate stage between A and C.

The fourth procedure is to take into account language acquisition data. According to Clark and Carpenter (1989: 11), children acquire the locative use of *from* before any other function, and then extend this function to other functions, such as the agent sense and the cause sense.

The fifth procedure is to follow only what grammar books explicitly stated, and not to make any, even apparently plausible, inference based on them. For example, the grammar book on !Kung states that the case form *-!xwa* expresses the comitative sense, and the instrument sense. Comparing this conflation pattern with other similar patterns found in other languages, one may well suggest that the manner sense may be expressed by the same case form although the grammar book on !Kung, presumably because of lack of information in it, does not explicitly state so. However plausible it may appear at first glance, this kind of inference will not be made in our study except that some persuasive evidence to support otherwise is found (e.g. the conflation pattern of the comitative sense and the instrument sense always implies the manner sense in every language except !Kung).

The sixth procedure is to assume that new meanings are typically derived from core, or prototypical meanings (e.g. Lakoff 1987). For this purpose, consider the English preposition, 'with'. According to OED, this preposition had the meanings, 'opposition', 'toward', or 'alongside', as well as 'accompaniment', and association', and among these notions, 'opposition', and 'the allative-sense' seem to have been considered more prominent than others. In fact, Bøgholm (1939: 132–133) argues that the original meaning of this preposition was opposition, and the allative-sense. Similarly, Dekeyser (1990: 35) claims that its prototypical meaning was opposition. In this kind of situation where authors of reference grammars indicate that at one time in the past, one meaning was more prominent than others, then this meaning is a 'good' candidate to be considered origin of other meanings.

3. Data on the path-related functions

The path pre/postpositions, or cases of the languages in our primary and secondary samples show the following conflation patterns of the path-related functions. In order to make a clear distinction between the primary and the secondary samples, the former sample is listed in bold-faced style.

The Path and path related senses

[path] (Hausa *ta*)

[path/ablative/allative (illative)/cause/comparative/locative (interior)] (Ngiyambaa-*DHi*)

[path/ablative/cause/instrument/manner] (Kannada *inda*)

[path/agent] (Marathi *dwārā*)

- [path/agent/allative/cause/function/instrument/locative/manner] (French *par*)
 [path/agent/instrument] (Hungarian *által*)
 [path/allative(?)/agent/benefactive/cause/function/instrument/locative
 (circumferential)/substitution] (Spanish *por*)
[path/benefactive/cause/purpose/reference] (Slave-*gha*)
 [path/cause/instrument/means] (German *durch*)
 [path/cause/means] (English *through*)
 [path/cause/means (or instrument ?)] (English *via*)
[path/cause/instrument] (Palantla Chinantec *hwu*)
[path/cause/instrument/locative/possessive] (Abkhaz-*la*)
[path/comitative/instrument (means ?)] (Buriat-*aar4*)
 [ablative/comparative/path] (Persian *æz*)
 [path/instrument] (Hungarian *keresztül*)
 [path/locative (proximity)] (Hungarian *mellett*)
[path/locative (interior)] (Palantla Chinantec *hī*)
 [path/locative] (Evenki-*li*)

Before proceeding any further, we need to clarify the concept 'path'. As the following English examples show, many English prepositions appear to express some kind of pathness, and it does not seem unrealistic to assume that similar situations can be found in other languages.

- (1) (a) Please put the lamp *over* the counter.
 (b) The dog ran *under* the table to the door.
 (c) We drove *by* the post office.
 (d) We drove *past* the post office.
 (e) Trevor walked *beyond* the post office to his car.
 (f) Trevor runs *in front of* the bus to his car.
 (g) The train went *through* the tunnel.
 (h) She walked *across* the road to the bank.
 (i) She walked *along* the road to the bank.
 (j) She walked *round* the corner to the bank.
 (k) The student went *into* the library.
 (l) Trevor is *away from* home.
 (m) The ball is *off* the grass.
 (n) He is *out of* the room.
 (o) The dog ran *inside (outside)* the house.
 (p) Taro walks *up (down)* the hill every day.
 (q) He wanders *in (through)* the wood.

Though it may be some justification to claim that all of the above prepositions invoke some kind of path traversed by a subject entity, it seems intuitively obvious that they do not exhibit the same degree of 'pathness', as can be easily perceived between 'in front of', and 'through'; our intuition behind these two prepositions may be derived from the fact that not all of the above prepositions have the path property as their intrinsic properties, but rather this property is given to them from their surroundings (their co-occurring lexical items in the sentences, or contexts). Assuming that we are on the right track, then our task is to disentangle semantic load of prepositions into intrinsic and non-intrinsic ones (or if we use Bennet (1975: 62, 63)'s term, our task here is to discern 'primary' path senses from non-primary ones). It should be noted that it appears extremely difficult, if not impossible, to draw explicit boundary for discerning primary path senses from non-primary ones, and previous studies often show unstable boundary between 'genuine' path senses and others. For example, around in 'Around the city bands are playing excerpts from the Grand Duke' would be classified as one kind of locatives in Bennet (1975: 87), but as one kind of path senses in Cresswell (1978: 15). Our top priority is, however, not to spend much of our discussion on how to make a satisfactory definition of path senses; it seems sufficient to employ the following criteria for the distinction between primary path senses and others: (a) the genuine path grams do not typically express the static locative concept, and (b) do not imply the starting point and destination either. For a heuristic purpose of discerning the path grams from others, it was assumed in scrutinizing our language samples that the path prepositions were equivalent to the English prepositions *across*, *past*, and *through* (Quirk et al. (1985: 682) and also *via* (Bennet (1975: 93)).

It should be mentioned at this point that in many languages, there are no 'genuine' grams for the path sense, and an observation on many languages suggests that this sense can be expressed by one of the following four ways depending on the language concerned. The first method to express the path sense is to employ the motion verbs meaning the concept of path such as 'pass', as in the following Maori example.

- (2) *Ka pahure te paa raa*
 T/A pass the pa dist
 '[They] passed that pa' (TWh, 19) (Bauer 1993: 312)

And in many cases of this kind, the ablative gram (and/or the locative gram) is accompanied, as shown in the Turkish example (3a), and Maltese (3b) (also see *pakkadinda* 'locative [side]-gen.-abl.' in Kannada; *vicco* 'locative+ablative/instrument' in Punjabi (Bhatia 1993: 195); *mes enlla de* 'more+locative [there] + ablative' in Catalan (Hualde 1992: 262).

- (3) (a) *kilise -nin yan -ın -dan geç -ti -m*
 church gen. side -3.sg. abl. pass past -1.sg.
 'I went past the church' (Kornfilt 1997: 243).

- (b) *Għadda minn quddiemi bla ma sellem*
 passed-3m.sg. from front-prn.1sg. without neg.greet -3m.sg.
 'He passed by me (in front of me) without greeting me.' (Borg et al: 1997: 156)

Persian expresses the path sense by the ablative gram only when this gram goes with the verb *gozæštæn* 'to go by/to pass by' or *ræd šodan* 'to pass by' (Matootian 1997: 166).

The second method is to use verbs as some kind of 'adposition' ('compound verbs as *cina-kata* 'go past', and *thongkwa-hata* 'go through', in Korean (4), the past particle such as *katannə* 'having crossed' in Malayalam (5), *ha:du* 'passing' in Kannada).

- (4) *Minca-nun kukcang aph-ul cina ka-ss-ta.*
 -TC theater front-AC pass go-PST-DC
 'Minca passed the front of the theater.' (Sohn 1994: 258)
- (5) *avan paalam katannə pooyi*
 he bridge cross-PP go-PAST
 'He (crossed and) went beyond the bridge/He passed the bridge.' (Asher et al. 226)

The third method to express the path concept is to employ the instrument case, as shown in the Lithuanian example in (6) and Hungarian example in (7).

- (6) *Tis eina keliu*
 He goes road+inst.
 'He goes along the road.' (Dambriunas et al. 1972: 174-5)
- (7) *Át-men-t-ünk a város-on keresztul.*
 across-go-PAST-INDEF.1PL the city-SUP through
 'We went through the city.' (Kenesei et al. 1998: 240: for the instrument sense of this gram, see p. 211 of this reference book)

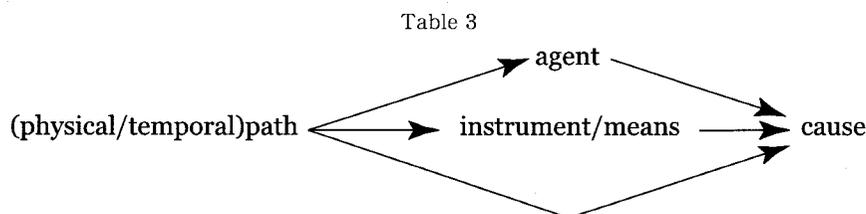
The fourth way is to use the location gram, as the following Ngiyambaa-*ga* in (8) and Evenki-*li* (-*duli/-tuli* after consonants) in (9) show.

- (8) *miri=dji: bibuwa-wa-nhi muru-ga*
 dog+abs.=iobl. run-moving-past road-loc.
 'My dog ran along ahead.' (Donaldson 1980: 140)
- (9) (a) *Beje-1 bejusini-vki-l dagal-duli.*
 man-pl hunt-hab.part-pl vicinity-pro
 'The men usually hunt in the vicinity.' (Nedjalkov 1997: 169)

- (b) *Nungartyn urke-li i:re-0.*
 they door-prol enter-nfut-3sg
 (lit.) 'They entered through the door.' (ibid: 171)

3.1 On the structure of the path-related space

Based on a careful observation on the above data of the path-related functions, and our procedures proposed in Section 2.3., the following developments concerning the path sense and the path-related senses can be proposed.



3.2 On the spatio-temporal sense and the abstract senses of the path-related senses

Based on our discussion in 2.3., it can be assumed that the spatial path sense is linguistically and psychologically more basic than other senses in the path-related space. Therefore, it can be reasonably assumed that the temporal function as in (10) originated from the spatial path sense, and not vice versa.

- (10) (a) She was writing letters all through the night.
 (b) We camped through (out) the summer.

Similar to the (spatial) path sense, the temporal sense focuses on the intermediate process from the start point (beginning) to the destination (end).

As has been argued repeatedly in previous studies, the spatial concept is so intimately related to the temporal concept (for example, see Benett 1975, Claudi and Heine 1986, Clark 1973, Fillmore 1971, Haspelmath 1997 Jackendoff 1983, Langacker 1987, Lakoff & Johnson 1980, Lyons 1977, Traugott 1978, 1988). This point can be easily demonstrated by examples like the followings.

- (11) (a) at 6: 00
 at the corner
 (b) from Tuesday to Thursday
 from Denver to Indianapolis
 (c) on my birthday
 on the table (Jackendoff 1983: 189)
- (12) (a) The freight train crept by.

Tuesday crept by.

- (b) The tiger is fast approaching
Christmas is fast approaching.
- (c) The frontier lies ahead of us.
Our future lies ahead of us. (ibid.: 190)

The above spatial and temporal expressions clearly display parallel (or the same) semantic structures or image schemata. Put differently, except the idiosyncrasy of the temporal concept, that is, its unidirectionality and one-dimensionality, we can argue that the spatial and temporal concepts expressed by the same nominal gram share the same conceptual structure. Another reason indicating the intimacy of these two concepts is that they usually cannot be distinguished from each other in a clear-cut manner: obviously when one moves from one physical position to another, then time must change from one temporal point to another.

This intimate relation between spatial and temporal concepts, however, causes a serious problem to our study; as they are so closely related to each other, and often difficult to be distinguished, it is very often the case that we can not tell whether spatial functions or temporal functions are responsible for later developments of other abstract functions. For example, does the benefactive sense develop from the locative function or the temporal function? It is very true that diachronic data (available to the author) on the relationship between spatial senses and temporal senses almost always suggest that temporal senses are derived from the spatial ones, and in this sense, the spatial function can be reasonably considered more basic than the temporal function. But because of the tentative conclusion reached above, we will treat these two concepts as a single concept (spatio-temporal concept), and do not attempt to answer the question of whether spatial or temporal functions are responsible for creation of other rather abstract senses. It should be, however, emphasized that treating these two concepts as a single one is well-motivated, rather than being made in an ad hoc fashion only for the purpose of our discussion. For example, Churchland (1986: 200) mentions that "it is surely implausible to suppose that the brain deals with space and time separately; from what we do know of its operations, there is *spatiotemporal integration*" [emphasis, K. Y.]. As has been discussed in other semantic spaces, the spatial function and the temporal function would be treated as a single entity.

Now, let us consider how the spatial/temporal path sense is related to more abstract senses in the path-related space. Highly frequent occurrence of the syncretism of the path sense and the instrument/means sense suggests their intimate relationship, and the following kinds of examples, an English instance of the path sense in (13a), and a Hungarian one of the instrument/means in (13b), show their similarity.

- (13) (a) The sultan sent a message (ball) to them *through* this secret long container.

- (b) *A szultán követ által űzen-t* *nek-ik*
 the sultan envoyby send. message-past. indef.3sg dat.3pl
 'The sultan sent a message to them through an envoy.' (Kenesei et al 1998: 211)

It will be argued that these functions can possess the same conceptual structure, which can be schematically represented as 'S(ource)-->P(ath)/I(nstrument)/M(eans)-->G(oad)': the path sense refers to an intermediate physical location across/through/past/via which a physical mover goes, while instrument/means, to an intermediate stage in some causal relation through which energy (force) exerted by an agent moves to some target (see Anderson (1971: 171), Langacker (1991) and Croft (1991)).

Two reasons (facts) can be presented to argue that the instrument sense is developed from the path sense. First, our discussion in 2.3. suggests that the spatial function is more basic than non-spatial ones. The second fact is that some historical documents support this directionality of their semantic change. For example, this semantic development can be found in English ('through'), German ('durch'), and Ancient Greek ('dia').

Because of insufficient amount of linguistic evidence concerning the agent sense in the path-related sense, any decisive conclusion cannot be made, but it seems possible to claim that the agent sense would be derived either directly from the path sense, or from the path sense through the instrument/means sense. Marathi *dwārā* suggests that the path sense and the agent sense can be conflated with each other without any 'bridging' (intervening) function.

As shown in Stolz (2001) and Nilsen (1973: 72), syncretism of the agent sense and the instrument sense is attested in areally and geographically unrelated languages. Their conceptual similarity may be intuitively obvious; that is, they are both effectors and have the feature [CAUSE] (Nilsen 1973: 95), and indeed their interrelationship has been indicated by many scholars. For example, Brodda (1973: 21) suggests that the instrument sense and the agent sense are subsumed under a single case (and so they can be considered the different manifestations of the same form). And William and Jeffreys (1982) proposes a conceptual continuum, both ends being the instrument sense and the agent sense. As for their syntactic similarities in English, Nilson (1973: 58) argued that they both allow passivization; they co-occur with manner adverbials; and they are marked by the prepositions *with* and *by*. However, it is also easy to indicate their differences. For many scholars, intention is taken to be the criterion for the agent's sense (Jackendoff 1972: 32; Qurik 1972: 353; Platt 1971: 73f; Talmy 1976: 87). Willis and Jeffreys (1982) suggest that the prototypical agent sense is animate, volitional, has self-energy and no immediate cause, and that the prototypical instrument sense is negative in these four features. For Nilsen (1973: 121) the two roles can be distinguished in three features: intent, controlled and animate. And Janda (1993: 150) simply claims "in most cases, objects are identified as instruments and human beings as agents". As for differences of these two functions, this study places stress on the fact that the instrument marked entity (NP), unlike the agent entity, exerts no energy of its

own, and therefore must be used as some inanimate entities.

The directionality of semantic change from the instrument to the agent sense can be found in the historical documents of Indo-Iranian, Vedic (early) Sanskrit and Slavic (Luraghi to appear, Strunk 1991). This may be supported by the fact that passive agents are relatively late constructions in Indo-European (later than the instruments).

Lastly, let us make a brief comment on the cause sense. Concerning the cause function in the path-related space, the following universal claim can be established.

Universal Tendency

If a gram of a language expresses the path sense and the cause sense, this gram must possess a instrument/means function.

4. Concluding remarks and lexical sources for the path sense

This paper attempted to reveal some nature of path-related senses expressed in natural languages, and as the last remark, let us make a short mention of possible lexical sources of the path sense. Unfortunately, we have very limited data on lexical sources of the path function displayed by nominal grams. This is mainly because, as indicated above, many languages do not possess 'genuine' path grams, and express the concept of pathness by the methods mentioned above (e.g. by other spatial grams such as the locative, or the ablative grams), and this implies the fact that it is not easy to collect sufficient amount of lexical sources of (very) limited number of 'genuine' path grams. However, taking into consideration the fact that many languages use the pass-type verbs as genuine verbs, or in less typical verb-like fashion, we can argue that with very few exceptions, lexical source for the nominal grams of path sense would be the pass-type verb, and indeed our data, however limited they are, support this argument.

Sources of *path*

Copic *hi-toot* 'on the hand of' > 'through' (Stolz 1992a: 23); Ewe *tó* 'pass by, go through' > prep. 'through' (Lord 1989: 252); Turkish *geç* 'to pass' > *geç-e* 'past' (Svorou 1988: 194)

Note

(1) The discussion of Section Two can be found in Yamaguchi (1999a, b, c, d; 2000a, b, c, d; 2001, 2002 a, b, c; 2003, to appear).

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