

On the meaning and distribution of concessive scalar particles*

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1. Introduction

There is an assortment of challenges that polarity items like *any* and *ever* pose for linguistic theory. The two most prominent ones have been, on the one hand, finding an adequate description of their distribution (Ladusaw 1979, von Stechow 1999 and others) and, on the other hand, providing an explanation of this distribution (Krifka 1995, Chierchia 2006 and others). A further challenge has been accounting for the variation in the distribution of different polarity items. For example, it has been observed that certain negative polarity items (NPIs) like *in weeks* may only occur in a proper subset of downward-entailing (DE) environments in which NPIs like *ever* occur (Zwarts 1998 and others). Furthermore, certain polarity items, e.g. *any*, are not restricted solely to DE contexts but may also occur in modal environments and sometimes even in positive episodic sentences.

The distribution of scalar additive particles mirrors what we find in the domain of polarity items. Accordingly, the questions that we face in the discussion of polarity items pop up also in the discussion of scalar particles. For example, certain scalar particles (or collocations of particles) have been claimed to be found only in DE contexts, e.g. *auch nur* in German (Hoeksema and Rullmann 2001, Guerzoni 2003), while others are distributed more freely, e.g. *même* in French. These distributional patterns and their variation need to be explained. This paper tackles one class of scalar particles – the so-called concessive scalar additive particles. These may occur in a variety of DE contexts as well as under priority¹ modals (Giannakidou 2007, Alonso-Ovalle 2009, Lahiri 2010). The representatives of this class are *magari/makar* in Slovenian and other South Slavic languages, *esto ke* in Greek (Giannakidou 2007), and *aunque sea* and *siquiera* in Spanish (Alonso-Ovalle 2009, Lahiri 2010). We will use the expression *magari** as a blanket concessive scalar particle.

The crux of our proposal is that *magari** spells out two operators – EVEN and AT

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¹Priority modals include deontic, bouletic and teleological modals (Portner 2009 for classification).

LEAST.² The distribution of *magari** is regulated by the inferences that these two operators generate. The structure of the paper is the following: Section 2 describes the distribution and semantic import of *magari**. Section 3 introduces the main ingredients of our analysis and derives the data: *magari** is ‘licensed’ in DE and priority modal environments. Section 4 discusses previous approaches to concessive scalar additive particles. Two aspects of our analysis are thereby highlighted: the role played by AT LEAST and the fact that EVEN but not AT LEAST is presuppositional. Section 5 concludes and points to some further avenues of research.

2. Data

There are two main types of environments in which *magari** may occur: DE and priority modal environments³ (Giannakidou 2007, Alonso-Ovalle 2009, Lahiri 2010). We ignore some minor differences in the distribution of *magari** across languages – e.g. *aunque sea* in Spanish may only occur in subjunctive environments, arguably due to its subjunctive morphology (Lahiri 2010).

2.1 Positive episodic environments

*Magari** is infelicitous in upward-entailing (UE) episodic environments. It does not make a difference whether the associate of *magari** is interpreted as the lowest or as the highest element on a pragmatic scale (1). In this respect it crucially differs from English *even*, which may in UE contexts associate with an element that is highest on a pragmatic scale. This is illustrated by the felicitous gloss in (1).

- (1) *Janez je prebral magari Sintaktične strukture
 Janez aux read magari Syntactic Structures
 ‘John read even Syntactic Structures’

Re-interpreting the sentence as expressing epistemic uncertainty does not improve its felicity. This holds even in cases where *magari** is in the scope of disjunction, which has been

²Schwarz (2005) argues that the German scalar particle *auch nur* contains a component corresponding to *at least*. Accordingly, we might expect, all else being equal, similarities in the distribution of the two particles. The occurrence of *auch nur* in an imperative in (i) is a tentative indication that this might be the case. However, we leave a detailed investigation of these issues for another occasion.

- (i) Zeig mir auch nur EINE Partei, die sich wirklich ums Volk kümmert
 show me auch nur one party that self really for people care
 ‘Show me even one party that cares for the people!’

(<http://www.youtube.com/watch?v=VWTmA5oGkeQ>)

³*Magari** also occurs in interrogative clauses. For reasons of space, we will not discuss these occurrences here. Briefly, in interrogatives *magari** triggers bias similar to *even*-NPIs. Since we propose that *magari** contains an EVEN component and a weakening operator, an analysis of *even*-NPIs in questions (say, Guerzoni 2004) can be straightforwardly transposed to deal with questions containing *magari**.

claimed to be able to rescue certain polarity items in episodic environments, e.g. *vreun* in Romanian (Fălăuş 2010).

- (2) *Janez je prebral LGB ali pa magari Sintaktične strukture
 Janez aux read LGB or prt magari Syntactic Structures
 ‘John read LGB or even Syntactic Structures’

2.2 Downward-entailing environments

*Magari** occurs in a variety of (Strawson) DE environments. Most prominently, it is licensed in the restrictor of the universal quantifier and in the antecedent clause of the conditional. This is illustrated by the examples in (3) where the focused associates of *magari* are the weak predicate *one* and *bronze*. (4) contains sentences showing that *magari* is licensed under *without* and *doubt*.⁴ In all DE environments, *magari** is glossed with *even*.

- (3) a. Vsak študent, ki je rešil magari ENO samo nalogo, je zdelal izpit
 every student who aux solved magari one alone exercise has passed exam
 ‘Every student that solved even one single exercise passed the exam’
 b. Če Peter osvoji magari BRONASTO medaljo, bo postal junak
 if Peter wins magari bronze medal will become hero
 ‘If Peter wins even (just) the bronze medal, he will become a hero’
- (4) a. Janez je končal letnik brez da bi rešil magari ENO nalogo
 Janez aux finished year without that aux solve magari one exercise
 ‘John finished the school year without solving even one exercise’
 b. Janez dvomi, da bo Peter odgovoril na magari ENO vprašanje
 Janez doubts that aux Peter answer on magari one question
 ‘John doubts that Peter will answer even one question’

Lahiri (2010) notes that *magari** – *aunque sea* in Spanish – in conditionals and under universal quantifiers is subject to two constraints which he describes along the following lines: the antecedent and restrictor clauses in which *magari** is generated must be pragmatically weak (most likely among its alternatives), while the matrix clause has to be pragmatically strong (least likely among its alternatives). For example, although the matrix clause in (5-b) is least likely among its alternatives, the antecedent clause is not pragmatically weak (most likely). On the other hand, (5-a) satisfies both conditions: the matrix clause is least likely, while the antecedent clause is most likely among its alternatives.

- (5) a. Si lees aunque sea UN libro, vas a aprobar
 if you read magari* one book, you will pass

⁴It has been observed that *magari** might have a slightly narrower distribution in DE contexts than some other NPIs. More to the point, its distribution has been claimed to resemble that of Krifka’s (1995) ‘strong NPIs’ (cf. Alonso-Ovalle 2009). We leave the weighing of different licensing DE environments of *magari** for another occasion, esp. because there seems to be cross-speaker variation, as has also been observed with respect to ‘strong NPIs’ by Krifka (1995).

- b. #Si lees aunque sea CINCO libros, vas a suspender el examen
if you read magari* five books you will fail the exam
- c. #Si lees aunque sea UN libro, vas a suspender el examen
if you read magari* one book, you will fail the exam
- d. #Si lees aunque sea CINCO libros, vas a aprobar
if you read magari* five books you will pass

Finally, it should be mentioned that *magari** is not licensed under clausemate negation, unless this negation is in a DE context (there is some cross-linguistic variation in this respect). This flip-flop behavior of *magari** resembles that of positive polarity items.^{5,6}

- (6) a. #Peter ni osvojil magari BRONASTE medalje
Peter not win magari bronze medal
'Peter didn't win even a bronze medal'
- b. Janez dvomi, da Peter ni osvojil magari BRONASTE medalje
Janez doubts that Peter not win magari bronze medal
'John doubts that Peter didn't win even a bronze medal'

2.3 Modal environments

*Magari** may occur in imperatives, under priority modals, and under bouletic attitude predicates. An example of *magari* in an imperative is given in (7), where it is glossed with *at least*. The associate of *magari* is interpreted as being low on the pragmatic scale.

- (7) Preberi magari SINTAKTIČNE STRUKTURE
read.imp magari Syntactic Structures
'Read at least Syntactic Structures'

Two examples with *magari** under existential and universal modals are in (8); *magari** is not licensed under epistemic modals. Under an existential modal, *magari* is glossed with *even*, while under a universal modal it is glossed with *at least*. The associate of *magari* in (8) is the low element on the scale <scanned photo, original photo>.

⁵To the extent that (i) is felicitous, the scalar particle needs to bear focal stress and has a so-called 'not just any' type of interpretation. A gloss of a felicitous discourse of this sort is given in (i).

- (i) Peter didn't read MAGARI* Syntactic Structures. He read PRECISELY Syntactic Structures

⁶*Magari** is not subject to the Immediate Scope Constraint (cf. Linebarger 1980). This is illustrated by the contrast in (i). For reasons of space, the study of the consequences of this for the theory of intervention and NPIs (esp. *even*-NPIs) is left for another occasion.

- (i) a. *If every student read any book, the professor will be happy
b. Če je vsak študent rešil magari ENO nalogo, potem bo prof vesel
if aux every student solve magari one exercise then aux prof happy
'If every student solved even one exercise, then the professor will be happy'

- (8) a. Za potni list mi Janez lahko pošlje magari POSKENIRANO sliko
for passport me John can send magari scanned photo
'To get a passport, John can send me even a scanned photo'
- b. Za potni list mi mora Janez poslati magari POSKENIRANO sliko
for passport me must John send magari scanned photo
'To get a passport, John must send me at least a scanned photo'

Finally, *magari** is licensed under bouletic embedding predicates like *want* but is infelicitous under doxastic/epistemic embedding predicates like *think* and *know*. Again, the associate of *magari** is low on the pragmatic scale and it is glossed with *at least*.

- (9) a. Janez si želi, da bi Peter osvojil magari BRONASTO medaljo
John self want that aux Peter win magari bronze medal
'John wishes that Peter would win at least a bronze medal'
- b. *Janez je mislil, da je Peter osvojil magari BRONASTO medaljo
John aux think that aux Peter won magari bronze medal
'John thought that Peter won at least a bronze medal'

To summarize, *magari** is licensed in two types of environments: DE and modal environments. It is glossed with *even* in DE environments and under existential modals; it is glossed with *at least* in imperatives, under universal modals and under attitude predicates. The associate of *magari** is the lowest element on the pragmatic scale.

3. Proposal

3.1 Ingredients

The distribution of *magari** is regulated by the two focus-sensitive operators that it spells out, EVEN and AT LEAST. They both associate with the same focused element⁷ (cf. Guerzoni 2003 for the same assumption for *auch nur*). Thus, a clause containing *magari** has a base-generated structure along the lines in (10).

- (10) a. ... Peter won magari a BRONZE medal
b. [... [[EVEN C'] [AT LEAST C] [Peter won a bronze_F medal]]

EVEN triggers solely the scalar presupposition that its prejacent denotes the proposition that is least likely among the relevant alternatives ($<_c$ stands for 'less likely'). A simple illustration of the semantic contribution of EVEN is given in (12) where the domain of EVEN, C, consists of the propositions that Peter won bronze, that he won silver and that he won gold, i.e. the domain of EVEN is the focus-semantic value of its prejacent.

- (11) $\llbracket \text{EVEN} \rrbracket^{g,c} = \lambda C. \lambda p: \forall q \in C [p \neq q \rightarrow p <_c q]. \lambda w. p(w) = \text{True}$

- (12) $\llbracket [\text{EVEN C}] \text{Peter won gold}_F \rrbracket^{g,c}(w)$ is defined only if it is least likely that Peter won gold. If defined, it is True iff Peter won gold in w

⁷For perspicuity, we will only indicate one F-mark on the focused elements in the following LFs.

We assume that *EVEN* may scope out of its base-generated position, i.e. we adopt the scope theory of *EVEN* (Karttunen and Peters 1979, Wilkinson 1996 and others).

AT LEAST has a weak existential meaning (cf. Schwarz 2005): it takes a set of alternatives *C* as its first argument and a proposition *p* as its second argument and it states that there is an alternative from *C* that is true and that is at most as likely as *p*. As always, existential quantifiers may be represented in a disjunctive form, a notation that we will rely on heavily in the following. The domain of *AT LEAST* in (14) is the same as that of *EVEN* above – it is the focus-semantic value of the prejacent.

- (13) $\llbracket \text{AT LEAST} \rrbracket^{g,c} = \lambda C. \lambda p. \lambda w. \exists q \in C [q \leq_c p \wedge (p(w) = \text{True} \vee q(w) = \text{True})]$
 (14) $\llbracket [\text{AT LEAST } C] \text{ Peter won bronze}_F \rrbracket^{g,c}(w)$ is True iff Peter won bronze or silver or gold in *w*

3.2 Positive episodic environments

We have seen that *magari** is not licensed in positive episodic environments, no matter whether its associate is the lowest or the highest element on the scale. This is sketched in (15), which contains slightly rearranged glosses of Slovenian examples.

- (15) a. $\#[\text{EVEN } C'] [\text{AT LEAST } C] [\text{Peter won a bronze}_F \text{ medal}]$
 b. $\#[\text{EVEN } C'] [\text{AT LEAST } C] [\text{Peter won a gold}_F \text{ medal}]$

This state of affairs is predicted by our account. Namely, the structure in (16) triggers the scalar presupposition in (16-d), i.e. that it is least likely that Peter won a bronze or silver or gold.⁸ This presupposition is contradictory since all its alternatives – that Peter won silver or gold, that Peter won gold – asymmetrically entail it and can thus not be more likely than it. The same reasoning applies if the associate of *magari** is some other non-highest element on the pragmatic scale.

- (16) $\#[_{ZP} [\text{EVEN } C'] [_{XP} [\text{AT LEAST } C] [\text{Peter won a bronze}_F \text{ medal}]]]$
 a. $\llbracket C \rrbracket^{g,c} = \{\text{bronze, silver, gold}\}$
 b. $\llbracket XP \rrbracket^{g,c} = \text{bronze} \vee \text{silver} \vee \text{gold}$
 c. $\llbracket C' \rrbracket^{g,c} = \{\text{bronze} \vee \text{silver} \vee \text{gold}, \text{silver} \vee \text{gold}, \text{gold}\}$
 d. $\llbracket ZP \rrbracket^{g,c}(w)$ is defined only if $(\text{bronze} \vee \text{silver} \vee \text{gold}) <_c (\text{silver} \vee \text{gold})$, gold. If defined, it is True iff Peter won bronze or silver or gold in *w*

However, if we replace *bronze* with *gold* in the above example, the prejacent of *EVEN* denotes the strongest proposition among the alternatives and the scalar presupposition is satisfied. This is sketched in (17).

- (17) $\#[_{ZP} [\text{EVEN } C'] [_{XP} [\text{AT LEAST } C] [\text{Peter won a gold}_F \text{ medal}]]]$
 a. $\llbracket C \rrbracket^{g,c} = \{\text{bronze, silver, gold}\}$
 b. $\llbracket XP \rrbracket^{g,c} = \text{gold}$

⁸Shorthand convention: ‘gold’ stands for the proposition that Peter won gold etc.

- c. $\llbracket C' \rrbracket^{g,c} = \{\text{bronze} \vee \text{silver} \vee \text{gold}, \text{silver} \vee \text{gold}, \text{gold}\}$
d. $\llbracket ZP \rrbracket^{g,c}(w)$ is defined only if $\text{gold} <_c (\text{bronze} \vee \text{silver} \vee \text{gold})$, $(\text{silver} \vee \text{gold})$. If defined, it is True iff Peter won gold in w

What rules out the structure in (17) thus cannot be a contradictory scalar presupposition. Rather, the culprit for its marked status is its violation of the principle of non-vacuity (18). Namely, the truth-conditional contribution of AT LEAST in (17) is vacuous, as can be seen in (17-b); furthermore, AT LEAST is not a presupposition trigger.

(18) The principle of non-vacuity

The meaning of a lexical item used in the discourse must affect the meaning of its host sentence (either its truth-conditions or its presuppositions)

The principle of non-vacuity is a general economy condition and can be seen in action elsewhere in grammar. For example, it arguably underlies the markedness of the sentences in (19) (remember: in tennis you cannot win more than three sets).

- (19) a. #At least EVERY boy came to the party
b. #Roger Federer won three sets or more

To summarize, we have seen that *magari** in positive episodic sentences either triggers a contradictory scalar presupposition – this happens if its associate is not the highest element on the pragmatic scale – or it runs afoul of the principle of non-vacuity – this happens if its associate is the highest element on the pragmatic scale.

3.3 Downward-entailing environments

*Magari** is licensed in a variety of DE environments. Following Lahiri's (1998) work on Hindi NPIs, we account for this by allowing EVEN to take scope above the respective DE operator where it subsequently triggers a consistent scalar presupposition.

- (20) $[\text{EVEN } C'] \boxed{\text{OP}_{DE}} [\{\text{EVEN-}C'\}] [\text{AT LEAST } C] [\text{Peter won a bronze}_F \text{ medal}]$

In (21) we derive the consistent inferences of a conditional sentence containing *magari**. EVEN takes scope over the matrix clause and its prejacent denotes the proposition in (21-b). The meaning of the prejacent entails all its alternatives; these are given in (21-c). For example, if it is the case that Peter becomes a hero if he wins bronze or silver or gold, then it is the case that he becomes a hero if he wins silver or gold.

- (21) a. $[\text{EVEN } C'] [_{XP} [\text{if } \llbracket [\text{AT LEAST } C] \text{ Peter wins bronze}_F \rrbracket][\text{he becomes a hero}]]$
b. $\llbracket XP \rrbracket^{g,c} = \lambda w. \forall w' \in B(w) [(\text{bronze} \vee \text{silver} \vee \text{gold})(w') \rightarrow \text{hero}(w')]$
c. $\llbracket C' \rrbracket^{g,c} = \{ \lambda w. \forall w' \in B(w) [(\text{bronze} \vee \text{silver} \vee \text{gold})(w') \rightarrow \text{hero}(w')],$
 $\lambda w. \forall w' \in B(w) [(\text{silver} \vee \text{gold})(w') \rightarrow \text{hero}(w')],$
 $\lambda w. \forall w' \in B(w) [\text{gold}(w') \rightarrow \text{hero}(w')] \}$
d. $\forall q \in \llbracket C' \rrbracket^{g,c}: \llbracket XP \rrbracket^{g,c} <_c q$

Accordingly, the scalar presupposition of *EVEN*, which is given in (21-d), is consistent and plausible. That is, the proposition ‘if Peter wins bronze or silver or gold, then he becomes a hero’ is less likely than, say, ‘if Peter wins gold, he becomes a hero’.

It is worth pointing out here that we do not need to stipulate that the *AT LEAST* component of *magari** remains in situ. That is, we may assume that grammar can generate in addition to (20) also the configuration in (22); a concrete instance of this is given in (23).

(22) [AT LEAST C'] OP_{DE} [EVEN C] ~~{AT LEAST C'}~~

(23) a. [AT LEAST C'] [if [[EVEN C] Peter won gold_F][he becomes a hero]]

b. [[(23-a)]]^{g,c} =

i. [[[if [[EVEN C] Peter won gold_F][he becomes a hero]]]^{g,c} ∨

ii. [[[if [[EVEN C] Peter won silver_F][he becomes a hero]]]^{g,c} ∨

iii. [[[if [[EVEN C] Peter won bronze_F][he becomes a hero]]]^{g,c}

This configuration is excluded on independent grounds: Assuming that Peter winning gold is least likely, the propositions in (ii-iii) above trigger contradictory scalar presuppositions. This effectively reduces the meaning of (23-a) to (i), as we indicate in (24). However, this violates the principle of non-vacuity: *AT LEAST* ends up neither changing the truth-conditions of its prejacent nor does it trigger a non-vacuous presupposition.

(24) [[(24-a)]]^{g,c} = [[[if [[EVEN C] Peter won gold_F][he becomes a hero]]]^{g,c}

The final issue relates to Lahiri’s observations about *magari** in conditionals. As we have seen in (5), *magari** is felicitous only in antecedents of conditionals in which the antecedent is pragmatically weakest and the matrix clause is pragmatically strongest among its respective alternatives:

(25) a. [EVEN C'] [if [[AT LEAST C] EXH [you read one_F book]][you will pass]]

b. #[EVEN C'] [if [[AT LEAST C] you read five_F books]][you will fail]]

c. #[EVEN C'] [if [[AT LEAST C] EXH [you read one_F book]][you will fail]]

d. #[EVEN C'] [if [[AT LEAST C] you read five_F books]][you will pass]]

(25-bd) are ruled out by the principle of non-vacuity. In (25-ac), the principle is satisfied if a strengthening operator *EXH* is inserted below *AT LEAST* (cf. Fox 2007). (25-a) triggers appropriate inferences and is felicitous, analogous to (21). Furthermore, we predict that (25-c) is in fact licit, though only in non-natural contexts – in contexts in which reading less gets you better results in exams. This is responsible for the marked status in (25-c).

To summarize, *magari** is licensed in *DE* environments because its *EVEN* component may outscope a *DE* operator, which results in it triggering a consistent scalar presupposition⁹ (cf. Lahiri 1998 for *even-NPIs* in Hindi). Movement of *AT LEAST*, though permissible, does not lead to a felicitous interpretation – the only configuration of *EVEN*, *AT LEAST* and OP_{DE} that yields a licit interpretation is *EVEN* > OP_{DE} > *AT LEAST*.

⁹We have not explained the fact that *magari** does not occur under (unembedded) clausemate negation. This is an instance of a more general pattern that we also find with certain nominal free choice items (cf. Kratzer and Shimoyama 2002 for *irgendein*). We leave this for further research.

3.4 Modal environments

The final class of environments in which *magari** is licensed are modal environments, more precisely, imperatives, bouletic attitude predicates and bouletic/deontic modals. These environments generally license UE inferences, i.e. they behave similar to UE environments discussed in section 3.2. This is illustrated in (26) with overtly modalized sentences. So, their licensing of *magari** is at first sight unexpected.

- (26) a. You must call your mother tonight \Rightarrow You must call your mother
 b. \Box call-tonight, (call-tonight \rightarrow call) \Rightarrow \Box call

However, it is well-known that weakening inferences do not always go through with modalized sentences. Most famously, they are subject to the so-called Ross's paradox: they do not license disjunctive weakening inferences. This is illustrated in (27).

- (27) a. Send this letter! $\not\Rightarrow$ Send this letter or burn it!
 b. I want to send this letter $\not\Rightarrow$ I want to send this letter or burn it

We follow Aloni (2007) in treating this type of non-weakening as a consequence of free choice. We illustrate this without loss of generality on the basis of imperatives. Simplifying Aloni's account, we assume that imperative clauses contain an imperative operator which quantifies over best desire worlds compatible with the common ground and is sensitive to alternatives activated by an existential quantifier or a disjunction in its scope.^{10,11} Effectively, when the imperative operator combines with a disjunctive proposition, it returns a strengthened free choice meaning: (i) for every desire world there is at least one disjunct that is true in that world and (ii) every disjunct is true in at least one desire world. This is illustrated in (28) and (29). It is clear that the meaning in (28-d) does not entail the meaning in (29-d), which accounts for the fallacy of disjunctive weakening (Ross's paradox).

- (28) a. IMP [you send this letter]
 b. ∇ (send) = \Box send
 c. You must send this letter
 (29) a. IMP [you send this letter or you burn it]
 b. ∇ (send \vee burn) = \Box (send \vee burn) \wedge \Diamond send \wedge \Diamond burn
 c. You must send this letter or burn it & you may send it & you may burn it

We are now in a position to account for the felicity of *magari** in universal modal contexts. An example of a derivation is in (30). The crucial role in this derivation is played by AT LEAST that has an existential or, equivalently, a disjunctive meaning. The scalar particle EVEN scopes above the imperative operator.

¹⁰The imperative operator also triggers presuppositions that are responsible for its performative nature, though these are irrelevant for our discussion (cf. Schwager 2006).

¹¹Adoption of Aloni's (2007) mechanism for deriving the free choice effect is not crucial for our analysis. A different account may be employed as well (e.g. Zimmermann 2000, Fox 2007). However, it is important that EVEN may scope above whatever is responsible for the free choice effect, i.e. free choice effects must be generated in the grammar.

- (30) a. Win magari a BRONZE medal!
 b. [EVEN C'] IMP [[AT LEAST C] you win bronze_F]
 c. $\llbracket \text{EVEN } C' \rrbracket^{g,c} \nabla(\text{bronze} \vee \text{silver} \vee \text{gold})$
 $= \llbracket \text{EVEN } C' \rrbracket^{g,c} (\Box(\text{bronze} \vee \text{silver} \vee \text{gold}) \wedge \Diamond \text{bronze} \wedge \Diamond \text{silver} \wedge \Diamond \text{gold})$
- (31) $\llbracket C' \rrbracket^{g,c} = \{ \Box(\text{bronze} \vee \text{silver} \vee \text{gold}) \wedge \Diamond \text{bronze} \wedge \Diamond \text{silver} \wedge \Diamond \text{gold},$
 $\Box(\text{silver} \vee \text{gold}) \wedge \Diamond \text{silver} \wedge \Diamond \text{gold}, \Box \text{gold} \}$

The scalar presupposition of EVEN in (30) is fleshed out in (32): it is consistent since no entailment relations obtain between the relata. It is also plausible: it is less likely that some of the best desire worlds compatible with the common ground have you winning an unremarkable bronze medal (and silver and gold) than that all of the best desire worlds have you winning some shinier medal (silver or gold, just gold).

- (32) you must win bronze or silver or gold and you may win bronze and you may win silver and you may win gold
 $<_c$ you must win silver or gold and you may win silver and you may win gold,
 you must win gold

The same reasoning sketched above for universal modals applies also to existential modals. Thus, when an existential modal combines with a disjunctive proposition it returns the proposition that for every disjunct there is a world among the best desire worlds in which it is true (34) (Aloni 2007). Accordingly, disjunctive weakening fails: that you may have cake does not entail that you may have cake and you may have soup.

- (33) You may have cake $\not\Rightarrow$ You may have cake or soup
- (34) a. may [you have cake or soup]
 b. $\nabla(\text{cake} \vee \text{soup}) = \Diamond \text{cake} \wedge \Diamond \text{soup}$
 c. You may have cake & you may have soup

An existential modal sentence with *magari** has the LF in (35-b) where EVEN scopes above the existential modal operator, while AT LEAST remains in the scope of the modal.

- (35) a. You may win magari a BRONZE medal (to qualify for the Hall of Fame)
 b. [EVEN C'] may [[AT LEAST C] you win bronze_F]
 c. $\llbracket \text{EVEN } C' \rrbracket^{g,c} \nabla(\text{bronze} \vee \text{silver} \vee \text{gold})$
 $= \llbracket \text{EVEN } C' \rrbracket^{g,c} (\Diamond \text{bronze} \wedge \Diamond \text{silver} \wedge \Diamond \text{gold})$
- (36) $\llbracket C' \rrbracket^{g,c} = \{ \Diamond \text{bronze} \wedge \Diamond \text{silver} \wedge \Diamond \text{gold}, \Diamond \text{silver} \wedge \Diamond \text{gold}, \Diamond \text{gold} \}$

The scalar presupposition of EVEN in (35) is fleshed out in (37): it is consistent since the prejacent entails all of its alternatives. It is also plausible: it is less likely that winning any medal will qualify you for the Hall of Fame than, say, winning silver or gold.

- (37) you may win bronze and you may win silver and you may win gold (to qualify)
 $<_c$ you may win silver and you may win gold (to qualify), you may win gold (to qualify for the Hall of Fame)

To summarize, we have shown that *magari** triggers consistent inferences in modal environments due to their proclivity for a free choice interpretation.¹² The free choice effect blocks the weakening inferences between the proposition denoted by the prejacent of EVEN and its alternatives – this allows EVEN to trigger a consistent scalar presupposition. Since free choice effects do not obtain with non-modalized sentences, nothing changes for our account of (non-)licensing of *magari** in those environments.

4. Previous approaches

This section briefly discusses two defining aspects of previous approaches to *magari** and why they are problematic. First: Giannakidou (2007) and Alonso-Ovalle (2009) assign *magari** – *esto ke* in Greek, *siquiera* in Spanish – the truth-conditional import in (38).

(38) If defined, $\llbracket \text{magari}^* \rrbracket^{g,c}(p)(w)$ is True iff $p(w) = \text{True}$

This meaning yields wrong results in modal contexts, independently of the scope that we would assign to *magari**. For example, (39-a) is falsely interpreted as conveying (39-c).

- (39) a. Win *magari** a BRONZE medal!
 b. IMP [*magari** C] [you win a bronze_F medal]
 c. Predicted: \Box bronze.
 d. Fact: $\Box(\text{bronze} \vee \text{silver} \vee \text{gold}) \wedge \Diamond \text{bronze} \wedge \Diamond \text{silver} \wedge \Diamond \text{gold}$

As we have seen in the preceding section, our system derives the correct prediction. More generally, any account that treats *magari** as being truth-conditionally vacuous will fail to deal with universal modal examples like (39).

Second: Lahiri (2010) proposes an ambiguity analysis of *magari** in which he has distinct meanings for *magari** in DE and *magari** in modal environments. We will focus here on his treatment of *magari** in DE contexts. He argues that the sentence in (40-a) has the LF in (40-b). SOLO has thereby the meaning in (41-a), while EVEN' triggers a scalar presupposition, which is the same as what we have proposed above, and an additive presupposition¹³ (41-b).

¹²We have not derived the tendency of *magari** to occur solely under priority modals (i). Namely, although free choice is commonly associated with deontic modality, we also seem to find it with epistemic modals (ii). Accordingly, since the free choice effect is responsible for the licensing of *magari**, *magari** should in principle be licit also under epistemic modals.

- (i) Anti-epistemic constraint
*Magari** is not licensed under epistemic modals
- (ii) John must have sent this letter \nrightarrow John must have sent this letter or burnt it

Two types of response are possible. First: We could stipulate that free choice is organic to priority modals but not to other modals; e.g. with epistemic modals it comes about due to a post-compositional pragmatic process. Second: We could follow Heim (1992) and others in assigning a non-monotonic, preference-based semantics to bouletic modality (and extend it to deontic modals). We discuss these strategies in more depth elsewhere.

¹³Without assuming that EVEN triggers some kind of an additive presupposition, Lahiri would fail to account for, say, the inference in (i). In our system, this inference comes about due to the AT LEAST

- (40) a. If John solved magari* one problem, he passed the exam
 b. $[[\text{EVEN}' \text{ C}']] [[\text{if} [\text{SOLO C}] \text{John solves one}_F \text{ problem}][\text{he passed the exam}]]$
- (41) a. $[[\text{SOLO}]]^{g,c} = \lambda C. \lambda p: \forall q \in C[p \neq q \rightarrow q <_c p]. \lambda w. p(w) = \text{True}$
 b. $[[\text{EVEN}']]^{g,c} = \lambda C. \lambda p: \forall q \in C[p \neq q \rightarrow p <_c q]. \lambda w: \exists q \in C[p \neq q \wedge q(w) = \text{True}]. p(w) = \text{True}$

This treatment runs into problems with the scalar and additive presuppositions of EVEN' in (40). Namely, all the alternatives to the prejacent, which are given in (42), trigger a contradictory presupposition that John solving n problems is most likely (least significant), for respective $n \geq 2$. That is, if the SOLO presupposition of the prejacent is satisfied, none of the SOLO presuppositions of the prejacent's focus alternatives is satisfiable. Thus, the presuppositions of the sentence are not satisfiable.

- (42) $[[\text{C}']]^{g,c} = \{ [[\text{If} [\text{SOLO} [\text{John solves one}_F \text{ problem}]], \text{he passed the exam}]]^{g,c}$
 $[[\text{If} [\text{SOLO} [\text{John solves two}_F \text{ problems}]], \text{he passed the exam}]]^{g,c},$
 $[[\text{If} [\text{SOLO} [\text{John solves three}_F \text{ problems}]], \text{he passed the exam}]]^{g,c}, \dots \}$

Our approach does not face the same difficulty since we assume that AT LEAST does not trigger any presupposition. Remember, though, that we do assume that there is a principle of non-vacuity to which AT LEAST (as well as all other linguistic expressions) is subject to. However, we have restricted the application of this pragmatic principle solely to expressions actually used in the discourse, which seems intuitive enough. Thus, an occurrence of AT LEAST in the alternatives used in the computation of the scalar presupposition is inconsequential with respect to the principle of non-vacuity.

To summarize, we have shown that a (uniform) approach to magari* that lacks an AT LEAST component (or something equivalent to it) delivers incorrect meanings in (universal) modal environments. Furthermore, an approach that assumes a scalar presupposition trigger in the scope of EVEN/EVEN' that associates with the same object as EVEN/EVEN' leads to undefinedness.

5. Conclusion and outlook

We looked at the meaning and distribution of the so-called concessive scalar additive particles, an instance of which is magari in Slovenian. We proposed that these particles spell out two operators: EVEN and AT LEAST. These two components were shown to correctly constrain the distribution of magari and its counterparts in other languages: they trigger consistent inferences solely in DE and modal contexts (and interrogatives).

The account also explains the different glosses of magari*. In particular, it predicts that magari* is glossed with *even* in DE and existential modal contexts: besides the scalar presupposition, it also triggers an appropriate additive inference. Thus, the inferences trig-

component (cf. Schwarz 2005).

- (i) a. If you win magari* a BRONZE medal, you will qualify for the Hall of Fame
 b. \Rightarrow If you win any medal, you will qualify for the Hall of Fame

gered by *magari** in those contexts correspond to what would be triggered by *even*. Under universal modals, as we have seen in section 4, a comparable additive inference is not triggered, e.g. *you must win magari bronze* is incompatible with *you must win silver*. Thus, we are stuck with an *at least* gloss.

There are two avenues of research that need to be pursued further. First: We need to explore the differences (and similarities) between *magari** and the particle collocation *auch nur*, which has been commonly claimed to occur only in DE contexts. As we have indicated above, this does not seem to be entirely correct: *auch nur* can also occur in imperatives and under some bouletic embedding predicates. This is a tentative indication that there might be less variation between scalar particles than previously thought.

Second: There is some variation within the domain of the so-called concessive scalar additive particles which we have left aside above. Namely, in all the examples discussed above, the associate of *magari** was a pragmatically weak element. We have accounted for this apparent restriction by relying on the principle of non-vacuity: AT LEAST is redundant in contexts where there are no alternatives less likely than its prejacent. However, there seem to be examples in Slovenian where *magari* associates with a strong element:

- (43) Take stvari ti potem sploh ne krijejo, pa če maš magari VSE zavarovan
 such things you then at all not cover prt if have magari everything insured
 ‘Even if you have everything insured, they won’t cover such accidents for you’
 (modified <http://www.eumoto.net/forum/viewtopic.php?f=1&t=29948&start=105>)

This type of facts could be accommodated in our system by, say, having the AT LEAST component trigger a conditional presupposition that if its prejacent does not have pragmatically stronger alternatives, then this is presupposed. This would allow us to maintain the principle of non-vacuity, which would not be violated in (43). However, it would still play a role in positive episodic sentences: it would rule out *magari* with a strong associate because EVEN would in such a case be vacuous. Further work on this issue is needed.

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