

# Quantifications of Frequency adverbs in Korean – *cacwu* and *cakkwu*

Jo Yu-mi (Seoul National University)

jmoc84@snu.ac.kr

Frequency adverbs can be interpreted as an adverb of quantification, and also as a frequentative adverb. These interpretations are related to the frequency adverbs' distributions, and the relation between semantics and syntax of frequency adverbs can be observed more explicitly when they appear with some other expressions in a sentence. Two frequency adverbs in Korean, *cacwu* and *cakkwu*, which seem to mean 'often/frequently', will be dealt with. We will specify their syntactic position by their interpretations derived from the relative ordering with other elements.

## 1. Frequency adverbs; *cacwu* and *cakkwu*

According to Abeillé *et al.* (2004), frequency adverbs have a count interpretation; "they say something about the number of times something has happened..." and "this number is usually related other times or events." Therefore frequency adverbs like *souvent* in French "necessarily involve quantification over events." However, they do not always operate as a quantifier, and then they have only a frequentative meaning. Their interpretations are influenced by their syntactic positions and their surroundings. Whether a certain condition affects the interpretation of frequency adverbs or not, and how it does is depend on the property of the frequency adverb itself. By some of these properties, frequency adverbs are classified into small groups. Here, we will mention two properties – dependency and relationality – which a difference between *cacwu* and *cakkwu* result from.

Abeillé *et al.* (2004) provides an example of independent and dependent adverbs in French. The dependency of frequency adverb is decided upon whether a given situation provides the domain of quantification for the set of events the adverb quantifies over. In (1), *souvent* and *parfois* in French are independent adverbs which are not provided the domain of quantification from the first sentence. On the other hand, in (2), *de temps en temps* is a dependent quantifier that refers to a contextually determinable situation, which it qualifies. The first sentence provides the domain of quantification for the adverbial quantifier in the second sentence, so that the combination with the third sentence leads to a contradiction.

- (1) Pauline et Jean jouent dans le jardin. Il la taquine *souvent/parfois*. Mais maintenant (qu'ils jouent dans le jardin), il ne la taquine pas.

‘Pauline and Jean play in the garden. He teases her often/sometimes. But now (that they play in the garden), he does not tease her.’ (Abeillé *et al.* 2004)

- (2) Pauline et Jean jouent dans le jardin. *De temps en temps*, ils s’assoient dans l’herbe. #Mais maintenant (qu’ils jouent dans le jardin), ils ne s’assoient pas dans l’herbe.  
 ‘Pauline and Jean play in the garden. From time to time, they sit down in the grass. But now (that they play in the garden), they do not sit down in the grass.’ (Abeillé *et al.* 2004)

This dependency is also applied to illustrate the difference between *cacwu* and *cakkwu* in Korean. In (3), *cacwu* is identified as an independent frequency adverb, and *cakkwu* is as a dependent adverb in (4).

- (3) 철수와 영수가 시험 때문에 연구실에서 밤을 샌다. 철수는 자주 영수에게 말을 건다. 그러나 (연구실에서 밤을 새는) 오늘밤은 철수가 영수에게 말을 걸지 않는다.  
 Chelswuwa yengswuka sihem ttaymuney yenkwusileyse pamul saynta. Chelswunun *cacwu* yengswueykey malul kenta. Kulena (yenkwusileyse pamul saynun) onulpamun chelswuka yengswueykey malul kelci annunta.  
 ‘Chelswu and Yengswu stay up all night at the laboratory because of an exam. Chelswu often speaks to Yengswu. But, tonight (that they stay up all night at the laboratory because of an exam), Chelswu does not speak to Yengswu.’
- (4) 철수와 영수가 시험 때문에 연구실에서 밤을 샌다. 철수는 자꾸 영수에게 말을 건다. #그러나 (연구실에서 밤을 새는) 오늘밤은 철수가 영수에게 말을 걸지 않는다.  
 Chelswuwa yengswuka sihem ttaymuney yenkwusileyse pamul saynta. Chelswunun *cakkwu* yengswueykey malul kenta. #Kulena (yenkwusileyse pamul saynun) onulpamun chelswuka yengswueykey malul kelci annunta.  
 ‘Chelswu and Yengswu stay up all night at the laboratory because of an exam. Chelswu often speaks to Yengswu. #But, tonight (that they stay up all night at the laboratory because of an exam), Chelswu does not speak to Yengswu.’

Dependency and independency are related to the availability of a relational reading (de Swart 1991; recited in Abeillé *et al.* 2004). When a certain situation is given, independency frequency adverbs can have both relational and non-relational reading. For example, the *quand*-clause provides the restrictor on the quantifier *souvent* in (5a), and the domain of quantification within which the quantifier operates as in (5b).

- (5) Quand elle est à Paris, Pauline va *souvent* au Louvre. (Abeillé *et al.* 2004)  
 a. ‘Many of the times she is in Paris, Pauline goes to the Louvre’  
 b. ‘Whenever she is in Paris, Pauline often goes to the Louvre’

Likewise, the independency frequency adverb *cacwu* can be ambiguously interpreted to be a quantifier which

results in a relational reading, or to be a frequentative adverb which results in a non-relational reading. And *cacwu* is provided the restrictor on the quantifier by the *ttay*-clause in (6a) and the domain of quantification in (6b), so that (6) is ambiguous.

- (6) Nay-ka hakkyo-ey issul ttay, Chelswu-ka *cacwu* yenkwusil-lo chacaw-ass-ta.  
 I-NOM school-LOC BE when, Chelswu-NOM often laboratory-LOC visit-PAST-DECL
- a. **Cacwu** (Nayka hakkyoey issul ttay), (Chelswuka yenkwusillo chacawassta)  
 ‘Many of times I was at school, Chelswu visited the laboratory’
- b.  $\forall$  (Nayka hakkyoey issul ttay), (Chelswuka yenkwusillo **cacwu** chacawassta)  
 ‘Whenever I was at school, Chelswu visited the laboratory often’

The dependent frequency adverbs lack a relational reading, and are always interpreted on a par with the non-relational reading as like (7).

- (7) Quand il est à Paris, Paul va *de temps en temps* au Louvre. (Abeillé *et al.* 2004)  
 ‘Whenever he is in Paris, Paul goes to the Louvre now and then’

- (8) Nay-ka hakkyo-ey issul ttay, Chelswu-ka yenkwusil-lo *cakkwu* chacaw-ass-ta.  
 I-NOM school-LOC BE when, Chelswu-NOM laboratory-LOC frequently visit-PAST-DECL
- a. \* **Cakkwu** (Nayka hakkyoey issul ttay), (Chelswuka yenkwusillo chacawassta)  
 ‘Many of times I was at school, Chelswu visited a laboratory’
- b.  $\forall$  (Nayka hakkyoey issul ttay), (Chelswuka yenkwusillo **cakkwu** chacawassta)  
 ‘Whenever I was at school, Chelswu often visited the laboratory’
- c.  $\exists$  (Nayka hakkyoey issul ttay), (Chelswuka yenkwusillo **cakkwu** chacawassta)  
 ‘During a total time when I was at school, Chelswu visited the laboratory often’

When *ttay*-clause is given in (8), a dependent frequency adverb *cakkwu* is not interpreted relationally. Moreover, an additional non-relational reading (8c) is observed; for a difference between (8b) and (8c) is derived from the property *ttay*-clause. We will not mention this property now, but should notice that *cakkwu* has a non-relational reading in (8b) and (8c). In both, *cakkwu* is placed in a nuclear scope;  $\psi$  in  $Q(\phi, \psi)$ . Each of their logical formulas is provided as followings;

- (9) a.  $\forall i [ [\exists e \rightarrow \text{‘nayka hakkyoey issta’} \ \& \ e(i)]$   
 $\rightarrow [ \exists E [ Ee \rightarrow \text{‘chelswuka yenkwusillo chacawassta’} \ \& \ E(i) \ \& \ |E| \geq \text{‘cakkwu’} ] ] ]$
- b.  $\exists E [ \exists I [ Ee \rightarrow \text{‘nayka hakkyoey issta’} \ \& \ I = \sum i [ e(i) ]$   
 $\ \& \ \exists E' [ E'e \rightarrow \text{‘chelswuka yenkwusillo chacawassta’} \ \& \ E'(I) \ \& \ I' \subseteq I \ \& \ |E'| \geq \text{‘cakkwu’} ] ] ]$
- (*e*: atomic event, *E*: plural event, *i*: time interval, *I*: the sum of time interval)

A frequency adverb *cakkwu* can be interpreted as a quantifier of the sentence in some conditions, but in other conditions, where it cannot be a quantifier, it is interpreted only as a frequentative adverb or it becomes uninterpretable. In the following sections, we will examine the relations between two interpretations – a quantificational reading and a frequentative reading – and some distributions of *cacwu* and *cakkwu*.

## 2. The Relation between interpretations and distributions of *cacwu* and *cakkwu*

### 2.1. A restitutive adverb in Korean; *tolo*

Cinque (1999) proposed that adverbs are classified in various groups and these groups have a hierarchical ordering. Based on Cinque’s adverbial hierarchy in (10), we will accept that frequency adverbs have two positions in the syntactic structure, and assume that each of these positions is related with their interpretations.

#### (10) The universal hierarchy of clausal functional projections (a second approximation) (Cinque 1999)

[once T(Past) [then T(Future) [perhaps Mood<sub>irrealis</sub> [necessarily Mod<sub>necessity</sub> [possibly Mod<sub>possibility</sub> [usually Asp<sub>habitual</sub>  
 [again Asp<sub>repetitive(I)</sub> [often Asp<sub>frequentative(I)</sub> [intentionally Mod<sub>volitional</sub> [quickly Asp<sub>celerative(I)</sub>  
 [already T(Anterior) [no longer Asp<sub>terminative</sub> [still Asp<sub>continuative</sub> [briefly Asp<sub>durative</sub> [characteristically(?) Asp<sub>generic/progressive</sub>  
 [almost Asp<sub>prospective</sub> [completely Asp<sub>SgCompletive(I)</sub> [tutto Asp<sub>PlCompletive</sub> [well Voice [fast/early Asp<sub>celerative(II)</sub>  
 [again Asp<sub>repetitive(II)</sub> [often Asp<sub>frequentative(II)</sub> [completely Asp<sub>SgCompletive(II)</sub>

In this section, we will examine frequency adverbs through occurrences with repetitive(or restitutive) adverbs. There are two positions for repetitive adverbs in Cinque(1999)’s hierarchy and the position seems to be related with the interpretation(Ernst . From Cinque(1999)’s hierarchy, we will pay attention to the simplified hierarchy between frequency adverbs and repetitive adverbs which is given as follows;

#### (11) The simple hierarchy between repetitive and frequentative adverbs

... [again Asp<sub>repetitive(I)</sub> [often Asp<sub>frequentative(I)</sub> ... [Voice ... [again Asp<sub>repetitive(II)</sub> [often Asp<sub>frequentative(II)</sub> ...

Scope competition among these adverbs results in the difference of interpretation.

Jäger&Blutner(2003) proposed that in German, “the repetitive reading obtains if the repetitive adverb precedes the object. If the object precedes the repetitive adverb, the restitutive reading is preferred.” Korean has a similar structure to that of German as an OV language, so that it is expected that repetitive adverbs in Korean has a similar characteristic relation between a word order and its interpretations. In Korean, there are three lexical words that correspond to *again* as in English, such as *tasi*, *tto*, and *tolo*. Moreover, while *tasi* has three types of meaning – repetitive, revised, and restitutive meaning, the others have only one meaning (Yoon 2007); *tto* has only a repetitive reading as in (12) and *tolo* has only a restitutive one as in (14). Therefore, by observing their occurrence, we can identify the relation between their semantic interpretation and distribution more explicitly.

- (12) a. Chelswu-ka *tto* patak-ul takk-ass-ta.  
 Chelswu-NOM again floor-ACC wipe-PAST-DECL  
 b. Chelswu-ka patak-ul *tto* takk-ass-ta.  
 Chelswu-NOM floor-ACC again wipe-PAST-DECL  
 ‘Chelswu again wiped the floor’ (only repetitive)
- (13) a. Chelswu-ka *tasi* patak-ul takk-ass-ta.  
 Chelswu-NOM again floor-ACC wipe-PAST-DECL  
 ‘Chelswu again wiped the floor’ (repetitive)  
 b. Chelswu-ka patak-ul *tasi* takk-ass-ta.  
 Chelswu-NOM floor-ACC again wipe-PAST-DECL  
 ‘Chelswu wiped the floor again’ (revised <sup>1</sup> / restitutive)
- (14) a. Chelswu-ka *tolo* patak-ul takk-ass-ta.  
 Chelswu-NOM again floor-ACC wipe-PAST-DECL  
 b. Chelswu-ka patak-ul *tolo* takk-ass-ta.  
 Chelswu-NOM floor-ACC again wipe-PAST-DECL  
 ‘Chelswu wiped the floor again’ (only restitutive)

In this discussion, *tolo* is especially noticeable. *Tolo* seems to be able to be in the lower restitutive adverbial position in (11). A restitutive reading in (15) is not related with the agent, and then *tolo* should be adjoined to some lower position than the agent. Furthermore, in the unaccusative as in (16), the object which is restituted should include the theme. We conclude that this *tolo*, the adverb with a restitutive reading, is adjoined to VP.

- (15) Yumi-ka mwun-ul tat-ass-ta. Kuliko Chelswu-ka *tolo* mwun-ul yel-ess-ta.  
 ‘Yumi closed the door. And Chelswu open the door again.’

- (16) Patak-ey iss-ten aki-lul uyca-ey ollye-no-ass-ta. Aki-ka *tolo* patak-uro ttele-cj-ess-ta.  
 ‘There was a baby on the floor. I put the baby on the bed. But the baby fell again.’ (restitutive)

When *cakkwu* or *cacwu* appears with this *tolo*, the sentence is interpreted differently in accordance with its distribution.

- (17) Chelswu-ka *tolo cakkwu* kichim-ul hayssta.  
 ‘Chelswu coughed often again’  
 - Scope competition: restitutive > *cakkwu*<sub>freq</sub>

<sup>1</sup> Yoon (2007) proposes that *tasi* has three types of meaning – repetitive, revised, and restitutive meaning.

(18) Chelswu-ka *cakkwu tolo* kichim-ul hayssta..

‘Chelswu often coughed again’

- Scope competition: *cakkwu*<sub>Q</sub> > restitutive

When *tolo* scopes over *cakkwu* in (17), *cakkwu* have a frequentative reading, not a quantificational reading. On the other hand, when *cakkwu* scopes over *tolo* in (18), *cakkwu* have a quantificational reading, not a frequentative reading.

(19) ? Chelswu-ka *tolo cacwu* kichim-ul hayssta.

‘Chelswu coughed often again’

- Scope competition: restitutive > *cacwu*<sub>freq</sub>

(20) Chelswu-ka *cacwu tolo* kichim-ul hayssta.

‘Chelswu often coughed again’

- Scope competition: *cacwu*<sub>Q</sub> > restitutive

The interpretation in (19) is a little worse than that in (17); this is because the difference of dependency between *cakkwu* and *cacwu*. *Cakkwu* is totally dependently interpreted in the time interval given by *tolo* in (17); but *cacwu* is somewhat unnatural to be interpreted in the time interval given by *tolo*.

In (17~20), *cakkwu* or *cacwu* are interpreted with a frequentative reading in the lower position than *tolo*, and with a quantificational reading in the higher position than *tolo*.

## 2.2. Quantificational determiner; *Nwukwunka*

Generally, weak quantifier which be restructured to vP can have a non-presuppositional reading in a nuclear scope in LF. However, in Korean, once an element from vP is scrambled to the sentence-initial position, it cannot be restructured in the nuclear scope and cannot be interpreted non-presuppositionally. As Jo(2007) propose, when *nwukwunka* is focalized and restructured into vP, then it is interpreted with a non-presuppositional meaning in the nuclear scope in LF; otherwise, it has a presuppositional reading as an quantificational operator.

At first, we will examine the distribution of *cakkwu* in the sentence which has *nwukwunka* as a subject. The one – *nwukwunka* or *cakkwu* – should scope over the other. In this scope competition, *nwukwunka* has a presuppositional reading in the narrow scope, and a non-presuppositional one in the wide scope.

(21) *nwukwunka*-ka mal-ul *cakkwu* kel-ess-ta.  
 Someone-NOM speech-ACC often take-PAST-DECL

‘Someone talks (to me) repeatedly’

a. Interpretation:  $\exists_{\text{presuppositional}} > \textit{cakkwu}_{\text{Freq}}, * \textit{cakkwu}_{\text{Q}} > \exists_{\text{non-presuppositional}}$

b. Scope competition:  $\exists_{\text{presuppositional}} > \text{cakkwu}, \text{cakkwu} > \exists_{\text{non-presuppositional}}$

(22) *Nwukwunka-ka cakkwu mal-ul kel-ess-ta.*  
 Someone-NOM often speech-ACC take-PAST-DECL  
 ‘Someone talks (to me) repeatedly’ / ‘Someone often talk (to me)’

a. Interpretation:  $\exists_{\text{presuppositional}} > \text{cakkwu}_{\text{Freq}}, \text{cakkwu}_{\text{Q}} > \exists_{\text{non-resuppositional}}$

b. Scope competition:  $\exists_{\text{presuppositional}} > \text{cakkwu}, \text{cakkwu} > \exists_{\text{non-presuppositional}}$

(23) *Cakkwu nwukwunka-ka mal-ul kel-ess-ta.*  
 Often someone-NOM speech-ACC take-PAST-DECL  
 ‘Often, someone talks (to me)’

a. Interpretation:  $\exists_{\text{presuppositional}} > \text{cakkwu}_{\text{Freq}}, \text{cakkwu}_{\text{Q}} > \exists_{\text{non-presuppositional}}$

b. Scope competition:  $\exists_{\text{presuppositional}} > \text{cakkwu}, \text{cakkwu} > \exists_{\text{non-presuppositional}} / \text{presuppositional}$

In (21) and (22), there are two possible interpretations by the scope competition. From (21), only ‘ $\exists_{\text{presuppositional}} > \text{cakkwu}_{\text{Freq}}$ ’ reading is derived; but (22) has both of them. The example in (23) has one reading.

In (24) and, especially in (25), *cakkwu* is interpreted with a frequentative meaning, because of its dependency; that is, *When*-clause provides a domain of quantification to it.

(24) *Nay-ka yenkwusil-ey iss-ul ttay, nwukwunka-ka mal-ul cakkwu kel-ess-ta.*  
 ‘When I was at the laboratory, someone talked (to me) repeatedly.’

a. Interpretation:  $\forall > \exists_{\text{presuppositional}} > \text{cakkwu}_{\text{Freq}}, \forall > * \text{cakkwu}_{\text{Freq-Q}} > \exists_{\text{non-presuppositional}}$

(25) *Nay-ka yenkwusil-ey iss-ul ttay, nwukwunka-ka cakkwu mal-ul kel-ess-ta.*  
 ‘When I was at the laboratory, someone often talked (to me).’

a. Interpretation:  $\forall > \exists_{\text{presuppositional}} > \text{cakkwu}_{\text{Freq}}, \forall > * \text{cakkwu}_{\text{Freq-Q}} > \exists_{\text{non-presuppositional}}$

(26) *Nay-ka yenkwusil-ey iss-ul ttay, cakkwu nwukwunka-ka mal-ul kel-ess-ta.*  
 ‘When I was at the laboratory, someone often talked (to me).’

a. Interpretation:  $* \forall > \exists_{\text{presuppositional}} > \text{cakkwu}_{\text{Freq}}, \forall > \text{cakkwu}_{\text{Freq-Q}} > \exists_{\text{non-presuppositional}}$   
 $\exists > \exists_{\text{presuppositional}} > \text{cakkwu}_{\text{Freq}}, * \exists > \text{cakkwu}_{\text{Freq-Q}} > \exists_{\text{non-presuppositional}}$

In (26), *ttay*-clause scopes over *cakkwu*, which scopes over *nwukwunka*.

As like *cakkwu*, *cacwu* must compete with *nwukwunka* in scopes as well.

(27) *nwukwunka-ka mal-ul cacwu kel-ess-ta.*  
 Someone-NOM speech-ACC often take-PAST-DECL  
 ‘Someone talks (to me) often’

- a. Interpretation:  $\exists_{\text{presuppositional}} > \text{cacwu}_{\text{Freq}}, * \text{cacwu}_Q > \exists_{\text{non-presuppositional}}$   
 b. Scope competition:  $\exists_{\text{presuppositional}} > \text{cacwu}, \text{cacwu} > \exists_{\text{non-presuppositional}}$

(28) *Nwukwunka-ka cacwu mal-ul kel-ess-ta.*  
 Someone-NOM often speech-ACC take-PAST-DECL  
 ‘Someone often talk (to me)’

- a. Interpretation:  $\exists_{\text{presuppositional}} > \text{cacwu}_{\text{Freq}}, \text{cacwu}_Q > \exists_{\text{non-resuppositional}}$   
 b. Scope competition:  $\exists_{\text{presuppositional}} > \text{cacwu}, \text{cacwu} > \exists_{\text{non-presuppositional}}$

(29) *Cacwu nwukwunka-ka mal-ul kel-ess-ta.*  
 Often someone-NOM speech-ACC take-PAST-DECL  
 ‘Often, someone talks (to me)’

- a. Interpretation:  $* \exists_{\text{presuppositional}} > \text{cacwu}_{\text{Freq}}, \text{cacwu}_Q > \exists_{\text{non-presuppositional}}$

(30) *Nay-ka yenkwusil-ey issul ttay, nwukwunka-ka mal-ul cacwu kel-ess-ta.*  
 ‘When I was at the laboratory, someone talked (to me) often.’

- a. Interpretation:  $\forall > \exists_{\text{presuppositional}} > \text{cacwu}_{\text{Freq}}, ? \text{cacwu}_Q > \exists_{\text{non-presuppositional}}$

(31) *Nay-ka yenkwusil-ey issul ttay, nwukwunka-ka cacwu mal-ul kel-ess-ta.*  
 ‘When I was at the laboratory, someone often talked (to me).’

- a. Interpretation:  $\forall > \exists_{\text{presuppositional}} > \text{cacwu}_{\text{Freq}}, \text{cacwu}_Q > \exists_{\text{non-presuppositional}}$

(32) *Nay-ka yenkwusil-ey issul ttay, cacwu nwukwunka-ka mal-ul kel-ess-ta.*  
 ‘When I was at the laboratory, someone often talked (to me).’

- a. Interpretation:  $* \forall > \exists_{\text{presuppositional}} > \text{cacwu}_{\text{Freq}}, \text{cacwu}_Q > \exists_{\text{non-presuppositional}}$

If *nwukwunka* has a presuppositional reading, then *cakkwu* and *cacwu* is interpreted with a frequency adverb in the narrow scope. If, on the other hand, *nwukwunka* has a non-presuppositional reading, then *cakkwu* scopes over *nwukwunka* and so does *cacwu*. However, the difference between *cakkwu* and *cacwu* is whether they can have the widest scope in interpretations or not. What is concerned with this difference is the dependency; *cakkwu* which scopes over non-presuppositional *nwukwunka* cannot scope over *ttay*-clause because of its dependent property, while *cacwu*, an independent frequency adverb, can have a wide scope and adopt a *ttay*-clause as its restrictor of quantification.

As we have seen, *cakkwu* and *cacwu* is different in the scope competition with other expressions which have a scope. And their dependency can be regarded as one of the main factors which results in this difference.

## References

Abeillé, A., Doetjes, J., de Swart, H., Molendijk, A., 2004. Adverb and quantification. In: Corblin, F., de Swart,



- H. (Eds.), *Handbook of French Semantics*. CSLI Publications, Stanford, pp. 185-210.
- Cinque, Guglielmo. 1999. *Adverbs and Functional Heads*. Oxford University Press.
- Jäger, G., Blutner, R. 2003. Competition and interpretation: The German adverb wieder (“again”). *Modifying Adjuncts*, E. Lang, C. Maienborn, and C. Fabricius. Berlin: Mouton de Gruyter.
- Jo, Yu-mi. 2007. Scope relations between quantifier and focus. in proceeding of 19<sup>th</sup> Annual Conference on *Human and Cognitive Language Technology* in Kyungpook National University.
- Yoon, Jae-Hak. 2007. Tasi vs. Tto. *Language and Information* 11.2, 1-22.