The Semantics of *amwu* N-*to/-irato/-ina* in Korean[*]
−Arbitrary Choice and Concession

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This paper reports the syntactic distribution of *amwu*-N-*to/-irato/-ina* phrases, which are representative polarity sensitive items (PSIs) in Korean, and accounts for their semantic characteristics in terms of "arbitrary choice quantification" and "concession." In the first section, we extensively illustrate the distributional behaviour of the PSIs in various constructions and roughly generalize the distribution in terms of "(anti/non-) verdicality."   Section 2 claims *amwu* denotes an arbitrary choice quantifier, and the particles *–to/-irato/-ina* as "concessive" markers, so the compounds denote a special element in a pragmatic scale determined by context/situation. Section 3, based on the pragmatics of scalar implicature, accounts for the apparent ambiguity of PSIs between "universal" and "existential" readings, and further characterizes the difference among the concessive markers *–to/-irato/-ina* in terms of "quantity/quality scale."

1. Distributions of *amwu*-N Phrases

This section illustrates the distribution of Korean PSIs *amwu-to/-irato/-ina* with various constructions which reveal their semantic characteristics. The following table is the summary of the distribution, the relevant data of which are illustrated in the APPENDIX at the end of this paper.

Table-1. The distribution of *amwu*-N-*to/-irato/-ina*

	amwu-N-*to*	*amwu*-N-*irato*	*amwu*-N-*ina*
1. Affirmative S	*	*	√
2. Universal/Generic Quantifier	*	√	√
3. Habituals	*	√	?
4. Comparatives	*	√	√
5. Modals	*	√	√
6. Imperatives	*	√	√
7. Future tense	*	√	√
8. Generics	*	√	√
9. *kikkeshayya* 'at most'	*	√	*
10. Rhetorical Q	*	√	√
11. Questions	*	√	?
12. Conditionals	*	√	?
13. Negative Predicates	(?)	√	?
14. *before*-clauses	√	*	*
15. *eps-/molu-* 'not-exist/know'	√	*	*
16. Negative S	√	*	*

There should be exceptional cases which do not conform to the judgements of the table, and some of the constructions must be examined in more detailed sub-classes. The above table, however, gives general distributional tendencies of the PSI's. Let us first note some peculiarities of the table. First of all, *amwu* N-*ina* is not always natural in affirmative sentences but it sounds natural when the whole sentence induces an implicit modal meaning. *Amwu* N-*ina* is shown to be unacceptable in negative sentences, but it is fine only when the negation carries a "denial" illocutionary force -- a sort of metalinguistic negation (cf. (2b) in Appendix). Question marks "?" indicate that the combination does not always sound good due to the context/situation.

Now in order to give a semantic generalization of the distribution in Table-1, we introduce the notion of "veridicality" (Zwarts 1995), which characterizes the truth-functional meanings of operators and logical connectives. The notions related to "veridicality" are defined as follows:[1]

(1) Definition-1: Let *O* be a monadic propositional operator.
     The following statements hold:
     a. *O* is *veridical* just in case $O(p) \rightarrow p$ is logically valid. Otherwise,
        O is *nonveridical*.
     b. A nonveridical operator *O* is *antiveridical* just in case
        $O(p) \rightarrow \neg p$ is logically valid.

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[1] The defintion-2 of (2) applies to the sentential connectives *if* and *before*, which are illustrated in (12) and (14) of Table-1 and Appendix. Definition-1 applies to all the other contexts in Table-1.

(2) Definition-2: Let *C* be a dyadic truth-functional connective.
         The following statements hold.
     a. *C* is *veridical* with respect to *p* [*q*] just in case $pCq \rightarrow p$ [$pCq \rightarrow q$] is
         logically valid. Otherwise *C* is *nonveridical* with respect to *p* [*q*].
     b. A nonveridical connective *C* is *antiveridical* with respect to *p* [*q*]
         just in case $pCq \rightarrow \neg p$ [$pCq \rightarrow \neg q$] is logically valid.

Based on the definitions, Giannakidou (1998, Ch.3) gives an account of the distribution of Greek PSIs as the following:

(3) a. *Negative polarity items* are licensed by antiveridical operators/connectives.
     b. *Affective polarity items* are licensed by nonveridical operators/connectives.
     c. *Free choice items* are licensed by non-episodic operators/connectives.

Now we can also build up a rough semantic generalization of Table-1 of Korean PSIs. That is, we can characterize the licensing condition of *amwu* N-*to/-irato/-ina* in terms of "(non/anti-)veridicality" as shown in the following table:

Table-2. Veridicality and PSIs in Korean

	amwu N-*to*	*amwu* N-*irato*	*amwu* N-*ina*
1. Veridical contexts: (1) in Table-1	*	*	√
2. Nonveridical (but not anti-veridical) contexts: (2-13) in Table-1	*	√	√
3. Antiveridical contexts: (14-16) in Table-1	√	*	*

We should point out that there are a few apparent exceptions to the above generalization: First of all, as shown in Table-1, *amwu* N-*to* is allowed in *before*-clauses, which are not exactly antiveridical but more negative than conditionals or comparatives.[2] (Nam 1997) We also have not accounted for the difference between *amwu-rato* and *amwu-na*, but section 3 will give an answer to this difference.

     Finally but very importantly, we note that the near-complementary distribution of *amwu*-N-*to* and *amwu*-N-*irato/-na*, which will be discussed in the subsequent sections. This distributional property reveals that the two forms should be very similar in meaning, and that their distribution is conditioned by the particles –*to/-irato/-ina*. Their distribution also raises a big conceptual problem

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[2] *Before*-clauses are anti-veridical in the sense that the embedded proposition under *before* is not true at the point of time when the subsequent event takes place. For example, in the following sentence (i), 'Mary arrived' is not true at the point when John left the party.
         (i) John left the party before Mary arrived.

against previous semantic proposals on the licensing conditions of negative polarity items. (Zwarts 1990, 1993; Nam 1994; Giannakidou 1998) That is, *amwu* N-*irato* is an NPI and is licensed by non-veridical contexts, but, contrary to their claims, it is not licensed by more negative antiveridical contexts. We will suggest that *amwu* N-*to* and *amwu* N-*irato* are alloforms which carry the same truth-conditional meaning.

2. The Semantics of *amwu*-N Phrases

Yang (1973:114) has noted in passing that the so-called "indefinite pronominal" *amwu*-N phrases correspond to English wh-*ever* forms, e.g., *whoever*, *whatever*, etc. And he analyses the particle -*to* as ambiguous between 'even' and 'also' in English, and –*irato* as meaning '(even) as the last recourse,' and –*ina* as 'rather as the second choice.' Yang's analysis reveals intuitive semantic differences among *amwu*-N-*to/-irato/-ina* phrases, but here we propose a unified semantics of the phrases in terms of "arbitrary choice" and "concession." Section 2.1 interprets *amwu*-N as denoting an "arbitrary choice function," which has a kind of quantificational force, and section 2.2 analyses the particles –*to/-irato/-ina* as sharing a concessive meaning. So the particles require a pragmatic likelihood scale to denote the least likely element in the scale.

2.1. Arbitrary Choice Function

The morpheme *amwu* in Korean carries a quantificational force of "arbitrary choice," which roughly denotes 'no matter what object x it may be.' That is, given a domain of discourse D, *amwu* chooses an arbitrary object in D, so to denote a kind of choice function. This quantificational force of "arbitrary choice" is similar to that of 'indefinite' existentials in denoting an object in a given domain, but we note several characteristics which distinguish the two quantifications.

First, unlike indefinite existential NPs, "arbitrary choice" does not induce scope ambiguity with other quantifiers or scope-bearing operators.

(4)   a.   amwu-to o-ci.anh-ass-ta
           any-TO   come-not-Past-Dec
           'Noone came.'
      b.   han/twu saram-i   o-ci.anh-ass-ta
           one/two person-Nom come-not-Past-Dec
           'One/Two person didn't come.'

The indefinites in (4b) above can take a wide scope over negation, so to be interpreted as 'there was/were one/two person(s) such that he/they didn't come.' Further, (4b) has another reading where negation scopes over the indefinites, i.e., 'it was not the case that one/two person(s) came.' *Amwu-to* in (4a), however, does not

induce scope ambiguity with negation, so has only the reading 'noone came,' i.e., 'no matter what person x it may be, x did not come.' As we illustrated in the previous section, *amwu-rato* or *amwu-na* does not occur with an overt negation.

Second, "arbitrary choice" *amwu* does not induce a specific reading, so we have the following difference:

(5) a. amwu-(saram)-irato   o-myen Jini-nun pankin-ta
         any-(person)-RATO   come-if Jini-Top welcome-Dec
         'If anyone comes, Jini welcomes him.'
     b. etten saram-i   o-myen Jini-nun pankin-ta
         some person-Nom come-if Jini-Top welcome-Dec
         'If a person comes, Jini welcomes him.'

Etten saram in (5b) may have either a specific or a non-specific reading, so the sentence is ambiguous. But *amwu-rato* in (5a) does not allow a specific reading. The following sentence shows that the demonstrative *ku* does not make *amwu* specific.

(6) ku   amwu-to o-ci anh-ass-ta
     that anyone   come-not-Past-Dec
     'Noone came, who-so-ever.'

Another crucial difference between "arbitrary choice" and indefinite existentials is that the "arbitrary choice" *amwu* induces a scalar implicature in appropriate contexts (e.g., modal contexts), so as to give a "universal-like" quantificational force. *Amwu-rato/-na* in (7a) below induces universal quantification, whereas the same word in (7b) does not. Instead, we get an existential reading in (7b).

(7) a. amwu-rato/-na   ku   il-ul   ha-ul.swu.iss-ta
         anyone   that work-Acc do-can-Dec
         'Anyone can do that.' = 'Every one can do that.'
     b. amwu-rato o-myen   na-eykey cenhwaha-e
         anyone   come-if I-Dat   call-Imp
         'If anyone comes, give me a call.'

We will see shortly how scalar implicature brings about universal quantification in modal contexts like (7a) but not in (7b). Unlike indefinite existentials, the arbitrary choice *amwu* can quantify over a mass domain, which undermines Lee and Horn's (1994) claim that *any* in English denotes 'indefinite *one* plus *even*'. In section 3.2, we propose that *amwu-to/-rato* is sensitive to "quantity scale" but *amwu-na* is not. We will also show that *amwu-to/-rato/-na* in Korean may induce a scalar implicature in a "quality scale" as well as in a quantity scale, which goes against Lee and Horn's (1994) claim.

Due to the semantics of *amwu*, i.e., arbitrary choice quantification, it does not

take structural case markers like *-ka* [Nom.] or *-lul* [Acc] as in (8a,b), but it must occur with a concession marker *-to/-irato/-ina* (for NPs) or in a concessive clause marked by *-ato/-terato/-na* 'even though'.

(8) a. *amwu haksayng-i   o-ass-ta
         any   student-Nom   came
         '(Lit.) *Any student came.'
    b. *Jini-nun amwu haksayng-ul cohaha-nta
        Jini-Top any   student-Acc likes
        'Jini likes any student.'
    c. amuw haksayng-i   o-ato,   sensayngnim-un hwanyengha-ess-ta
        any   student-Nom come-though teacher-Top   welcome-Past-Dec
        'If any student came, the teacher welcomed him.'

Due to its functional nature of arbitrary choice quantification, *amwu* does not pick up a specific entity out of a given domain, and so does not introduce a "discourse referent" (Kamp & Reyle 1994) in the relevant discourse structure. That is, (9b) and (10b) are not a natural discourse, since the pronoun *ku* (*saram*) cannot be resolved in the discourse. But (9a) and (10a) are natural, and the pronouns pick up the discourse referent introduced by *etten saram* in the preceding utterance.

(9) a. etten saram-i   o-ki.cen.ey   imi   Jini-nun ku saram-i
       nwukwu-i-nci al-ass-ta
       some person-Nom come-before already Jini-Top that person-Nom
       who-be   knew
       'Before some person came, Jini already knew who he would be.'
    b. *amwu-to o-ki.cen.ey   Jini-nun ku saram-i   nwukwu-i-nci al-ass-ta
       any-TO   come-before Jini-Top that person-Nom who-be   knew
       'Before anyone came, Jini knew who he was.'

(10) a. (i)   etten saram-un   ku il-ul   ha-ul.swu.iss-ta
            some person-Top that work-Acc do-can-Dec
            'Someone can do that.'
      (ii)   haciman na-nun   ku salam-i   nwukwu-i-nci   molu-nta
            but   I-Top   that person-Nom who-be-Compl not.know-Dec
            'But I don't know who he is.'
    b. (i)   amwu-rato   ku il-ul   ha-ul.swu.iss-ta
            anyone-RATO that work-Acc do-can-Dec
            'Anyone can do that'
      (ii)   #na-nun ku-ka   nwukwu-i-nci   al-nta
            I-Top   he-Nom who-be-Compl know-Dec
            'I know who he is.'

As we informally introduced, an arbitrary choice function denoted by *amwu* in

Korean denotes an arbitrary object no matter what it may be. It is a special sort of choice function which is dependent on context or utterance situation. It is special in the sense that *amwu* only occurs in a concessive context. The quantificational force of "arbitrary choice" combines with the meaning of "concession" to yield a "concessive (arbitrary) choice function," which now picks up a special object out of the given domain. We will formally define this choice function in terms of "pragmatic scale." The following sentence informally illustrates how to interpret an *amwu*-N phrase in terms of "concessive choice function."

(11)   amwu   haksayng-to   o-ci.anh.ass-ta
        any   student-Conc. come-not-Past-Dec
        'No matter what student x it may be, it is not the case that x came.'
        =   'there is some **concessive choice function** f_c such that
               $\neg$ (f_c(STUDENT) CAME)'
        = $\exists f_c. \neg$ (f_c (STUDENT) CAME)

As we noted in section 1, *amwu-to* and *amwu-rato/amwu-na* are in complementary distribution. *Amwu-to* only occurs in strongly negative contexts like overtly negated clauses and *before*-clauses, whereas *amwu-rato/amwu-na* occur in weakly negative contexts, like non-veridical modal, conditional and generic contexts. Their distributional properties strongly support the claim that they share a core meaning of "concession."

      Here we note that *amwu-na* is allowed to occur under a "denial" illocutionary operator. Thus the negation in (12b) below, as a response to (12a), is not an ordinary negation but carries an illocutionary force of "denial", which might be interpreted as an extended notion of metalinguistic negation.

(12) a. amwu-na   ta   hapkyekha-ass-e
          anyone-NA all   passed
          'Everyone passes (the exam).'
     b. amwu-na   hapkyekha-ci.anh-ass-e
          anyone-NA   pass-not-Past-Dec
          'It is not the case that every one passed (the exam).'
     c. amwu-to   hapkyekha-ci.anh-ass-e
          anyone-TO   passed-not-Past-Dec
          'No one passed (the exam).'

The following discourse attests the distributional constraint of *amwu-na* in negated sentences. That is, (13a,b) do not involve a metalinguistic context, so *amwu-na* is not allowed in the negated sentence (13b).

(13) a. Nwuka hapkyekha-ess-ni?
     who   pass-Past-Q
     'Who passed (the exam)?'
   b. amwu-to/*amwu-rato/*amwu-na hapkyekha-ci.anh-ass-e
      Anyone-TO/-RATO/-NA   passed-not-Dec
      'No one passed (the exam).'

We might extend the notion of 'metalinguistic negation' of Horn (1989) to the illocutionary act of denial (van der Sandt 1991, 1998; Geurts 1998). That is, when the negation is interpreted as a denial of "assertability" of the previous utterance (including presupposition or implicature), it can be analysed as a pragmatic sort of metalinguistic negation.[3] Then, (13b) with *amwu-na* is unacceptable since the sentence is not provided with an appropriate proposition/presupposition by the previous utterance (13a).

2.2. Concession and Pragmatic Scale

The particles *–to/-irato/-ina* combine with *amwu-* and they share "concessive" meaning like English *even* and *even though*. (C. Lee 1999) The meaning of "concession" is based on the notion of "low compatibility" of two propositions: That is, it is least likely for the two propositions to occur at the same situation. So we often get a concessive reading in contrastive contexts. Consider the following sentence with a concessive adverbial clause marked by *–ato*.

(14) a. pi-ka   o-ato,   kyengki-nun kyeysoktoy-ess-ta
        rain-Nom come-though game-Top   continued
        'Even though it rained, the game continued.'
   b. e1: 'it rained'
      e2: 'the game continued'

Notice that the events e1/e2 denoted by the first/second clauses do not take place simultaneously in normal situations–they are hardly compatible with each other, so the whole sentence induces the contrastive reading.

Here we claim that noun phrases marked by the concessive marker *–to/-irato/-ina* refer to a lower bound of a pragmatic "likelihood-scale," which consists of a set of objects which is (partially) ordered according to a relevant

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[3] Kwon *et al* (1997) extends the notion of metalinguistic negation to the sentences where an overt negative expression denies a proposition which is asserted or introduced by the previous utterance. They support this claim by showing that the negative morpheme always takes a focal prosodic pattern. Sperber and Wilson (1981) analyze some ironic utterances in terms of "echoic mention" of pragmatic assumptions or presuppositions, which is similar to our account of *amwu-na* in the sense that the echoic mention refers to implicit pragmatic objects like assumptions and presuppositions.

property of the sentence. More generally, we define a "scale" as *a partially ordered set of objects*, which contains at least one lower bound (a bottom element of the scale): A pragmatic scale discussed in the literature normally refers to a linear order which contains a unique bottom element and which is totally ordered, i.e., for every pair of objects x, y in the scale they are ordered in terms of the property in question. This paper, however, extends the notion of "scale" to denote any partial (non-linear) orderings. This extended notion of pragmatic scale will be used shortly to account for the "quantificational variability" of polarity sensitive items in Korean in section 3.1.

Thus, a likelihood scale is a partial ordering Σ_P for a property P, where for any two elements x and y in Σ, x≤y, "x is less than or equal to y," iff x is less likely to have the property P than y does. So for example, if the relevant property P is 'to be able to read French,' and if John can read French better than Bill does, then 'Bill' ≤ 'John' in Σ_P, i.e., 'Bill is less likely to be able to read French than John does.' If Bill is the least likely person to read French among the discourse universe, 'Bill' would be the lower bound (bottom element) of the scale Σ_P.

NPs with a concessive marker denote a bottom element of a likelihood scale, since the notion of 'concession' requires a likelihood-scale, and the meaning of "low compatibility" picks the least likely element (i.e., a lower bound, a bottom) of the scale. The following sentences contain a subject NP with *–to/-irato/-ina* and implicate that the subjects denote a lower bound in a likelihood-scale determined by the context.

(15) Jini-to/-rato/-na   kuren il-ul   ha-ul.swu.iss-e
     Jini-TO/-RATO/-NA such   thing-Acc do-can-Dec
     'Even Jini can do such a thing.'
(16) sey   saram-to   an o-ass-ta
     three person-TO not came
     'Less than three people came.'
(17) sey   saram-ina   o-ass-ta
     three person-NA came
     'As many as three people came.'

We might easily construct a pragmatic scale for (15), which gives an ordering for a set of individuals according to 'the ability/probability of their doing such a thing.' Then, (15) implies that 'Jini is the least likely person who can do such a thing.' Let us just note here that *Jini-to* and *Jini-na* in (15) give slightly different interpretations: That is, when *Jini-to* is used in (15), the speaker presupposes that 'there are other (relatively many) people than Jini who are likely to do such a thing,' but when *Jini-na* is used, the speaker implies that 'there are relatively few people who are likely to do such a thing, and that Jini is the least likely person who is able to do it.'

The indefinite numeral NP *sey saram-to/-ina* '(even) three people' in (16) and

(17) also requires a scalar implicature that the number 'three' is the least likely number such that the number of people did not come. Thus, (16) implies that the speaker expected at least three people would come, and (17) implies that the speaker expected at most three people would come, so the number 'three' is the least likely number in a pragmatic quantity scale.

We can also identify "concessive" meaning of *–to/-irato/-ina* in the following adverbial clauses:

(18) a. amwu-haksayng-i o-a.to/-te.rato   manna-ci.anh-ulke-ya
         any-student-Nom come-though   meet-not-Fut-Dec
         'No matter what student comes, I will not see him.'
     b. nwuka/amwu-ka   ka-na   sensayngnim-ul mos   manna-ulke-ya
         who/anyone-Nom go-though teacher-Acc   not   meet-Fut-Dec
         'No matter who goes, he would not be able to see the teacher.'

The particle *–to* in Korean derives either an "additive" reading like *also/too* in English or a concessive reading depending on the utterance context/situation. When it takes *amwu-*, however, it requires a pragmatic "likelihood scale" to denote a lower bound of the scale.   Thus when the NP marked by *–to* is an answer to a question, the NP cannot carry a concessive reading of *even*, but only an additive reading of *also*.

(19) a. Jini-malko   tto   nwuka hapkyekha-ess-ni?
         Jini-besides   also who   pass-Past-Q
         'Who passed (the exam) besides Jini?'
     b. Koni-to   hapkyekha-ess-e.
         Koni-TO   passed
         'Koni also passed (the exam).'
     c. simcie   Koni-to   hapkyekha-ess-e.
         what.is.more Koni-TO   passed
         'What is more, even Koni passed (the exam).'

(19b) is a natural answer to the question (19a), but (19c) is not a natural answer since the adverb *simcie* 'what is more' triggers a pragmatic scale and so *Koni-to* only has a concessive reading 'even Koni.'

3. Distribution and Interpretation of *amwu-to/-irato/-ina*

Why do the combinations of the arbitrary choice *amwu* and the concessive markers *-to/-irato/-ina* display different distributions and give rise to different meanings? English *any* is often viewed as having two different meanings depending on the contexts, i.e., NPI *any* and free choice *any*. Such a view presumes the lexical ambiguity of the word *any*. Giannakidou (1998) similarly argues that Greek NPIs

divide into two, emphatic NPIs and non-emphatic NPIs, depending on the prosodic characteristics (existence and lack of the stress).

There is, however, no need to postulate a lexical ambiguity for the analysis of Korean *amwu*. The various meanings that it has can be deduced from the collaboration of the following three factors: the arbitrary choice meaning of *amwu*, the concessive reading of the markers *-to/-irato/-ina*, and the pragmatic contexts the sentences provide. Here we treat *amwu-to* and *amwu-rato* as alloforms since they are not only very similar to each other in surface form but also are complementarily distributed. Let us now consider how *amwu* produces the relevant readings.

3.1. Existential vs. Universal

Let us first consider modal contexts. The following sentence contains an NPI *amwu haksayng-irato* and a modal expression *–ul.swu.iss-* 'be able to.' (20) illustrates how the concessive meaning can be represented in terms of concessive choice function, which is defined in (21) below.[4]

(20) Modal Construction:
    amwu haksayng-irato   ku il-un   ha-ul.swu.iss-e
    any   student-IRATO that work-Top do-can-Dec
  = 'No matter what student x it may be,
      it is possible that x does it'
  = 'there is some **concessive choice function** f such that
      $\Diamond$(f(STUDENT) DO-IT)'
  = $\exists f.\Diamond$(f(STUDENT) DO-IT)

(21) Definition: A function f is a **concessive choice function** iff
      (i) f is a choice function, and
      (ii) for a set K, $f(K)(\Sigma_P) = x$, where $x \in K$,
          Σ_P is a pragmatic likelihood-scale induced by the property P, and
          x is a lower bound in Σ_P.

In such modal contexts, we can naturally conceive of a pragmatic likelihood scale, which can easily be postulated as a linear (total) ordering. The relevant property to induce a pragmatic scale for (20) is 'to be able to do the work,' and the scale orders the objects in the discourse universe according to the property. Now, (20) means

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[4] The choice function defined in (21) picks a lower bound x out of the set K, and the set K normally denotes a set of entities. But, in order to account for the sentences (15-17), we can naturally extend the definition to the cases where K is a set of generalized quantifiers so that the function chooses an NP denotation x as a lower bound if x(P) refers to the least likely proposition in the relevant pragmatic scale Σ_P. The authors thank to the anonymous reviewer for the possible extention of the concessive choice function.

that the lower bound of the scale (i.e., the least likely element to satisfy the property) has the property, so we can easily get the implicature that any other elements in the same scale satisfy the property, too. Due to the implicature thus produced, the so-called free choice reading (or universal quantification reading) surfaces.

(22) below is an overtly negated sentence, and contains a *amwu* N-*to* phrase, and the concessive reading is represented in terms of concessive choice function f, so f(STUDENT) picks a lower bound of the likelihood scale Σ_P, which is partially ordered according to the property 'not to come to the party.'

(22) Negative sentence:
    a. amwu haksayng-to phathi-ey o-ci.ani-ha-ess-ta
        any   student-TO party-to   come-not-do-Past-Dec
    b. 'No matter what student x it may be, x did not come to the party'
    c. = 'There is some **concessive choice function** f such that
          (f (STUDENT) (Σ_P) NOT-CAME-TO-THE-PARTY)'
    d. = $\exists$ f. (f (STUDENT)(Σ_P) NOT-CAME-TO-THE-PARTY)

Before we consider what the formula (22d) means, let us characterize in detail the likelihood scale for interpreting the concessive meaning of (22a). The question we want to answer here is what kind of partial order the scale Σ_P looks like. In fact, when the speaker utters (22a) at a normal situation, there might be an ordering among the individuals with respect to the likelihood of 'not coming to the party.' Then the lower bound of the ordering (likelihood) would denote the least likely person who would have NOT come to the party. (22d) then means that the person denoted by f(STUDENT)(Σ_P), i.e., the lower bound of the scale, did not come to the party, so to imply that no student come to the party.

Let us now consider the contexts in which *amwu-rato/amwu-na* has an "existential" reading. In such contexts, no scalar implicature is significant to induce universal-like quantification, since the likelihood scales for the constructions are not linearly ordered, but the ordering is just trivial so that no element is more likely to have the property in question than any other elements. In other words, such likelihood scales would look like a flat ordering. Consider the following:

(23) Imperatives:
    amwu-rato/-na   teylyeo-a
    any-RATO/-NA   bring-Imp
    = 'I ORDER YOU, for some concessive choice function f,
        you take f(MAN) to me.'

(24) Future:
    amwu-hako-rato/-na   kyelhonha-ul.ke-ya.
    any-with-RATO/-NA   marry-Fut-Dec
    = 'for some arbitrary choice function f, (I/he) WILL marry f(MAN).'

We might try to build a likelihood scale for (23) where some person x is more likely to be taken to the speaker than some other person y is, i.e., $y \leq x$. The scale, however, would not be a linear ordering but a partial ordering at best, so we have pairs of elements x and y such that neither $y \leq x$ nor $x \leq y$. In case like this, even though a lower bound of the scale satisfies the relevant property, this should not trigger a scalar implicature deriving a universal quantification. Moreover, it does not seem to be natural to get any likelihood scale in normal utterance situations of (23-24).

3.2. *Amwu-rato* vs. *amwu-na*

Now let us see what make *amwu-rato* and *amwu-na* so similar in distribution, but different in meaning in some constructions. First consider their meaning difference in the following constructions:

(25) Relative clauses headed by a universal quantifier:
    amwu-rato/-na   chayyongha-n hoysa-nun   motwu ssuleci-ess-ta.
    any-RATO/-NA hire-Adn   company-Top all   fall-Pst-Dec
    'Every company that hired any number of/just any employee collapsed.'

(26) *if*-clauses:
    yocum   kathun pwulkyengki-ey wuli   hoysa-ka   amwu-rato/-na
    these;days like   depression-at   our   company-Nom any-RATO/-NA
    chayyongha-n-ta-myen, ssuleci-ko.mal-ul.ke-ya.
    hire-Pres-Dec-if   fall-end.up-Fut-Dec
    'If our company hires any employee in such an economic depression,
    it will end up collapsing.'

(27) habitual constructions:
    Jini-nun ca-ki.ceney   amwu chayk-irato/-na   ilk-nun   supkwan-i iss-ta.
    J.-Top   sleep-before any   book-IRATO/-NA read-Adn habit-Nom exist-Dec
    'Jini is in the habit of reading any books before she goes to bed.'

In the above examples, *amwu-rato* is interpreted as 'one man, no matter who he is.' This indicates the lowest point of the quantity scale. In contrast, *amwu-na* reads as 'anybody, irrespective of the quality he has.' In other words, *amwu-na* is an arbitrary concessive choice in the quality scale. We can classify concessiveness into two types, quantity and quality. Based on this, we propose the following:

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(28) Propositions: *-to*   'concession in quantity(/quality) scale'
                                   -irato   'concession in quantity/quality scale'
                                   -ina   'concession in quality scale'

The classification given here helps to understand the fact that *amwu* N-*ina* unlike *amwu* N-*irato* often implies a derogative sense. We can also find such contrast in comparative constructions (like in (4b) and (4c) in Appendix) and in rhetorical questions (like in (10b) and (10c)). That is, *amwu-rato* in (4b, 10b) does not induce derogative reading, whereas *amwu-na* in (4c, 10c) does.

     The propositions in (28) also predict that *amwu*-N-*ina* is not allowed in a situation where no quality scale is brought up. The prediction seems to be borne out as illustrated in the following constructions.

(29) Questions:
     Jini-hanteyse amwu   sosik-irato/*-ina   iss-ess-ni?
     Jini-from   any   news-IRATO/-INA   exisit-Past-Q
     'Has there been any news from Jini?'

(30) If-clauses:
     Pise-nun   amwu-rato/??-na o-myen   sacang-eykey yenlakhaycwu-ess-ta.
     secretary-Top any-RATO/-NA come-if   boss-to   let;know-Past-Dec
     'If anyone comes, the secretary let the boss know it.'

(31) Relative clauses headed by a universal quantifier:
     amwu-rato/??-na salanghaypo-n salam-un ipyel-uy   kothong-ul al-n-ta
     any-RATO/-NA love-Adn man-Top separation-Gen pain-Acc know-Pres-Dec
     'Everyone who has ever loved anyone knows the pains of separation.'

In the above constructions, *amwu* N-*rato* sounds much better than *amwu* N-*na*, since the contexts do not naturally provide a pragmatic "quality scale" for *amwu-na*. We note also that the pragmatic quality scale does not naturally arise in normal interrogatives like (11) in Appendix and in some constructions with a decreasing quantifier *kikkeshayya N* 'at most N' like (9) in Appendix.

4. Conclusions

The paper has characterized the distribution of *amwu-N-to/-irato/-ina* phrases in Korean in terms of (non-/anti-)veridicality, and identifies their semantics based on the notion of "arbitrary choice" and "concession." Thus we interpret them as a concessive choice function to denote a lower bound of a pragmatic likelihood scale. The proposed account can unify the diverse behaviors of polarity sensitive items in natural language, so we do not treat the PSIs as ambiguous between negative polarity and free choice readings, but as unambiguous, so the different

interpretations derive from the different contexts they occur. Free choice reading arises only if the pragmatic scale is totally ordered, i.e., linearly ordered. So if the lower bound of the likelihood scale satisfies the property P of the scale Σ_P, so does every element of the scale.

The paper also suggests that *amwu*-N-*irato* and *amwu*-N-*ina* are slightly different in meaning, so the latter, unlike the former, seems to require a pragmatic "quality scale" to denote its lower bound. In order to get deeper understanding of polarity phenomena, however, we need further inquiry on the formal characteristics of different types of pragmatic scales.

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APPENDIX

Sample data of *amwu*-N-*to/-irato/-ina*:

1. Affirmative Sentences
    a. *amwu-to/-rato   o-ass-ta
        anyone-TO/-RATO come-Past-Dec
    b. amwu-na   o-ass-ta
        anyone-NA come-Past-Dec
        'Anyone came.' (intended: 'Anyone was allowed to come.')
    c. ?*amwu-na   nemeci-ess-ta
        anyone-NA   fall-Past-Dec
        'Anyone fell down.'
2. Relative Clauses headed by a universal quantifier
    a. *amwu-to chayyongha-n hoysa-nun   motwu ssuleci-ess-ta.
        any-TO   hire-Adn   company-Top all   fall-Pst-Dec
    b. amwu-rato/-na   chayyongha-n hoysa-nun   motwu ssuleci-ess-ta.
        any-RATO/-NA hire-Adn   company-Top all   fall-Pst-Dec
        'Every company that hired any number of/just any employee collapsed.'
3. Habituals
    a. *ku-nun ca-ki.ceney   amwu chayk-to ilk-nun   pelus-i   iss-ta
        he-Top   sleep-before any   book-TO read-Rel. habit-Nom exists

    b. ku-nun ca-ki.ceney   amwu chayk-irato/-ina   ilk-nun pelus-i   iss-ta
       he-Top sleep-before   any   book-RATO/-NA read-Rel. habit-Nom exists
       'He is in the habit of reading any book before he goes to sleep.'

4. Comparatives
    a. *amwu-to   manna-nun kes-pota   cip-ey   iss-nun   kes-i   nas-ta
       anyone-TO   meet-Rel   thing-than   home-at exist-Rel   thing-Nom better-Dec
    b. ?amwu-rato   manna-nun kes-pota cip-ey   iss-nun kes-i   nas-ta
       anyone-RATO   meet-Rel   thing-than home-at exist-Rel thing-Nom better-Dec
       'I'd better stay home rather than meeting anyone (outside).'
    c. amwu-na   manna-nun kes-pota cip-ey   iss-nun kes-i   nas-ta
       anyone-NA   meet-Rel   thing-than home-at exist-Rel thing-Nom better-Dec
       'I'd better stay home rather than meeting anyone (outside).'

5. Modals
    a. *amwu-to   ku il-ul   ha-ul.swu.iss-ta
        anyone-TO   that work-Acc do-can-Dec
    b. amwu-rato/-na ku   il-ul   ha-ul.swu.iss-ta
       anyone-RATO/-NA that work-Acc do-can-Dec
       'Anyone can do that.'

6. Imperatives
    a. *amwu-chayk-to ilke-la
       any-book-TO read-Imp.
    b. amwu chayk-irato/-ina   ilke-la
       any-book-IRATO/-INA read-Imp.
       'Read any book!'

7. Future tense
    a. *amwu-to   o-ul.ke-ya
       anyone-TO come-will-Dec
    b. amwu-rato/-na   o-ul.ke-ya
       anyone-RATO/-NA come-will-Dec
       'Anybody will come.'

8. Generics
    a. *amwu-say-to nal-n-ta
       any-bird-TO   fly-Pres.-Dec
    b. amwu-say-rato/-na   nal-n-ta
       any-bird-RATO/-NA fly-Pres.-Dec
       'Any bird flies.'

9. *kikkeshayya* 'at most'
    a. *amwu-hako-to   dayithha-e.pon saram-i kikkeshayya sey myeng iss-ess-ta
       anyone-with-TO date-experience person-Nom at.most three person existed
    b. amwu-hako-lato   dayithha-e.pon saram-i kikkeshaeya sey myeng iss-ess-ta
       anyone-with-RATO   date-experience   person-Nom   at.most   three   person
existed
       'There were at most three people who have ever dated with anybody.'
    c. *amwu-hako-na   date-hae-pon saram-i kikkeshaeya   sey myeng iss-ess-ta

anyone-with-NA date-experience person-Nom at.most three person existed

10. Rhetorical Questions
    a. *amwu-to   o-kess-e?
       anyone-TO come-will-Q
    b. amwu-rato   o-kess-e?
       anyone-RATO come-will-Q
       'Will anybody come?' = 'No body will come.'
    c. amwu-na   o-kess-e?
       anyone-NA come-will-Q
       'will just anybody come?'
       = 'It is not the case that just anybody will come.'

11. Questions
    a. *Jini-hanteyse amwu sosik-to iss-ess-ni?
       Jini-from   any   news-TO exist-Past-Q?
    b. Jini-hanteyse amwu sosik-irato   iss-ess-ni?
       Jini-from   any   news-RATO exist-Past-Q?
       'Have you got any news from Jini?'
    c. ??Jini-hanteyse amwu sosik-ina iss-ess-ni?
       Jini-from   any   news-NA exist-Past-Q?

12. Conditionals
    a. *amwu-to   o-myen   na-eykey alli-e.cwu-e
       anyone-TO come-if   I-Dat.   inform-give-Dec
    b. amwu-rato   o-myen   na-eykey alli-e.cwu-e
       anyone-RATO come-if   I-Dat.   inform-give-Dec
       'If anyone comes, please let me know.'
    c. ??amwu-na   o-myen   na-eykey   alli-e.cwu-e
       anyone-NA   come-if   I-Dat.   inform-give-Dec
       'If anyone comes, please let me know.'

13. Negative Predicates
    a. (?)amwu-to   manna-ki-ka   elyep-ta
       anyone-TO   meet-to-Nom   hard-Dec
       'It was hard to see anyone.'
    b. amwu-rato/??-na   manna-ki-ka   elyep-ta
       anyone-RATO/-NA   meet-to-Nom   hard-Dec

14. *before*-clauses
    a. Koni-nun amwu-to   chacao-ki.ceney cip-ul   nase-ess-ta
       Koni-Top anyone-TO visit-before   house-Acc leave-Past-Dec
       'Koni left home before anybody came to his house.'
    b. *Koni-nun amwu-rato/-na   chacao-ki.ceney cip-ul   nase-ess-ta
       Koni-Top anyone-RATO/-NA visit-before   house-Acc leave-Past-Dec

15. *eps-* 'not exist' and *molu-* 'not know'
    a. amwu-to eps-ta
       anyone-TO not.exist-Dec
       'No body exists.'

     b. *amwu-rato/-na eps-ta
        anyone-TO not.exist-Dec
        'No body exists.'
     c. ku   il-un amwu-na molu-n-ta
        that work-Top anyone-NA not.know-Pres.-Dec
        'It is not the case that every one knows that work.'

16. Negative Sentences
     a. amwu-to an o-ass-ta
        anyone-TO not came
        'No body came.'
     b. *amwu-rato/-na   an   o-ass-ta
        anyone-RATO/-NA not came
        'Anyone didn't come.'
     c. amwu-na   mos   ha-e
        anyone-NA cannot do-Dec
        'It is not the case that anyone can do that.'