Cause and Result Clauses from the Ramkhamhaeng Inscription to Modern Thai*

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Fifteen cause and resulting linking words in Thai from the Ramkhamhaeng inscription of the Sukhothai period to Modern Thai have been investigated in this paper. Word classes have been assigned to them and their syntactic properties have been analyzed within the lexicase dependency framework and represented in dependency stemmas. The semantic characteristics and historical development of these linking words are then given afterwards.

The study shows that cause and result clauses are linked by various syntactic mechanisms: clause-linking verbs, adverbs, extension and non-extension prepositions, and extension and non-extension nouns. We also find that the cause linking words outnumber the result linking words. It is also shown that probably only four linking words out of fifteen, ctiŋ, kɔ̂ɔ̀, phia and phrɔ̂t were not derived from other word classes. The others were either derived from verbs or nouns, for example, nɔ̂ŋ, a clause-linking verb was derived from the original verb nɔ̂ŋ ‘to connect’, or were the result of the combination of a linking word and a dependent verb or a dependent noun; e.g., hêet dɔ̂ŋ nɔ̂ŋ and phrɔ̂t hêet wɔa. There was a trace of phonological reduction in some linking words; for example, prɔ̂tchɔ̂mɔ̂n from prɔ̂tchɛmɔ̂n.

Key words: Ramkhamhaeng, Sukhothai, Modern Thai, linking words, lexicase

1. Introduction

In this paper, we investigate the words used to express the meanings of cause and result obtaining between pairs of clauses in the Ramkhamhaeng inscription, in the Sukhothai, Ayutthaya, and Ratanakosin periods, and in Modern Thai to show that lexicase dependency grammar can be used to analyze complex sentences. We identify fifteen words we consider to have such a linking function, assign a word class to each of them based on its syntactic function, and give a representative syntactically analyzed sentence for it. We also discuss semantic characteristics and historical developments of

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these linking words. The framework used in the syntactic analysis for all stages is lexicase dependency grammar.

We would like here to give a brief description of lexicase dependency grammar for the readers who probably are not familiar with it. Lexicase dependency grammar can be viewed as having three salient characteristics: It is generative (formal and explicit), strictly constrained, and universal: One of the universal constraints it imposes on language is a strictly limited inventory of word classes: no language may contain a word class which is not identical with, or a subclass of, one of the following eight classes: V (verb), N (noun), Adj (adjective), Det (determiner), Adv (adverb), P (preposition or postposition), Cnjc (conjunction), or Sprb (sparrbaum), formerly Sprt (sentence particle), though not every language necessarily utilizes all eight classes. Another important constraint is that lexicase is monostratal. There is no deep structure and no transformation.

Lexicase dependency grammar defines a preposition as a word that forms an exocentric construction with a phrase, where an exocentric construction is defined as one in which the dependent phrase is an obligatory part of the construction. (For more on lexicase dependency grammar, see Savetamalya 1989, 2000, and Starosta 2001).

Some features used in this paper need clarification: [+xtns] of P stands for ‘extension’ indicating that the preposition requires a subordinate verb; [-xtns] indicates that the preposition does not allow a subordinate verb but as a preposition it requires a noun; [+rslt] stands for ‘result’ and [+rsn] stands for ‘reason’.

Data used in the paper were taken from the following sources: for the Sukhothai data, from Inscriptions 1, 2, and 3, and from Traiphum Pra Ruang; for the Ayutthaya data, from ‘kham hay kaan Khun Luang Haa Wat’ (Story told by Khun Luang Haa Wat) and ‘Phra Rattha Phongsawadarn chabap Luang Prasert’ (Krung Kao Annal, the Luang Prasert Version); for the Ratanakosin period, from the Three Seals and from Announcements in the Reigns of Ramas V and VI. To collect data from these sources, full texts were used for the three inscriptions and the Ayutthaya data; for other sources, a random sampling of texts at every two pages up to every five pages depending on the text length was used.

For Modern Thai data, official letters, excerpts from journals and academic newsletters were used, altogether approximately 30 pages in length. An unpublished thesis on conjunctions in the Sukhothai; Ayutthaya and Ratanakosin Periods was used to support the data selected (Chotitearrawang 1981).

Altogether fifteen connecting words are under study: นิยน, คิ่ง, กิ่ว, ด้วย, ผ่า, ผ่าเหตุว่า, ผ่าน?, ผ่าน?เหต, ผ่าน?เหตุova, ผ่าน?เหตุที่, ผ่าน? ว่า, ผ่าน? ชันน, ผ่าด้วยนัก, ผ่าว่า, และเหต. It should be noted from the beginning that probably not all cause- and result-clause linking words are included in this study. There
are two reasons for this: first, these words did not occur in our data; and second, according to our observation, they are usually derived from the linking words under study and we have mentioned them where appropriate (see 4.1.1 and 5). We are however certain that we have covered the common linking words mentioned or to be mentioned in any study of cause and result linking words.

We find that cause and result clauses are linked by various syntactic mechanisms, including clause-linking verbs, adverbs, prepositions (extension or non-extension prepositions), and extension and non-extension nouns, used alone or in combination.

2. Grammatical classification of cause and result linking words

In this section, we examine each of the fifteen cause and result linking words to identify the word class of each. A description of its syntactic distribution is then given followed by a structural pattern and the sentential example in the form of a stemma (dependency tree diagram). The slanting or angled line in the stemma describes a dependent endocentric construction, whereas the horizontal line describes an exocentric construction. The regent word in an exocentric construction is attached under a shorter vertical line, and a dependent under a longer one.

When a linking word is found in more than one period and there is no difference in its syntactic distribution, a sentential example or examples are picked up randomly from the data of any of the periods, for example, ฎา is found in the Ayutthaya, Ratanakosin, and Modern Thai, but a sentential example given is drawn from Ayutthaya data.

2.1 Verbs

2.1.1 ฎา

ฎา is the main verb of the sentence as a whole, and appears between two dependent sentences. The preceding sentence is the subject surrogate and the second is a situational source of the first; so ‘S₁ comes from S₂’. The hypothesis that ฎา is a verb is supported by the fact that it is followed by a prepositional phrase introduced by ทำ ‘from’, or by a directional adverb ทาง ‘toward speaker’ followed by ทำ.
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(1) Structural pattern:

```
S1  nìaŋ
   V  maa căak
   Adv P S2
```

(2) Sentential example: TH0200806 (Modern Thai)

```
?äakáat nìaŋ rön căt V maa căak tòk
weather very (connect) towards from tòk
N V Adv Adv P
```

‘The weather is hot due to the cause that it does not rain.’

2.2 Adverbs (pre-verbal)

2.2.1 ciŋ

The adverb ciŋ appears between the Nominative dependent (‘grammatical subject’) and the root verb of the second clause of a two-clause subordinating construction. If the Nom actant of the second clause is identical with the Nom of the preceding clause, it is commonly omitted. Syntactically, ciŋ indicates that the second verb is the head verb of the whole construction, even though unlike a ‘complementizer’ preposition, it does not occur at the boundary of either clause.

(3) Structural pattern:

```
S1 (NP) ciŋ V
  Adv
```
(4) Sentential example: TH0200807 (Modern Thai)

```
+f0n+m4y+t4k+?aak3+cia3+ro0n
rain+not+fall+weather+then/so+hot
```

‘It does not rain, therefore it is hot.’

The construction with an adverb before the verb is somewhat unusual for Modern Thai in that the common position for adverbs in Modern Thai is clause-final, not pre-verbal. The clause-second position in Thai (5 and 6) is otherwise limited to negative and tense-marking adverbs, and in Khmer (7) only to negative adverbs. This suggests a possible earlier areal characteristic. However, we have not further investigated this possibility. In Chinese (8 compared to 9, and 10), however, adverbs and clause-linking adverbs occur in the same post-subject pre-verb position.

(5) Modern Thai (TH0200807)

```
+f0n+m4y+t4k+?aak3+cia3+ro0n
rain+not+fall+weather+then/so+hot
```

‘It does not rain, therefore it is hot.’

(6) Modern Thai (Indrarambarya 1994, (14a), reformatted by Starosta)

```
+l3k+khaoy+khit+w4+thukkho+ca4+kho4+khaa
l3k+ever+think+that+everyone+will+wait+he
```

‘Lek once thought that everyone would wait for her.’

(7) Khmer negative adverb (KM101003f; Chhany Sak-Humphry, Starosta reformatting)

```
+koat+min+moek+meel+nakcum4+tee
he+ngtv+come+see+patient+ngtv
```

‘He does not come to see the patient.’
Taiwanese adverb ńōh (TW2002H192, Starosta reformatting; h is [ʔ])
goa ān khź patūi khāa", loŋ khōa bô.
I just go elsewhere seek all seek unsuccessful
‘I went elsewhere to look but couldn’t find any.’

Taiwanese clause-linking adverb ān1 (TW20354lc2, Starosta reformatting)
i ti hakhāu ān chīn gāu tākchheh.
he at school then very clever study
‘At school he’s very good at studying.’

Mandarin clause-linking adverb (TW20354lc2, Starosta reformatting)
tā màle wō yīdūn, wō jiū huijiāle
She scold me a whack I just returned home
‘After she scolded me, I just went home.’

2.2.2 ńōh

ńōh has the same syntactic properties as ńō, that is, it is a pre-verbal clause-linking
adverb. It is similar in shape as well as in syntactic properties to Taiwanese ān.

(11) Sentential example: (Modern Thai)

khāw not kin eat ān chāw

She has had no breakfast so she fainted.’

2.3 Prepositions, extension fact

2.3.1 dūay

The extension preposition dūay marks its dependent V₁ as the head of a
subordinate clause depending on the following verb.

1 The difference in shape between ān and ān is due to tone sandhi.
(12) Structural pattern:

- Structural pattern:
  
  - V2
  - V1
  - P +xtns
  - düay

  ‘give V1, therefore V2’

(13) a. Sentential example: TH0202001 (Ayutthaya)

- düay
  - with
  - P
  - phrá? nā?rëetchëethāa (title) (name)
  - yaŋ have
  - yuŋ stay
  - phráʔonŋ CLSF
  - mii one
  - phisëksīi marry

  - ciŋ then
  - máŋ not
  - Adv
  - V

  ‘Because there still was Phranaret, the brother, (he) did not get married…’

b. Sentential example: TH0202002 (Ayutthaya)

- düay
  - with
  - P
  - phráʔonŋ
  - N
  - nán as for
  - Sprb
  - rak krāya love
  - phráʔ chëethāa brother
  - yinŋ very
  - Adv
  - nāk quite

  ‘Because there still was Phranaret, the brother, (he) did not get married…’
‘Because he loved his brother very much, so he looked after the royal activities instead.’

2.3.2 phāa

The extension preposition phāa in the Sukhothai period marked the subordinate $V_2$ and its dependents if any as a subordinate clause, a dependent of the regent of phāa.

(14) Structural pattern:

```
     V1
      |
      |
phāa
  [P
     [+xtns]
```

(15) Sentential example: TH02001002 (Sukhothai)
‘My father then gave me my name (Ramkhamhaeng) because I fought with Khun Samchon.’

(16)  Sentential example: TH0201702 (Sukhothai)

‘[Then arrange hair into five buns] the cause as such (it) is called five mountains.’

2.3.3 phîa hèt wâa

The non-extension preposition phîa in the Ayutthaya period derived from the extension phîa in the Ramkhamhaeng period. However, it was semantically bleached, and required a ‘complementizer noun’ hèt plus hèt’s ‘complementizer preposition’ wâa to carry meaning formerly carried by the preposition phîa alone in the Ramkhamhaeng period.
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(17) Structural pattern:

\[ \text{V}_1 \quad \text{ph\textipa{a}} \quad \text{he\textipa{et}} \quad \text{w\textipa{a}} \quad \text{V}_2 \]

(18) Sentential example: TH0202302 (Ayutthaya)

\[ \ldots \text{t\textipa{a}n} \ldots \text{established} \quad \text{ph\textipa{a}} \quad \text{he\textipa{et}} \quad \text{w\textipa{a}} \quad \text{so\textipa{n}ph\textipa{r\textipa{a}\textipa{i\textipa{s\textipa{\textipa{\textipa{\textipa{\textipa{\right}}}\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipa{\textipi
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(19) Structural patterns:

```
    phrs?     V1
      P        +xtns  V2
     +rslt
```

‘since V₂, therefore V₁’

(20) a. Sentential example: TH02022 (Ayutthaya)

```
phrs?  phrai?oen sonphrai?kroet phraisisin nak ciñ san nán
because he (king) be angry (name) quite then/so order that
P    N  V    N Adv Adv V Det
phit  pay  nay  thanñ tham
wrong  go inside way Dhamma (good deed)
V    V    N    N    N
```

‘Because he was very angry, he then gave an order which was wrong.’

b. Sentential example: TH0201102 (Ratanakosin)

```
nan may pen thôot phrs?  täncay ça? hay manút pra?phrát dii
that not be bad because intend will give man behave  good
N  V  V  V  P  V  Adv  V  N  V  V
[‘the lies] are not wrongdoing because they are meant to make men behave well.’
```

c. Sentential example: TH0200802 (Modern Thai)

```
phrs?  fon may tok laey 'aakaat ciñ réon cat
because rain not fall at all weather then/so hot very
P    N  V  V  Sprb  N  Adv  V  Adv
```

‘Because it does not rain, the weather is extremely warm.’

2.3.5 phrs? hèet

The non-extension preposition phrs? in the Sukhothai and Ratanakosin periods and in Modern Thai, like the non-extension phka in the Ayuddhaya period, marks a subordinate V₂ as the reason for the action encoded for the main verb V₁. However, as a
non-extension preposition it can’t take a V complement directly. The noun héet is thus used to take the dependent V as a direct complement.

(21) Structural pattern:

(22) Sentential example: TH0202902a (Ratanakosin)

‘Because it was like what was said, [from that time then] the Chinese living in other countries followed the example of such a society [and set up the society in other countries].’
2.3.6 *phrÏ? hêet thîi*

In Modern Thai, the sentential complement of *hêet* is mediated by the relative noun *thîi* or by the extension preposition *wâa* as in 2.3.7 below.

(23) Structural pattern:

```
(23) Structural pattern:

\[ V_2 \]

[phrÏ?]

[heêet]

[thîi]

[+resn]

[V_1]

P

N

N

V

V

N

V

Adv

Adv

+rslt

+'for the reason that \( V_1 \), therefore \( V_2 \).'
```

(24) Sentential example: *TH0200805 (Modern Thai)*

```
phrÏ? hêet thîi fôn mây tôk ?aakàat ciŋ rôn cát

P N N N V V N Adv V Adv

+rslt

'Because it does not rain, the weather is thus extremely warm/hot.'
```

2.3.7 *phrÏ? hêet wâa*

(25) Structural pattern:

```
(25) Structural pattern:

\[ V_2 \]

[phrÏ?]

[heêet]

[+xtns]

[wâa]

[that]

[P]

+[xtns]

[V_1]

N

N

V

V

N

V

Adv

Adv

+'for the reason that \( V_1 \), therefore \( V_2 \).'
```
(26) Sentential example: TH021002 (Modern Thai)

khāw māy maa prā?chum phrā? hēet wāa lūuk khāw roonphayaabaan
he not come meeting because son admit hospital

N V V N P N V N

‘He did not come to the meeting because his son was admitted hospital.’

(27) Sentential example: TH021001 (Sukhothai)

bo mi ?aat bo mī can, may hay
Adv Adv V V2 V give niphansōmbât dáy

N V Nirvana V can

‘[He] cannot be given Nirvana because the King is only a common man. (not Lord Buddha).’

2.3.8 phrā?chānān

The word phrā?chānān found first in the Ayutthaya data is analyzed as a single word because the two parts are never separated. It appears only once in our initial Ayutthaya data set. The source for chānān is a copula chēn followed by nān. We tentatively analyze it as an extension preposition introducing a subordinate sentence.
2.3.9 phrɔʔwāa

The extension preposition phrɔʔwāa is transparently derived from the extension prepositions phrɔʔ and wāa. We think it is also a single word, like phrɔʔchɔnán, because the two parts are never separated, and because Thai does not otherwise allow a sequence of two prepositions.
(31) Sentential example: TH0200803b (Modern Thai)

?aakāat rōn cāt phrāwāa fōn māy tōk laēy
weather hot very because rain not fall at all
N V Adv P N V V Adv?
‘The weather is very hot because it has not rained at all.’

2.4 Nouns

2.4.1 hèet

The noun hèet can be used as the topic of a clause headed by a root verb V₂, giving the reason for the state or event in the preceding clause headed by a verb root V₁. This use of hèet appeared as early as the Sukhothai period, but the following sentential example is taken from the Ratanakosin period.

(32) Structural pattern:

\[
\begin{array}{c}
V_1 \quad \text{hèet} \quad V_2 \\
\quad \begin{cases} 
+N \\
+\text{prdc} \\
+\text{resn}
\end{cases}
\end{array}
\]

‘V₁ the reason is V₂’

(33) Sentential example: TH0201702 (Ratanakosin)

thaēn hāy māy thowīkhūnn hèet miʔkhuan cāʔ krōt cāʔ tii
he(king) give pay doubly cause not should will be angry will beat
for misdeed
N V V₁ Adv N V V V V₂ V V

2.4.2 hèet dag nān

The noun hèet can also be used as the topic of its own subordinate clause headed by the verb dag and followed by the demonstrative determiner nān. The reference of the noun hèet was the verb V₁ in the preceding root clause. This use of hèet appeared as early as the Sukhothai period.
(34) Structural pattern:

\[
\begin{array}{c}
V_1 \\
\text{cause} \\
\text{heët} \\
+\text{cause} \\
\text{dañ} \\
\text{be heard as} \\
\text{nán} \\
\text{that} \\
N \\
\text{V} \\
\end{array}
\begin{array}{c}
V_2 \\
\text{heët} \\
+\text{cause} \\
\text{dañ} \\
\text{be heard as} \\
\text{nán} \\
\text{that} \\
N \\
\end{array}
\]

(35) Sentential examples: TH0201702 (Sukhothai)

\[
\begin{array}{c}
\text{cause} \\
\text{heët} \\
\text{be heard as} \\
\text{dañ} \\
\text{nán} \\
\text{that} \\
N \\
\text{V} \\
\end{array}
\begin{array}{c}
\text{call} \\
\text{riak} \\
\text{then/so} \\
\text{V}_2 \\
\text{wàa} \\
\text{that} \\
\text{panca} \\
\text{five} \\
\text{mountains} \\
\text{phia} \\
\text{for} \\
\text{dañ} \\
\text{be heard as} \\
\text{nán} \\
\text{Spirt} \\
\text{laëæ} \\
\text{N} \\
\end{array}
\]

‘The cause as such (it) is called five mountains.’

2.4.3 heët wàa

The Sukhothai extension noun heët with a fact complement wàa V1 precedes a V2 and means ‘because V1, therefore V2’. As is normal with preposed subordinate clauses, the second clause contains a pre-verbal clause-sequence adverb, in our example, k5?. 
(36) Structural pattern:

```
hēet       wāa     (NP)     Adv
  N         P       V2       
+xtns      +resn    +xtns

'because V1, (NP) therefore V2'
```

(37) Sentential example: TH02018001 (Sukhothai)

```
hēet       noon      nay        klaan
  N         V3       V2       N
+resn      +resn     +resn

then       hold

wind      so      hold      body     his
N         Adv      V2       N       N

'Because he was not used to not eating dinner and when he went to bed that night, he fainted.'
```

3. Tabulation of linking words from the Sukhothai period until Modern Thai

To summarize our analyses in the preceding sections we give the following table which displays the syntactically analyzed cause/reason linking words sorted in terms of period attested, word class and syntactic types. The following abbreviations are used:

```
3 lom  kŷ?  thĩi  ton  man
  wind  so  hold  body  his
  N    Adv  V2   N    N
```

RKH or the Ramkhamhaeng inscription is in fact in the Sukhothai Period. In the table, we separated it from SKTH just because it was the first inscription and the first source of our data. For other Sukhothai inscriptions and Traiphum Pra Ruang we group them together under SKTH.

<table>
<thead>
<tr>
<th>Verb</th>
<th>Pre-verbal Adverb (Pv)</th>
<th>Preposition</th>
<th>Preposition + N</th>
<th>Preposition + N + P</th>
<th>Preposition + V</th>
<th>Preposition + daŋ + nán</th>
<th>Preposition + N + N</th>
</tr>
</thead>
<tbody>
<tr>
<td>RKH</td>
<td>SKTH</td>
<td>AYTT</td>
<td>RTK</td>
<td>MT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nǐaŋ</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cîŋ</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>kāo</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>dùay</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>phàa</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>phàa hèet wâa</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>phrōʔ</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>phrōʔ hèet wâa</td>
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<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>phrōʔ hèet thîi</td>
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<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>phrōʔ wâa</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>phrōʔ/chânán</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>hèet + V</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>hèet</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4. Semantic characteristics and historical development

In this section we will examine all linking words discussed in the previous sections in connection with their semantic characteristics and historical development. So that we can identify the semantic characteristics of a linking word as a cause or result marker, we would like to give first the definitions of four semantic features: cause, result, purpose, and reason.

1. **cause**
   If x causes y, x is a necessary and sufficient condition for y. If x hadn’t happened, y would not have happened, and if x happened, y had to be the result. Cause in this sense does not imply intention, but also does not exclude it.

2. **purpose**
   If the purpose of x is y, it means that some animate entity A intentionally performs the action x, and A expects and wishes that performing x will bring about y.

3. **result**
   If x causes y (sense 1), then y is the result of x.

4. **reason**
   If x is the reason for y, it means either that
   a) x causes y (sense 1) or
   b) y is the purpose of x.

Following the above definitions, cause, purpose, and reason identify the ‘cause’ or the action that ‘brings about’ an event or the ‘result’. We will group them under ‘cause’ as opposed to ‘result’ in the discussion in this section, although at times, we may recognize a sub-class of ‘cause’ for a certain linking word.

With the above definitions, we identify each of the fifteen linking words in the previous table its semantic characteristic as a cause or a result marker as follows:

<table>
<thead>
<tr>
<th>Cause markers</th>
<th>Result markers</th>
</tr>
</thead>
<tbody>
<tr>
<td>níaŋ, dúay, pʰà, phà hêêt wàa, phrɔʔ, phrɔʔ hêêt wàa, phrɔʔ hêêt thíi, phrɔʔ wàà, hêêt wàà, hêêt daŋ nán</td>
<td>cín, phrɔʔ chɔnán, kɔʔ</td>
</tr>
</tbody>
</table>
4.1 Cause linking words

As can be seen from the definition, cause and result are the two sides of the same coin. The cause and result clauses must co-occur. The clause conveying a cause event is marked by any of the following cause clause markers: phî, phêhêêtwa, phrî, phrîhêt, phrîhêêtwa, phrîhêêtthi, phrîwâa, hêêt, hêêtdañ, hêêtwa, niñ, and diûay.

4.1.1 phîa and its related markers

It will be seen in this section that the cause linking word phîa has developed from a cause linking word to a purpose linking word. Also, it is shown that a combination of a cause linking word, phrî, with hêêt a noun has been used as a mechanism from the Sukhothai period. In the Ayutthaya period, phîa combined with hêêt wâa was also found used as a mechanism. This is a mechanism in a bleaching process in the case of phîa, but in the case of phrî, it is probably a mechanism to specify the reason linking word phrî as the first type of reason (see semantic characteristic subtype 4a); i.e., a reason in the sense of cause. A further study is needed to confirm this statement.

By the related markers of phîa, we mean the group of linking words, phîa, phîa hêêt wâa, phrî, phrî hêêt, phrî hêêt thî, hêêt, hêêt wâa, all of which show the three words involved, phîa, phrî, and hêêt.

In the Ramkhamhaeng inscription phîa was found marking the cause clause occurring after the result clause as in:

(38) (phîa khuñ raamkhamhâñg hâa khôy cay nay cay laaw sây
          King Ramkhamhaeng think and put
          laâysîi thay nîi wîy) laâysîi thay cin mîi phîa khuñ phûu
          script Thai this keep script Thai so have because King clf
          result cause
          nân sây wîy
          that put keep

          ‘[King Ramkhamhaeng has the idea of establishing the Thai Alphabet.] The alphabet therefore existed, because the king established it.’

The sequence of cause and result clauses must be noted. Logically the sequence should be in the order of cause-result in which case a cause clause needs no marker:
(39) Archivo marcado con aakkat cin ron
    
    rain, not fall, weather, therefore, hot
    
    cause, result
    
    ‘It does not rain, the weather is therefore hot.’

A cause marker is, however, allowed:

(40) Archivo marcado con aakkat cin ron
    
    because, rain, not fall, weather, therefore, hot
    
    cause, result
    
    ‘Because it does not rain the weather is hot.’

In either case, the result clause must be marked (in the examples ciq is used). The result clause can precede the cause clause as in example (38) or in (41):

(41) Archivo marcado con aakkat ron phr3i fon may tok
    
    weather, hot, because, rain, not, fall
    
    result, cause
    
    ‘The weather is hot because it does not rain.’

However, here there is a difference in the use of a result marker. In Modern Thai and in the Ratanakosin period the result clause preceding a cause clause cannot be marked by any result marker: *?aaakat ciq ron phr3i fon may tok (weather-then-fall-because) (cf. Example (41)). In Sukhothai and Ayutthaya periods, when a cause clause followed a result clause, the result clause could be marked with ciq and a cause clause was marked by phra (see examples (15) and (16) and also (38)).

In the Ayutthaya data, phra could be accompanied by hete as phra hete waarticle as in:

(42) Archivo marcado con aakkat ciq taj caawfia dokdia hay pen thi mohaauporait
    
    therefore, establish, Prince, Dokduea, cause, be, Acting crown prince
    
    phra hete waarticle, sorphra2sobin nii mit daang nii
    
    because, dream, loud, this
    
    ‘…Therefore [he] pronounced Prince Dokduea the crown prince, since he had dreamt so.’

---

4 Sentences in the bracket in (38) describe two events: the king pondered about the scripts (event1) and invented the scripts (event2).
Since \textit{phia} has already the meaning of ‘cause’, the use of \textit{he\textperiodcentered} ‘cause’ is only a repetition. Why was it needed in the above sentence? It is most probable that \textit{phia} was losing its meaning as ‘cause’ and was gaining the new meaning of ‘purpose’. In Modern Thai \textit{phia} carries the meaning ‘for the purpose of’, for example: \textit{mæ: tham \textperiodcentered yaan nàk phia lîuk cár\textperiodcentered dâ\textperiodcentered rian nàg\textperiodcentered sî} (mother-do-work-heavy-for the purpose-children-will-get-learn-book) ‘The mother works hard so that her children will be able to go to school’. Here \textit{phia} does not indicate ‘cause’ any longer. The use of \textit{he\textperiodcentered}, a noun meaning ‘cause’ in \textit{phia} \textit{he\textperiodcentered\textperiodcentered wà\textperiodcentered} may well prove that \textit{phia} was beginning to shift its meaning. In other words, during its meaning shifting process, \textit{he\textperiodcentered} was used with \textit{phia} to help keep the meaning ‘cause’ of \textit{phia}. However, \textit{he\textperiodcentered} used alone (see example (33)) or followed by a complement \textit{wà\textperiodcentered} (see example (37)) or in a phrase with \textit{dà\textperiodcentered nàn} (see example (35)) did not survive either. They do not appear in our Modern Thai.

In the late Sukhothai period, \textit{phr\textperiodcentered\textperiodcentered th\textperiodcentered\textperiodcentered} was introduced with \textit{he\textperiodcentered} as \textit{phr\textperiodcentered\textperiodcentered th\textperiodcentered\textperiodcentered he\textperiodcentered\textperiodcentered wà\textperiodcentered} meaning ‘because’. Based on the data, we see that this marker was used until the reign of King Rama V in the Ratanakosin period. In Modern Thai, either \textit{he\textperiodcentered} or \textit{phr\textperiodcentered\textperiodcentered th\textperiodcentered\textperiodcentered} has become obsolete. \textit{Phr\textperiodcentered th\textperiodcentered he\textperiodcentered\textperiodcentered wà\textperiodcentered} was also found in late Sukhothai period and has been used until now, although it is found more in formal writing along with \textit{phr\textperiodcentered th\textperiodcentered th\textperiodcentered\textperiodcentered} which first appears in Modern Thai.

It can be concluded that for the cause clause markers, \textit{phr\textperiodcentered th\textperiodcentered} has been used from the Sukhothai period until the present time. It was also found with other words as an extension preposition. In Modern Thai, \textit{phr\textperiodcentered th\textperiodcentered} is commonly used alone or with \textit{wà\textperiodcentered}.

\subsection*{4.1.2 \textit{dû\textperiodcentered}}

In our data, \textit{dû\textperiodcentered} was first found in the Ayutthaya period. It should be noted that the cause clause marked with \textit{dû\textperiodcentered} must always precede the result clause which always carries the result marker \textit{cit\textperiodcentered}. In the Ramkhamhaeng inscription, \textit{dû\textperiodcentered} occurred but it was used as a marker of a comitative case:

\begin{quote}
\textit{kuu t\textperiodcentered\textperiodcentered cha\textperiodcentered nh\textperiodcentered dû\textperiodcentered kh\textperiodcentered\textperiodcentered s\textperiodcentered samchon \ldots}
\textit{I fight elephant with Khun Samchon}
\textit{‘I fought on elephant back with Khun Samchon.’}
\end{quote}

Or as a manner/instrumental case:

\begin{quote}
\textit{\ldots su\textperiodcentered\textperiodcentered khwaam kæ\textperiodcentered\textperiodcentered man dû\textperiodcentered sî\textperiodcentered\textperiodcentered\textperiodcentered investigat\textperiodcentered\textperiodcentered matter to\textperiodcentered him with\textperiodcentered honesty}
\textit{‘[I] investigate the case with justice.’}
\end{quote}
Stanley Starosta and Pranees Kullavanijaya

(45) …sàŋsañ thay thán lâay háy rúu bun rúu tham…
    teach Thai all cause know merit know goodness
    dûay rúu
    with knowledge
    ‘[He] taught all Thais to know good and bad with [his] knowledge.’

It is proposed here that dûay as a cause clause marker is derived from dûay as a case marker for the manner/instrumental case relation. Semantically, it is natural for the manner/instrumental meaning to be interpreted as a reason. In Modern Thai, dûay as a cause clause marker is used only in formal writing.

4.1.3 niây

niây as a marker for a cause clause is, from the data, found only in Modern Thai. It is used followed by a prepositional phrase (see niây in 2.1).

4.2 Result linking words

From the data, there are three result cause linking words: ciŋ, kêt, and phràchönán.

4.2.1 ciŋ

Ciŋ appears in all periods. From the data, when ciŋ in the Sukhothai-Ayutthaya period marked a result and preceded the cause clause, the latter must be marked with phia (See example (15), (16), (38)). In our Ratanakosin-Modern Thai data, ciŋ may mark either a result clause in the order of a cause and a result (example (46)), or a sequence of events without the cause and result meaning (example (47)).

(46) fôn mây tôk ʔaakâat ciŋ ɹōn ɹən (Modern Thai)
    rain not fall weather therefore hot
    ‘It does not rain, therefore the weather is hot.’
(47) raw kin khâaw ʔâæw ciŋ pây ɹən (Modern Thai)
    we eat rice already then go sleep
    ‘We ate then we went to sleep.’

In (47) there is no cause and result meaning conveyed. Note that in this case an adverb /ʔâæw/ must always occur before ciŋ. Although ciŋ in the Ratanakosin-Modern
Thai has two functions, it may well be said however that it primarily marks a result. Moreover, unlike *ci* in the Sukhothai-Ayutthaya period, the *ci* clause cannot precede the cause clause.

If we consider the following sentence in which *kɔ̀* is used, we can see that the meaning of a temporal sequence is apparent:

\[(48) \text{mìa fon mày tòk ?aakàat } kɔ̀ \text{ ròn (Modern Thai)}
\]
\`
\text{when rain not fall weather then hot}
\`

'When it does not rain, then the weather is hot.'

However, the sentence is not acceptable if *ci* is used instead:

\[(49) *\text{mìa fon mày tòk ?aakàat } \text{cì } \text{ròn}
\]

Thus, we would like to propose that *ci* primarily marks a result clause and only in a specific situation with *lēǎw*, may it mark a sequence of events. On the contrary, *kɔ̀* primarily marks a temporal sequence but secondarily a result. In the latter case the preceding clause must be a cause clause which is still acceptable when a cause linking word is put in, for example sentence (11) is acceptable when *phrɔ̀* is put in:

\[(11) \text{khāw mày dāy kin khâwchâw kɔ̀ lɔɔy pen lom}
\]
\`
\text{she not eat breakfast so then be fainted}
\`

'She has had no breakfast so she fainted.'

\[(50) \text{phrɔ̀ khāw mày dāy kin khâwchâw kɔ̀ lɔɔy pen lom}
\]
\`
\text{because she not eat breakfast so then be fainted}
\`

'Because, she has had no breakfast, (so) she fainted.'

If it is not acceptable, *kɔ̀* does not mark a result, but only an event in a sequence. In (48), for example, when *phrɔ̀* is put in the sentence, the sentence is not acceptable: *phrɔ̀* (mìa) fon mày tòk ?aakàat *kɔ̀* ròn.

Because *ci* usually marks the result clause rather than a temporal sequence, the following sentence is not acceptable.

\[(51) *\text{wāa khāw pay lēǎw ci* sǐacay}
\]

'Scolding him therefore I felt sorry.'

Our proposal that *ci* primarily marks a result clause and secondarily a temporal sequence in the latter two periods needs a further study to confirm and it may raise a
question whether the same phenomenon also occurred in the earlier two periods. We have not yet investigated this question in this paper because it seems beyond our scope.

4.2.2 \( \text{k}\tilde{s}\)?

Similar to \( \text{ci}\text{y} \), \( \text{k}\tilde{s}\)? has been found from the Sukhothai period until the Modern Thai period. Although \( \text{k}\tilde{s}\)? can mark a result, it is not as often found in this function compared with \( \text{ci}\text{y} \). Instead, \( \text{k}\tilde{s}\?) primarily marks a temporal sequence of events. As can be seen in (50) if \( \text{k}\tilde{s}\?) is used instead of \( \text{ci}\text{y} \), the sentence is acceptable: w\( \tilde{a} \) kh\( \tilde{a} \) w\( \tilde{a} \) la\( \tilde{e}\)w \( \text{k}\tilde{s}\?) s\( \tilde{a}\)c\( \tilde{a} \)c\( \tilde{a} \) ‘[After] scolding him, then [I] felt sorry’.

4.2.3 Phr\( \tilde{s}\?)ch\( \tilde{n}\)n

Phr\( \tilde{s}\?)ch\( \tilde{n}\)n was found first in the Ayutthaya period and has been used until now to mark a result event. From its form, it may be hypothesized that phr\( \tilde{s}\?)ch\( \tilde{n}\)n is derived from a phrase: phr\( \tilde{s}\?) ch\( \tilde{n}\) n\( \tilde{n}\) which literally means ‘[The] cause [is] like that’. The destressing of ch\( \tilde{n}\) makes it become cho and turns the construction into a one unit word meaning ‘therefore’, marking a result event.

5. Conclusion

It can be seen that the lexicase dependency grammar, a grammar with no deep structure and no transformation, can be used to analyze a sentence with a subordinating clause such as cause and result sentences studied in this paper. The study shows that several syntactic mechanisms are used in the linking of clauses: clause-linking verbs, extension prepositions as well as non-extension ones, clause-linking adverbs and extension nouns. Several mechanisms illustrate the derivation of a new word from an origin word; for example, a derivation of n\( \tilde{k}\)ag, a clause-linking verb, from n\( \tilde{k}\)ag, a verb. In the case of phr\( \tilde{s}\?) h\( \tilde{e}\)et w\( \tilde{a}\), it is shown how phr\( \tilde{s}\?), a non extension preposition requires a noun h\( \tilde{e}\)et after it so that it can take a verb complement w\( \tilde{a}\).

It can also be seen from the study that between cause linking words and the result words, the former outnumber the latter. Some of these cause linking words have become obsolete in Modern Thai, such as h\( \tilde{e}\)et w\( \tilde{a}\) or h\( \tilde{e}\)et. Some have illustrated a phonological reduction such as phr\( \tilde{s}\?)ch\( \tilde{n}\)n from phr\( \tilde{s}\?)ch\( \tilde{n}\)n. Some also showed a shift from a cause marker to a result one; for example, ph\( \tilde{a}\), a purpose marker that shifted from ph\( \tilde{a}\), a cause marker. The fact that ph\( \tilde{a}\) has shifted to mark purpose explains the close semantic relation between cause and purpose.
References


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Cause and Result Clauses from the Ramkhamhaeng Inscription to Modern Thai

從蘭坎恆碑文到現代泰語的原因與結果子句

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University of Hawai‘i  Chulalongkorn University

本文探討泰國「素可泰」王朝「蘭坎恆碑文」到現代泰語的十五個「原因」、「結果」連接標記。我們分析了這些標記的詞類，以「詞格依存語法」理論分析其語法特性與「依存樹狀結構」，並且探討了這些連接標記的語意性質與歷史發展。

本研究顯示原因與結果子句可以用「子句連接動詞」、「副詞」、「帶補語子句的介詞或名詞」與「帶名詞補語的介詞或名詞」等各種句法機制相連接。我們發現「原因」連接標記的數目比「結果」連接標記的數目多，同時也發現在這十五個標記中，只有ซี่ก, กู, ภู และ พริ้ว 這三種標記不是源自其他詞類。其他十一個標記不是由動詞或名詞衍生（如「子句連接動詞」นิราย 源自「動詞」นิราย「連接」），就是由連接詞與「依存」動詞或「依存」名詞組成而成（如 เหตุ ตั้ง นน และ พริ้ว เหตุ วัว）。此外，在某些連接標記中可以看到音韻弱化的痕跡，如 พริ้วคมานัน 即由 พริ้วคมานัน 弱化而來。

關鍵詞：蘭坎恆碑文，素可泰王朝，現代泰語，連接標記，詞格