What do quantifier particles do?

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Comments are very much appreciated [1]

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1.1 Quantifier particles cross-linguistically

Szabolcsi (2010: Ch 12.5), Szabolcsi (2012), and Szabolcsi, Whang & Zu (20142) outline a program to investigate the compositional semantics of quantifier words. Taking apart <u>someone</u> and <u>everyone</u> and specifying what <u>some</u>, <u>every</u>, and <u>one</u> mean are not daunting tasks. The interesting part of the project begins when we observe that, in many languages, the "quantifier particles" also serve as connectives, additive and scalar particles, question markers, existential verbs, and so on, and set out to investigate whether and how the same interpretations of the particles that work well inside the quantifier words extend to those contexts.

    English, German, and French may not make this task seem urgent, but many other languages do. I am aware of good literature pertaining to various languages that belong to a vast Sprachbund (linguistic alliance) comprising Athabaskan, East Asian, South-East Asian, Slavic, and Finno-Ugric languages. Consider the following samples. Hungarian <u>ki</u> and Japanese <u>dare</u>, usually translated as `who', are indeterminate pronouns in the terminology of Kuroda 1965. <u>Ki</u> and <u>dare</u> form `someone' and `everyone' with the aid of morphemes whose more general distribution is partially exemplified below. The joint distribution of Hungarian <u>vala/vagy</u> and etymologically unrelated -<u>e</u> corresponds, roughly, to that of Japanese -<u>ka</u>. The joint distribution of <u>mind</u> and <u>is</u> corresponds to that of -<u>mo</u>.

(1) a. **vala**-ki   dare-**ka**   `someone'
       b. A **vagy** B   A-**ka** B(-**ka**)   `A or B'
       c. **vagy** száz   hyaku-nin-to-**ka** `some one hundred = approx. 100'
       d. **val**-, **vagy**-   --   `be' participial & finite stems
       e. --   dare-ga VP-**ka**   `Who is VP-ing?'
       f. [S-**e**]   S-**ka**   `whether S'

(2) a. **mind**-en-ki   dare-**mo**   `everyone/anyone'
       b. **mind** A **mind** B A-**mo** B-**mo**   `A as well as B, both A and B'
           [A **is** (és) B **is**]   `A as well as B, both A and B'
       c. [A **is**]   A-**mo**   `also/even A'

I will use the capitalized versions KA and MO as generic representatives of these particles, not as specifically Japanese morphemes.

    Szabolcsi, Whang & Zu (2014) discuss such data in relation to compositionality, and raise questions. This paper is an attempt to start answering them.

(3) a. Do the roles of each particle form a natural class with a stable semantics?
       b. Are the particles aided by additional elements, overt or covert, in fulfilling their varied roles? If yes, what are those elements?
       c. What do we make of the cross-linguistic similarities and differences in the distribution and interpretation of the particles?

1.2 A promising perspective: join and meet

As regards the first question, a beautiful generalization caught the eyes of many linguists working with data of this sort (Gil 2008, Haspelmath 1997, Jayaseelan 2001, 2011, among others; see Szabolcsi 2010: Ch 12). In one way or another, the roles of KA involve existential quantification or disjunction, and the roles of MO involve universal quantification or conjunction. Generalizing, the suggestion is this:[2]

(4) KA is lattice-theoretic join ($\cup$), MO is lattice-theoretic meet ($\cap$).

Alternative Semantics has thrown a new light on the signature environments of KA. Hamblin (1973), Kratzer & Shimoyama (2002), Alonso-Ovalle (2006), Aloni (2007), AnderBois (2012), and others proposed that not only polar and wh-questions but also declaratives with indefinite pronouns or disjunctions contribute sets of multiple classical propositions to interpretation. They contrast with declaratives that are atomic or whose main operations are negation, conjunction, or universal quantification, and contribute singleton sets of classical propositions. If the universe consists of Kate, Mary, and Joe, we have,

(5) a.   Who dances?, Someone dances, Kate or Mary or Joe dances
$\{\{w: \text{dance}_w(k)\}, \{w: \text{dance}_w(m)\}, \{w: \text{dance}_w(j)\}\}$
   b.   whether Joe dances
$\{\{w: \text{dance}_w(j), \{w: \text{not dance}_w(j)\}\}$

(6) a.   Joe dances
$\{\{w: \text{dance}_w(j)\}\}$
   b.   Everyone dances
$\{\{w: \text{dance}_w(k) \ \& \ \text{dance}_w(m) \ \& \ \text{dance}_w(j)\}\}$

Inquisitive Semantics (say, Ciardelli et al. 2012, 2013) develops a notion of propositions as non-empty, downward closed sets of information states. The sentences in (5) and (6) are recognized as inquisitive and non-inquisitive propositions, respectively; disjunction and conjunction re-emerge as (Heyting-algebraic) join and meet.

The upshot is that the Alternative/Inquisitive Semantic perspective offers an even more interesting way to unify KA's environments, and maintains the possibility to treat KA as a join and MO as a meet operator, although in a slightly modified algebraic set-

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[2] Existential quantification, disjunction, and set union are special cases of lattice-theoretic join. Universal quantification, conjunction, and set intersection are special cases of lattice-theoretic meet. Join and meet can be equivalently defined as algebraic operations, or as least upper bounds and greatest lower bounds in partially ordered sets. See Szabolcsi (1997a) for a brief introduction, and Landman (1991) for a thorough one.

ting. In other words, it looks like the core roles of KA and MO can be assigned a stable semantics, and a simple one at that.[3]

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[3] There is a line of research (Hagstrom 1998; Yatsushiro 2002, 2009; Cable 2010; Slade 2011) that analyzes KA and its cross-linguistic counterparts as choice-function variables, to be bound by structure-building existential closure. This literature takes KA's occurrence in indefinites and wh-questions as a point of departure. The basic intuition of the approach is that KA occurs in the presence of alternatives, lets them project up across island boundaries, and serves to "domesticate alternatives" (my own label). Especially interesting is Slade (2011), because he shows that the approach can be made to work for all the various functions of KA, including its occurrence in yes/no questions and disjunctions.

My view is similar to these authors' in that it does not make KA a join operator; the question is whether making it a choice-function variable is the way to go.

Cable and Slade differ as to the details, but basically both assume that interpretation cannot proceed with a set of alternatives; a choice-function is invoked to pick one alternative. I see two kinds of reason to not follow this line.

One is the fact that problems with the choice-functional analysis of indefinites have been discovered in the last decade, and generalizing the analysis further will not help. (For one, Heim (2011) is almost ready to bury that analysis, with reference to Schwarz.) The other, more important reason has to do with the assumption that a set of alternatives is a problem. Rooth (1992) and especially Beck (2006) are effectively set up so as to achieve this effect. According to Rooth, focus alternatives live in a separate dimension. According to Beck, wh-words only have a focus-semantic value, and so they crash unless they are imported into the ordinary semantic dimension. Cable accepts this reasoning and employs a choice function to pick an alternative.

Slade (2011) has two arguments against the focus-alternatives part. First, according to Rooth, focus alternatives are only constrained by type. Witness: Mary can be an alternative to Fido or the Eiffel Tower.

(i)   I wanted to hear your opinions about Mary, Fido, and the Eiffel Tower, but you only told
        me what you thought of MARY.

In contrast, Slade observes, wh-words always have some descriptive content, e.g. +/-human, as in who vs. what, which now has to be stipulated. Second, following Haida (2007), Slade observes that although wh-words are focused in wh-questions, they are not focused when they serve as indefinites.

(ii) a.   Wer mag WAS?   (was in focus)   b.   Wer MAG was?   (was not in focus)
            who likes what   who likes what
            `Who likes what?'                                  `Who likes something?'

Both considerations suggest that the alternatives associated with wh-words cannot be identified with focus-induced alternatives. Therefore Slade doesn't follow Cable and Beck in this respect. But he subscribes to the view that quantifiers can only operate on individual variables, not on sets of individuals, and so a choice-function must be invoked.

I beg to disagree here. The necessity for quantifiers to operate on individual variables was not quite right even before Alternative/Inquisitive Semantics; generalized quantifier theory classically treats quantificational determiners as relations between sets of individuals. Therefore, if KA is just a choice-function, then natural language after natural language dedicates a morpheme to playing a role that is not necessary to play. In addition, if the reasoning that led to the recent developments in alternative semantics and Inquisitive Semantics is correct, then keeping alternatives alive and presenting bundles of them as issues is not only viable but also important. -- END OF FOOTNOTE.

1.3 Mismatch problems: Too few arguments, too many operators

There are general linguistic problems with this beautiful approach. First, in many unrelated languages the same MO particle occurs in both conjuncts. Hungarian is, Russian i, Romanian și, and Japanese mo are among the examples.

(7) Schematically   Hungarian
      John MO Mary MO danced.   János **is** Mari **is** táncolt.
      `John danced and Mary danced'         `John danced and Mary danced'

If both MO's are doing the same thing, then MO cannot be a meet (conjunction) operator.
      Likewise, in some languages the KA-style particle obligatorily occurs in both disjuncts, but the whole construction has the same meaning as a plain English inclusive disjunction. Slade (2011) was the first to identify the pattern in (8) as a critical issue. Sinhala hari (declarative disjunction) and də (interrogative disjunction) and Malayalam -oo are among the examples. Japanese ka is not obligatory in the second disjunct, but recall that I am using capitalized KA as a generic representative of the class.

(8) Schematically   Sinhala (Slade 2011)
      John KA Mary KA danced.   Gunəpālə **hari** Chitra **hari** gamətə giyā.
      `John or Mary danced'                 `G or C went to the village'

If both KA's are doing the same thing, then KA cannot be a join (disjunction) operator.
      We have reason to take each instance of MO and KA seriously. In all the above languages, MO can occur unarily; then, it plays the role of an additive particle like too.

(9) Schematically   Hungarian
      John MO danced.   János **is** táncolt.
      `John, too, danced'                   `John, too, danced'

The time-honored analysis of too is that it adds the presupposition that the predicate holds of some entity other than the individual in focus. Although utlimately the truth of (9) entails that John danced **and** someone else danced, it would be a stretch to say that English too, Hungarian is, and the other additive particles are meet (conjunction) operators.
      Similarly, KA can occur unarily and form an approximate numeral. Hungarian vagy and Japanese ka are examples:

(10) Schematically   Hungarian
       The distance is 100 KA meter.   A távolság van **vagy** száz méter.
       `The distance is some 100m'           `The distance is some 100m'

      Polarity questions (Krifka 2001) illustrate both flavors of the problem with KA. Russian li and Hungarian -e are among the examples, in both main clauses and complements. Notice that (11a) has unary KA, whereas in (11c) KA occurs in both disjuncts (more on the composition of ili `or' in Section 2.3). Japanese replicates (11a) with (no)ka and

(11c) with (no)ka douka in complements, although Japanese does not have (11b).

(11) Schematically   Russian
    a. Mary danced KA?   Tancevala-**li** Masha?
    b. Mary danced or(=KA) not?   Tancevala Masha i**li** net?
    c. Mary danced KA or(=KA) not? Tancevala-**li** Masha i**li** net?
      `Did M dance? [(Yes,) she danced]'    `Did M dance? [(Yes,) she danced]'

Although (10) entails that the distance measures 100m **or** a number in the vicinity of 100, and (11a) raises the possibility that Mary danced **or** she did not, it would be a stretch to say that KA itself is a join (disjunction) operator.

    In sum, both the iterated and the unary MO and KA examples indicate that MO and KA cannot be meet and join operators themselves. But it remains a fact that their immediate, linguistic or non-linguistic, contexts have "meety" and "joiny" interpretations. This is the fact that we want to capture. Informally, the central claim of this paper will be this:

(12) MO and KA impose requirements whereby they force the context to be interpreted as the meet / join of the contribution of the host of the particle and something else.

1.4 Is the behavior of KA and MO unusual?

Pending details, this view of KA and MO is similar to a widely held view of negative concord markers. Most analyses do not consider NC markers to be negations, although they signal the presence of a real negation which, following Ladusaw (1992), is considered to be phonetically null; on this view even the pre/post-verbal negative particle itself may be just a negative concord marker. (But see de Swart & Sag 2001.) Beghelli & Stowell (1997) proposed a similar approach to each and every: they signal the presence of a distributive operator, but are not distributive operators themselves. Kusumoto (2005) proposed that past tense morphology on the verb merely contributes a time variable, to be quantified over by the operator PAST that sits much higher in the structure. Horvath (2012) proposed a heavily mediated relationship between focus accent, the exhaustive operator, and word order.

    In other words, the claim that KA and MO only "point to" join and meet is not outlandish; it may well represent the norm in the morpho-syntactic realization of logical operators. The general observation was first made by Carlson (1983, 2006), and the examples that Carlson uses to make his case significantly overlap with my list above and some of the data I will turn to later.[4] Carlson argues that functional elements often present a mismatch in form and interpretation. Multiple elements correspond to one bit of meaning, or an element occurs in a different place than where it is interpreted, or an element does not seem to make the same contribution everywhere it occurs, or an element seems to be meaningless or, conversely, a bit of meaning seems to be contributed by a null element. His examples include the second-position clitic conjunction -que of Latin, past tense

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[4] I thank Roni Katzir for making me aware of this work by Carlson and its relevance to my project. See also Katzir (2011) on "poly-(in)definiteness" in Danish, Icelandic, and Greek.

marking in English, haplology of postpositions in Japanese, negative concord in Romance, the multiple marking of number in English <u>these horses</u>, dependent plurals, spurious <u>se</u> in Spanish, habitual markers in Hindi counterfactuals that do not indicate habituality, the obligatory presence or absence of the definite article in <u>in prison</u> and <u>on the radio</u> (for particular meanings, in American English), and so on.

1.5 Are the requirements imposed by MO and KA syntactic or semantic?

Carlson does not offer detailed analyses, but he forcefully makes a general point. There is a learning problem if the learner is supposed to figure out functional meanings from what he/she hears. Carlson's solution to the problem is that functional elements themselves are meaningless. The functional meanings are carried by features or other phonetically null operators that appear on the phrases over which they scope, and their effects percolate down to heads in order to receive expression, in one way or another.

Thus, on Carlson's view, functional elements merely give the learner clues as to what real carriers of meaning are silently lurking in the structure, and where they might be lurking. Notice now that the specific proposals by Ladusaw, Beghelli & Stowell, Kusumoto, and Horvath cited above are all in the same spirit. This could be a way to approach the iterated KA and iterated MO cases as well. One could say that KA and MO are meaningless syntactic elements that merely point to phonetically null join and meet operators higher in the structure. On that approach, the requirements of KA and MO would be **syntactic requirements**. That is in fact the position taken by Kratzer (2005).[5]

The syntactic approach might work, especially for the iterated cases (7)-(8). The unary cases (9)-(10) would be more difficult, but I have not tried to develop the details.

In this paper I follow a different path. I will attempt to formulate **semantic requirements** to achieve a similar effect. If the semantic approach looks harder than the syntactic one, it is worth showing that it is viable. In fact, I hope to show more, namely, that the execution is actually not that hard and therefore may have some truth to it. Like Carlson, I will invoke various phonetically null operations but, as we shall see later, the need for those is independent of whether KA and MO carry syntactic or semantic requirements.[6]

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[5] "Suppose we imported the Japanese perspective and assumed that Indo-European indefinites, too, associated with independent quantificational operators. Their distinctive morphology might then tell us something about the nature of those operators. It might indicate syntactic agreement with matching non-overt propositional operators, as proposed in Beghelli and Stowell (1997). That speakers of Latvian, German, or Spanish, for example, perceive the pronouns and determiners of the *kaut-*, *irgendein* or *algun* series as existentials would no longer mean that those expressions are themselves existentials. Their existential look would be the overt expression of syntactic agreement with propositional [∃], the true carrier of existential force. Those indefinites might have an uninterpretable but pronounced [∃] feature, then, that must enter an agreement relation with a matching interpretable feature that happens to be unpronounced. Japanese indeterminate pronouns, on the other hand, would lack such features, and this would be why they are unselective. The same pronouns can 'associate' with the full range of quantificational operators without producing a feature clash." Kratzer (2005: 124) Kratzer goes on to discuss, among other things, negative, interrogative, and existential concord in German.

[6] What is the relation between the syntactic and the semantic approaches here? Should we try to choose

MO is a good starting point, because we have a standard analysis of <u>too</u> that easily extends to MO in <u>John MO ran</u> `John, too, ran' (I put MO as scalar `even' aside). <u>John MO ran</u> is thought to assert that John ran and to **presuppose** that a salient individual distinct from John ran. So MO can be seen as a "semantic pointer" -- it points to a fact not mentioned in the sentence and ensures that the context is such that both John and another individual ran.

The next step is to see how this approach deals with the iterated particles. Kobuchi-Philip's (2009) analysis of the real Japanese morpheme <u>mo</u> offers a good model. Kobuchi-Philip's insight is that in <u>John MO Mary MO ran</u> `John as well as Mary ran', both MO's can be seen as doing the same thing. John's running and Mary's running mutually satisfy the requirements of the two MOs. Similarly for <u>Person-MO ran</u> `Everyone ran', with generalized conjunction.

The mutual satisfaction of requirements is reminiscent of presupposition projection, and so a small amendment is called for. Presupposition projection works left-to-right, at least when it is effortless (Chemla & Schlenker 2012). I reclassify MO's definedness condition as a **postsupposition** in the sense of Brasoveanu (2013): a test that is delayed and checked simultaneously after the at-issue content is established. This is utilized in <u>John MO Mary MO ran</u>. In contrast, if nothing in the at-issue content satisfies the test, it is imposed on the input context and emerges as a presupposition. The traditional analysis of <u>John MO ran</u> is reproduced. For details, see Brasoveanu & Szabolcsi (2013).

The reasoning carries over to KA without further ado, as far as I can see. I will assume that both particles impose postsuppositions. But, to cut down on the number of novel elements in the proposal, the reader should feel free to think in terms of presuppositions. To simplify further, I will neutrally refer to "requirements", not to pre- or postsuppositions.

1.6   The proposal in a nutshell and the plan of the detailed discussion

To summarize, the "mismatch cases" offer the best insight into the working of the particles. They do not embody algebraic operations, as examples of the form *A Particle B* would lead us to believe.

Instead, I suggest, the particles require that the interpretations of their hosts and of the immediately larger contexts stand in particular partial ordering relations. The "immediately larger context" is meant to be either sentence-internal, e.g. the phrase right above X-KA/MO, or discoursal, as in the case of `John, too, ran'. In this paper I will pretend that KA and MO always attach to full proposition, but the same effects could be achieved by type-lifting the smaller hosts.

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between them? Should we simply take them to be matters of taste, different ways of thinking favored by different camps in linguistics? In my experience the viability of both syntactic and semantic approaches is a systematic fact, and I view it as strong support for a natural logic approach to functional meanings and other "shallow semantic features" (Geurts & van der Slik 2005). The fundamental idea of natural logic is that linguistic structures serve as the vehicle of inference. But the present paper will not pursue the connection further (see Szabolcsi 2007).

(13)   Y

           /\
        ...   X-KA / MO
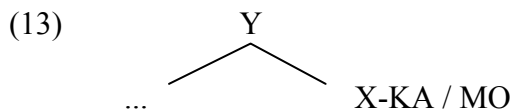
If KA/MO occurs on more than one "junct," each instance imposes the same requirement on the relation between the interpretation of its host X and the interpretation of the context Y. It is already clear what MO requires:

(14) MO requires that **another proposition** parallel to [[X]] hold in [[Y]].

MO's requirement is trivially satisfied if [[Y]] is the meet (greatest lower bound) of [[X]] and something else. It thus derives the fact that in the presence of MO, the immediately larger context has a "meety" semantics. "Parallel" is understood in the sense of Asher & Lascarides (1999) and Brasoveanu & Szabolcsi (2013).

How do we achieve the requisite effect for KA, i.e. that in the presence of KA, the immediately larger context has a "joiny" semantics? Unlike the case of MO, the linguistic literature does not offer a ready-made answer. But coming up with one does not seem very difficult:

(15) KA requires that the alternatives in [[X]] be **preserved and boosted** in [[Y]].

Preservation means that whatever alternatives [[X]] introduces remain alternatives in the immediately larger context. "Boost" is intended to be a brand-new term that does not have a pre-existing definition; the idea is that [[Y]] has more alternatives than [[X]], in a sense to be specified. KA's requirement is trivially satisfied if [[Y]] is the join (least upper bound) of [[X]] and something else that is not already contained in [[X]]. In other words, the requirement is something like a proper subset relation, $[[X]] \subset [[Y]]$. The term "alternative" is meant to evoke Alternative Semantics; but I am going to explicate my proposal using a version of Inquisitive Semantics in Section 3. In the mean time "alternative" should be taken informally, like "boost".

Prior to plunging into Inquisitive Semantics, **Section 2** outlines how coordinations work. It argues that the meet and join operators are always phonetically null, and that meet is a semantic default. Issues of morpho-syntax will also be addressed.

Section 3 reviews some basic notions of Inquisitive Semantics following Ciardelli et al. (2012, 2013), proposes proper definitions for "preserve" and "boost," and briefly indicates the need for the non-informative and non-inquisitive closure operators of Inquisitive Semantics.

Section 4 provides an interim summary with reference to a fuller set of Hungarian data. **Sections 5, 6, 7, and 8** discuss questions and focus, and **Section 9** concludes.

Sections 4 through 9 are essentially identical to Sections 7 through 12 of the 8-13-2013 draft.

2 If MO and KA do not perform meet and join, who does?

2.1 Junction, silent MEET, and MO

On this proposal all the semantic action of meeting and joining has to be performed by actors other than KA or MO. Who are they?

Start with Winter (1995, 1998). In the first 7 chapters of his dissertation, Winter presents a thoroughly Boolean approach to conjoined noun phrases, which among other things derives the sum interpretation of <u>John and Mary</u> from generalized quantifier-theoretic $\lambda P[P(j) \& P(m)]$ via type-shifters (MIN and $\exists$). But, in Chapter 8 (based on his 1995 and not included in the 2001 book), Winter says that some issues are not solvable on that view. He proposes that the word <u>and</u> is basically a **pair-forming operator** ($\bullet$, **bullet**). The pairs grow pointwise in the derivation (much like alternatives project up in Hamblin/Rooth), and at the desired point a phonetically null intersection (Generalized Conjunction, MEET) operator applies to them. That is where <u>and</u> appears to take scope, but it is not really <u>and</u> itself. Winter assumes that the MEET operator is always null, and notes that the bullet is also often phonetically null across languages. This contrasts with disjunctions, which are practically never phonetically null across languages; Winter discusses a few special cases. Here are the pertinent details from Winter (1995):

(16) a.

(R_1) $\dfrac{a \qquad\qquad b}{a \bullet b}$ $\qquad$ $\dfrac{\varphi_a \qquad\qquad \psi_b}{\langle \varphi_a,\, \psi_b \rangle}$

b. Interpreting the complex structure using axiom (R_1):
$[[X_1 \ and/\varnothing \ X_2]] = [[X_1]] \ [[and/\varnothing]] \ [[X_2]] = [[X_1]] \ [[X_2]] \Rightarrow_{R1} \langle [[X_1]],\, [[X_2]] \rangle$
The coordinator *and*, like zero morphology, lacks any denotation.

c. An optional stage: applying the operator GC:
$\cap \langle [[X_1]],\, [[X_2]] \rangle \Rightarrow [[X_1]] \cap [[X_2]]$

I adopt both **Winter's bullet** and **Winter's silent MEET, with modifications**. I stress that I am adopting the proposal to divide up the task, classically performed by one overt/null operator, between an overt/null pair-former and a definitely null version of the operator; I am not particularly concerned with Winter's motivation, and I do not necessarily subscribe to all details of the execution.[7]

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[7] Winter's initial motivation for invoking pair-formation plus a silent MEET that kicks in higher than the position of <u>and</u> is that the `every man and every woman' interpretation of <u>every man and woman</u> does not fall out of the GQ-theoretic treatment. He does not discuss why he does not adopt Dowty's (1988) idea to lift the common nouns into functions over determiners and thus let <u>every</u> distribute into the two conjuncts: $\lambda D[D(man) \& D(woman)](every)$. This seems like a perfectly good solution to the problem at hand. It may well be that the treatment of <u>alternately</u> and <u>respectively</u> indeed require pair-formation. Champollion (2013) offers yet another Boolean way to obtain the missing reading. In addition, as Cham-

I propose three modifications/enrichments. First, Winter does not assign the pair-forming bullet to any syntactic category. But den Dikken (2006) and Slade (2011) have already identified the need for an extra player in **dis**junctions. Den Dikken introduced it for purely syntactic purposes, and analyzed it as a Junction head that projects JP.[8] I identify Winter's pair-forming bullet as den Dikken's Junction.

Second, I replace Winter's null Boolean MEET with Dekker's (2012) null conjunction, which interprets the second conjunct strictly in the context of the first; I will call it **order-sensitive MEET**. In Dekker's theory, it takes the place of function composition as dynamic conjunction. Dekker's MEET will be pleased to operate on pairs formed by Winter's bullet, since the members of pairs are ordered.

Third, I declare order-sensitive MEET to be the **default silent operation on pairs**. This will become important in my treatment of KA, but it has solid motivation independently of disjunction. First, all languages employ silent order-sensitive MEET to interpret sequences of sentences as texts -- this is a basic tenet of all versions of dynamic semantics. Second, Bumford (2013) shows that the generalized conjunction that defines distributive universal quantifiers must be dynamic. Critical examples involve temporal-order-sensitive adjectives that are only possible within the scope of <u>every</u> and <u>each</u>:

(17) Every year I buy {another / a new / a faster} computer.
     Every generation inhabits a more Orwellian world.

Why can the definition of universals avail itself to order-sensitive MEET -- does it have to be stipulated for the sake of examples like (17)? If this is the default, then it does not have to be stipulated; a stipulation would be needed if we had to ensure that universals never exhibit internal order-sensitivity. In sum, silence, meety semantics, and order-sensitivity all go together in justifying the default status of this operation.

To wrap up what we have so far, compare Hungarian (18) and (19). Both may contain <u>és</u> `and', which I analyze as Junction, the pair-forming bullet, and the interpretation of the pair undergoes silent MEET in both cases. (18) is ambiguous, it supports a distributive as well as a collective reading; the latter is obtained by subsequent type-shifting, as in Winter (1998, 2001). (19) differs from (18) in that both members of the pair bear MO-

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pollion points out, letting silent MEET apply arbitrarily high overgenerates scope; I assume that MEET is constrained.

[8] Slade adopts Junction to deal with Sinhala alternative questions such as <u>John-də Mary-də ran?</u>, where the choice-functional view of <u>də</u> does not work by itself. I do not adopt his specific use of J, but I credit Slade with highlighting the fact the the appearance of KA-particles on all disjuncts is a critical challenge for any compositional semantics. Slade interprets J as a fairly heavy lifter, which seems like an artifact of his theory. His J takes three arguments: (i) the second disjunct (Mary), which it turns into the singleton set {Mary}, (ii) the choice function DA, which will pick the unique element of that singleton, and (iii) the first disjunct (John). In a bit of a Duke-of-York action, J turns Mary-<u>də</u> back into a set, then John into a single-ton set, and finally forms the set {John, Bill}. The choice-function contributed by the <u>də</u> that is seemingly attached to the first disjunct but, on Slade's analysis, is structurally attached to the whole big phrase JP, chooses from this set; the choice-function is existentially closed.

particles (<u>is</u>). These impose postsuppositional requirements and make the construction irrevocably distributive in the process.[9]

(18) Kati **és** Mari felemelte az asztalt.
      Kate and Mary up-lifted the table-acc
      `Kate and Mary lifted up the table, **individually or together**'

MEET
Kati [VP]
Junction, •   Mari [VP]
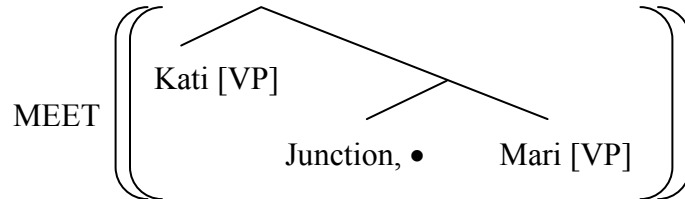
(19) Kati **is**   (**és**) Mari **is**   felemelte az asztalt.
      Kate MO   and Mary MO up-lifted the table-acc
      `Kate as well as Mary lifted up the table, **individually**'

MEET
Kati MO [VP]
Junction, •   Mari MO [VP]
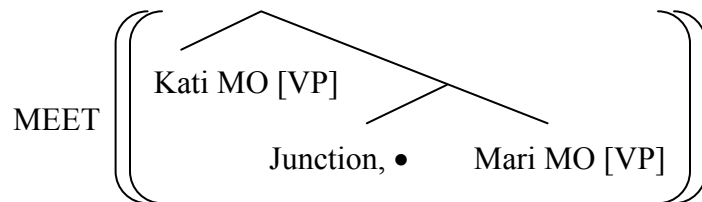
This analysis jibes with the fact that Japanese <u>mo</u> acts as an additive particle, as a marker of distributive conjunctions, and as a critical component of <u>every</u>/<u>any</u>-style distributive universals, cf. (2). The same holds for <u>-um</u> in Malayalam. (In contrast, the Japanese counterpart of English <u>and</u> and Hungarian <u>és</u> is <u>-to</u>, which, I suppose, is an instance of J.) The analysis effectively attributes their strict distributivity to the presence of MO-style particles.

Hungarian groups these distributive expressions together in surface constituent order as well. As discussed in a large body of literature (Szabolcsi 1997b, 2010, Brody 1999, Kiss 2002, a.o.), the Hungarian preverbal field has distinct "regions" for distinct quantifier classes. One of the regions is reserved exclusively for phrases whose distributivity is obligatory and does not depend on the predicte. In the terminology of Beghelli & Stowell (1997), the phrases appear in the specifiers of DistPs. In addition to universals like <u>mindenki</u> `everyone', the region accommodates phrases like <u>mind Kati, mind Mari</u> `Kate as well as Mary,' <u>Kati is (és) Mari is</u> `Kate as well as Mary,' and <u>Kati is</u> `Kate too'. Szabolcsi (1997b) comments that `too'-phrases belong to the distributive class:

---

[9] How does MO bleed the MIN-cum-∃ shift that delivers the collective reading? One way would be to impose a global persistence requirement on shifts: if `Kate lifted the table and Mary lifted the table (in a telic way, not just in view of atelic participation)' is true at some point in the computation, then subequent shifts cannot reverse that. But there may be much better ways; I put this question aside here.

(20) Kati is   felemelte az asztalt.
    Kate too up-lifted the table-acc
    ✓`Kate lifted the table on her own, and someone else lifted the table on their own'
  # `Kate and someone else collectively lifted the table'

Shimoyama (2006) observes that mo `every/any' and mo `too/even' may be distinct, in view of the fact that intervention of mo `too' does not block the association of an inde-terminate pronoun within a relative clause with mo `every' outside the relative clause. Shimoyama does not specify exactly how the two mo's have to be distinct in order not to interfere with each other -- lexically? syntactically? semantically? But the fact that Hun-garian covers the territory of mo with two distinct segments, mind and is, is consonant with Shimoyama's suggestion that there is some difference. See (2), repeated as (21):

(21) a. **mind**-en-ki   dare-**mo**   `everyone/anyone'
     b. **mind** A **mind** B   A-**mo** B-**mo**   `A as well as B, both A and B'
        [A **is** (és) B **is**]   `A as well as B, both A and B'
     c. [A **is**]   A-**mo**   `also/even A'

The relation between mind and is has not been investigated and I have nothing useful to add now. But, mind A mind B is synonymous with A is (és) B is. This suggests that, by transitivity, mind(enki) and is legitimately belong under the same semantic umbrella.

2.2 Junction, silent JOIN, and KA

Based on the fact that cross-linguistically, OR is obligatory in disjunctions, Winter attrib-utes a completely different structure to Kate or Mary than to Kate and Mary. I propose that they have the same structure, differing only in JOIN vs. MEET. The fact that there are no unmarked (asyndetic) disjunctions will be explained shortly with reference to the default character of MEET. The presence of the pair-forming bullet in disjunctions will be addressed in Section 2.3.

(22)   Kati **vagy** Mari felemelte az asztalt.
        Kate or   Mary up-lifted the table-acc
        `Kate or Mary lifted up the table'
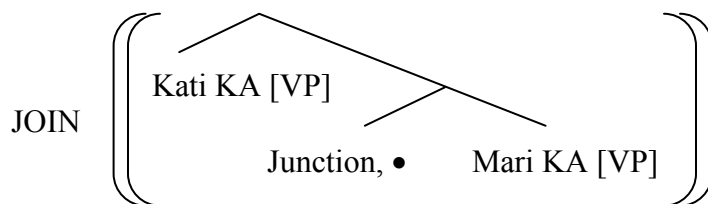
How do we know which silent operation, MEET or JOIN, applies in the interpreta-tion of a given construction?

(23) a. The presence of KA forces JOIN by requiring that [[X]] be preserved and boost-
       ed in [[Y]].

    b. The presence of MO forces MEET by requiring that [[X]] and a parallel [[Z]] hold in [[Y]].

    c. Elsewhere MEET applies, by default.

The default status of MEET makes **the presence of KA mandatory if the pair is to undergo JOIN**. The sole mission of KA is to force JOIN. MO has a similar effect in that it forces MEET, but that's not its mission in life: MEET would apply anyway. The mission of MO is to create distributivity with a parallel flavor.

The above reasoning accounts for the "no asyndetic disjunctions" fact that Winter pointed out based on the typological literature. But we need to account for more than that, since our attention here is not restricted to the connective OR -- we are interested in KA, which the connective is just one instance of.

The important thing to observe is that **the only context in which KA is cross-linguistically mandated is disjunctions**. Consider other typical roles of KA, such as a marker of **indefinite pronouns** and **wh-questions**. There are languages in which KA is either optional or non-existent in these roles. For example, in German both of these constructions may go **without** a dedicated particle. The contrast between (24)-(25) was noted in Haida (2007).

(24)   Wer MAG was?   <u>was</u> unstressed
        who likes what
        `Who likes something?'

(25)   Wer mag WAS?   <u>WAS</u> stressed
        who likes what
        `Who likes what?'

I assume that in these cases JOIN is the default. Semanticists have used existential closure as a structure-building operation without any morpho-syntactic exponent for decades. If there is something to those proposals, JOIN must be available as a default in various contexts. It is true that certain indefinite pronouns contain dedicated particles (e.g. German **irgend**<u>was</u> `something', Hungarian **vala**<u>mi</u> `something,' etc.) and that some languages use KA-style particles in wh-questions (Japanese <u>ka</u>, Sinhala <u>də</u>, etc.). In some of these cases the particle may indicate that JOIN composes with an additional operator, e.g. in epistemic indefinites; or, simply, there is nothing wrong with having an exponent when it is not strictly needed.

"Yes/no" interrogatives are sometimes segmentally unmarked, sometimes they carry KA-particles. I follow Krifka (2001), who distinguishes polarity questions, which may be answered by plain <u>Yes</u> or <u>No</u>, from alternative questions, which require repeating an alternative, possibly accompanied by <u>Yes</u> or <u>No</u>. (Karttunen (1977) considers polarity questions a subclass of alternative questions.) Let us look at Hungarian data; Russian is extremely similar.

The uparrow ↑ indicates final rising intonation, and the downarrow ↓ falling, declarative intonation; no intonational distinction exists in complement interrogatives. I con-

sider the <u>-e</u> suffix on the finite verb a KA-particle, although it is etymologically unrelated to <u>vala/vagy</u>. <u>Hogy</u> is the invariant subordinating complementizer.

(26)   <u>Main clause</u>   <u>Complement</u>
    a.   Alszik? ↑   `Is he asleep?'   *... hogy alszik.
    b.   Alszik vagy nem?   `Is he asleep or(=KA) not?'   ... hogy alszik vagy nem.
    c.   Alszik-e? ↓   `Is he asleep-KA?'   ... hogy alszik-e.
    d.   Alszik-e vagy nem?   `Is he asleep-KA or(=KA) not?'   ... hogy alszik-e vagy nem.

I propose that only *Alszik?* ↑ is a Krifkean polarity question, and that polarity questions are a main-clause phenomenon, interpreted via the Inquisitive Semantic *?* operator (non-informative closure, see Section 3). Final rising intonation ↑ seems like the exponent of *?*.[10] Polarity questions are not unmarked even if they do not carry a dedicated particle.

Alternative questions, being disjunctions, always contain either one KA *(-e* or *vagy)* or two (*-e* and *vagy*) in Hungarian. The KA-particle *-e* requires, as usual, that the contribution of its host be preserved and boosted. In (26b,d) both alternatives are spelled out. In (26c) the only possible exclusive alternative is "accommodated."[11]

In sum, only disjunctions require a KA-style particle cross-linguistically, mandated by the need to override silent MEET, the default operator on pairs. In the other roles that KA-style particles play, we find variation in their presence vs. absence.

2.3 Morpho-syntactic issues

This section addresses several issues, in a preliminary fashion. (i) I argue, based especially on work by Arsenijević and Mitrović, that the co-existence of Junction with MO and KA particles can be detected in morphologically complex connectives in multiple languages. (ii) I formulate working hypotheses regarding null MO/KA particles. (iii) I touch on the question of allomorphy and suppletion in particles. Although my answers here are preliminary, the reader can duly expect some kind of answers already at this point, and it seems to me that the preliminary results are encouraging.

Recall from (18)-(19), repeated in (27), that one of the iterated MO particles in Hungarian (<u>is</u>, though not <u>mind</u>) co-occurs with conjunction `and' that I analyze as Junction:

(27) a.   Kati **és** Mari   `Kate and Mary'
    b.   Kati **is** Mari **is**   `Kate as well as Mary'
    c.   Kati **is és** Mari **is** `Kate as well as Mary'

---

[10] See also Greenberg's (1964) Universal 8, "When a yes-no question is differentiated from the corresponding assertion by an intonational pattern, the distinctive intonational features of each of these patterns are reckoned from the end of the sentence rather than from the beginning."

[11] This would follow if interrogatives always raised mutually exclusive alternatives and if an appropriate (non-pragmatic) notion of "accommodation" can be developed. I believe the mutual exclusivity analysis can be defended qua interpretation of interrogatives, supplemented with an articulate account of the question--answer relation. But I leave both this issue and the requisite notion of accommodation for further research. That grammar can supply the polar alternative seems plausible, however it is achieved.

Mitrović & Sauerland (2013) quote a similar alternation from Avar; the presence of <u>gi</u>'s may make the construction distributive, but the authors do not indicate such nuances:

(28) a. keto **va** hve   `cat and dog'   (Avar)
     b. keto **gi** hve **gi**   `cat and dog'
     c. keto **gi va** hve **gi**   `cat and dog'

    Morphologically complex connectives lend further support to the claim that Junction co-occurs with MO and KA style particles. Mitrović & Sauerland (2013) point out various Indo-European examples. I illustrate complex **conjunctions** with Classical Latin <u>atque</u> (based on Zumpt 1856):[12]

(29) a. arma virum**que** cano
        `I sing of arms and a man'   (Virgil)
     b. me**que** regnum**que** meum gloria honoravisti
        `honor upon me and my realm of glory'   (Sallust)
     c. socii **atque** exterae nationes
        `allies and foreign nations'   (Cicero)

    Arsenijević (2011) observes that the Serbo-Croatian **disjunction** <u>ili</u> `or' is composed of <u>i</u> `and/also/even' and <u>li</u> `polarity particle'. The same holds for Russian, which I will use for illustration.

(30) a. Ivan **i** Petr
        `Ivan and Peter'
     b. **i** Ivan **i** Petr
        `Ivan as well as Peter'
     c. Ivan **ili** Petr
        `Ivan or Peter'
     d. Tancevala-**li** Masha?
        `Did Mary dance?'

    I sketch a preliminary analysis; it draws from discussions with M. Mitrović (p.c.), but I do not think that he would agree with all the ingredients of my proposal. It definitely differs from the analysis in Arsenijević (2011).
    Let me assume, in line with the previous sections, that Latin <u>-que</u> is a MO particle and <u>ac/at</u> represents pair-forming Junction. Serbo-Croatian and Russian <u>i</u> plays both roles; in <u>ili</u>, it appears in its Junction role. <u>Li</u> is at least partially similar to Sinhala <u>də</u> and Japanese <u>ka</u>; I take it to be a KA particle. Furthermore, as argued above, the MEET and JOIN

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[12] Thanks to P. Elbourne, who pointed me to http://www.logicmuseum.com/latin/conjunctions.htm, where the examples come from. I refer the reader to this source for discussion. According to it, iterated <u>-que</u> is used only in poetry, other than by the prose writer Sallust.

operations themselves are always silent; note that they are not indicated below.

(31)   arma   **et**   virum
        arms   J   man   `arms and a man'

(32)   arma-**que/Ø**   Ø   virum-**que**
        arms-MO   J   man-MO   `arms as well as a man (?)'

(33)   socii-Ø   **at-que**   nationes-~~que~~

        allies-MO   J-MO   nations-MO   `allies as well as nations (?)'

(34)   Ivan   **i**   Petr
        Ivan   J   Peter   `Ivan and Peter'

(35)   Ivan-Ø   **i-li**   Petr-~~li~~

        Ivan-KA   J-KA   Peter-KA   `Ivan or Peter'

These analyses make it plain that I hypothesize the following:

(36) Hypothesis: When MO and KA are present, they are present in all the juncts, although it is possible for only the last MO/KA to be overt.

The morpho-syntactic reasons for non-last particles to be phonetically null is unknown to me. Mitrović & Sauerland (2013) suggest that there is an Indo-European-wide and possibly more general historical change involved, but I cannot determine from the NELS handout that I have access to whether they offer an explanation for the change.

In view of hypothesis (36), when one sees just a medial connective, that must either be overt J (cf. English <u>and</u>, Hungarian <u>és</u>), or it must be a MO or KA particle that originates on the last junct and cliticizes to a null J head, in the manner of the cliticization of <u>-que</u> and <u>-li</u> to overt J heads in (33) and (35). When the whole construction is a disjunction, that is the only possibility; therefore the analysis of Hungarian (1b) must be this:

(37)   Kati-**Ø**   **Ø-vagy**   Mari-~~vagy~~

        Kate-KA   J-KA   Mary-KA   `Kate or Mary'

Hungarian, Russian, French, and other unrelated languages exhibit a construction involving iterated KA particles in an unusual position that is reminiscent of that of `only' in those languages. The disjuncts seem to me to be individually exhaustified.

(38) a. vagy Kati vagy Mari vagy Juli
     b. ili Katja ili Masha ili Iulija   `only K, or only M, or only J'
     c. ou Catherine ou Marie ou Julie

B. Slade (p.c.) and K.A. Jayaseelan (p.c.) inform me that the Sinhala and Malayalam iterated KA examples that my general analysis is based on are not of this sort; their meaning is as inclusive as that of plain English `or'. Thus (38) represents a distinct descriptive issue that I will not discuss further.

While hypothesis (36) allows for null allomorphs of MO/KA on non-final juncts, I hypothesize that the presence of MO/KA must not be assumed in the absence of any phonological evidence:

(39) Hypothesis: The presence of MO/KA is realized by at least one overt morpheme or suprasegmental element (e.g. tone or contrastive stress).[13]

Although sophisticated argumentation may eventually show (39) to be too pedestrian, it seems like an absolutely necessary reality-check hypothesis at this point.

We now turn to a further morpho-syntactic issue. The reader will recall from (1) and (2) that the joint distribution of Hungarian vala/vagy and etymologically unrelated -e corresponds, roughly, to that of Japanese -ka, and the joint distribution of mind and is corresponds to that of -mo. What shall we make of this kind of cross-linguistic variation?

Cable (2010) considered a similar question in connection with Tlingit, a language in which the joint distribution of gé, sá, khach'u, and gwáa corresponds to that of Japanese ka, and proposed that Japanese presents a case of massive homonymy that syntax and semantics does not have to account for. Slade (2011) showed that the homonymy thesis was not tenable, based on the detailed analyses of four diachronic stages of Sinhala, two of Japanese, and two of Malayalam. Slade himself accounted for the various patterns with reference to syntactic features and differences in epistemic semantics.

Similar issues are under vigorous study in morpho-syntax (e.g. Distributed Morphology and Nanosyntax). Compare, for example, the fact that some languages have distinct forms for the nominative, accusative, genitive, and dative cases, whereas others collapse some or all of these in a cross-linguistically systematic fashion ("syncretism"). Or, the fact that some languages have different forms for the verb `melt' in John melted the butter and in The butter melted.

Accounts of such phenomena often refer to a surface morpheme M as spelling out either some α, or a combination of α plus some β. One might use a similar approach to account for the distinctive distribution of Hungarian vala/vagy. Vala/vagy is not particularly inquisitive. It does not serve as a "question marker" (unlike Jap. ka, Sin. də) and does not exhibit much epistemic uncertainty (unlike Sin. də). For example, (40), just as its English translation, does not require ignorance or curiosity on behalf of the speaker:

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[13] Szabolcsi & Haddican (2004) point out that English A AND B, with stressed AND, is a strictly Boolean, distributive construction, in various respects similar to both A and B , A as well as B. It does not serve as a subject of collective predication and it only gets a `not both' interpretation within the scope of negation:

(i)   #John AND Mary are a good couple / solved the problem together.

(ii)   I didn't study math AND physics.   `not both';     #`neither'

One analysis could be that stress here is a MO-particle that cliticizes to J. I do not wish to defend this analysis, but (39) is meant to allow for such a situation in principle.

(40) **Va**n **vala**mim a számodra.
  `I have **some**thing for you'

Vala/vagy serves as the stem of the existential and possessive verb (unlike the other elements mentioned, but like Sin. hō), see van in (40). It is quite possible that vala/vagy is often satisfied by non-inquisitive join, a composition of the non-inquisitive closure and the join operators.

An account of the division of labor between mind and is is less straightforward. However, given that their distributions overlap in expressing `A as well as B', I believe that, by transitivity, they support a semantically unified analysis of the roles.

The reader may be anxious to know whether the analyses extend to languages like English that have as distinct items as every, any, both, too, even, and so on for the various roles of Japanese mo, for example. Because I am not a morpho-syntactician and because the present project is at an initial stage, it is too soon to offer a responsible answer.

This paper does not attempt to resolve the variation questions. It is important to see though that they are not particular to this domain of inquiry, and that they could be successfully investigated using the tools of our trade.

3   Formalization in Inquisitive Semantics

3.1 A Pocket Inquisitive Toolkit

As was pointed out in 2.1, the linguistic insights that unite the signature environments of KA (questions, disjunctions, indefinites) come from Alternative Semantics. On the other hand, Inquisitive Semantics offers an explicit theory that specifies how algebraic operations work and also offers operators like non-inquisitive closure (!) and non-informative closure (?) that seem to be useful, if not necessary, in dealing with the linguistic phenomena I am concerned with. I will therefore explicate the key notions of my proposal using Inquisitive Semantics.

Inquisitive Semantics is itself a theory under construction. I will use the version employed in Ciardelli, Groenendijk & Roelofsen (2012, 2013) and Roelofsen (2013a), because they are published and relatively well-known. I will refer to it as InqS-NC (where N stands for NASSLLI and C for Compass). It is quite possible that more recent versions, for example Roelofsen (2013b), also somewhat more similar to Alternative Semantics, will be eventually better suited for my purposes. I hope to explore that in future work. But InqS-NC that I use here will be perfectly sufficient for the purpose of giving an idea how things work.

I will assume that the reader is familiar with the basic ideas and formalism of Inquisitive Semantics, and merely recap some definitions from InqS-NC, using as small a vocabulary as possible.

(41) A **proposition** is a non-empty, downward closed set (=powerset) of possibilities.
  A **possibility** is a set of worlds.
  For example, $[\phi] = [[\text{Joe dances}]] = \wp\{w: \text{dance}_w(j)\}$.
  The informative content of ϕ, **info(ϕ)** $= \cup[\phi]$.
  Meet: $A \cap B$.

Join: A∪B.
Pseudo-complement: A* = {β: disjoint(β, ∪A)}.
A∩A* = ⊥, but A∪A* may or may not be T (Heyting-algebra).
ϕ is **informative** iff info(ϕ) ≠ W; ϕ excludes something in W.
ϕ is **inquisitive** iff info(ϕ)∉[ϕ]; ϕ has more than one maximal possibility.
An **alternative** is a maximal possibility.
Non-inquisitive closure: **[!ϕ]** = ([[ϕ]*)* = ℘(info(ϕ)) .
Non-informative closure: **[?ϕ]** = [ϕ]∪[ϕ]*.

The proposition [[Kate dances or Mary dances or Joe dances]] is inquisitive: it has three alternatives (maximal possibilities), the three enclosed sets of worlds below. E.g., the red area contains all the worlds in which <u>Kate dances</u> is true (1xy). [[Kate dances or Mary dances or Joe dances]] is also informative: it excludes the possibility that not one of them dances (000). Propositions are downward closed sets of possibilities; this can be expressed by using powersets, cf. [[John dances]] = ℘{w: dance$_w$(j)}. Thus [[Kate dances or Mary dances or Joe dances]] is the join of three such powersets, ℘{w: dance$_w$(j)} ∪ ℘{w: dance$_w$(j)} ∪ ℘{w: dance$_w$(j)}.
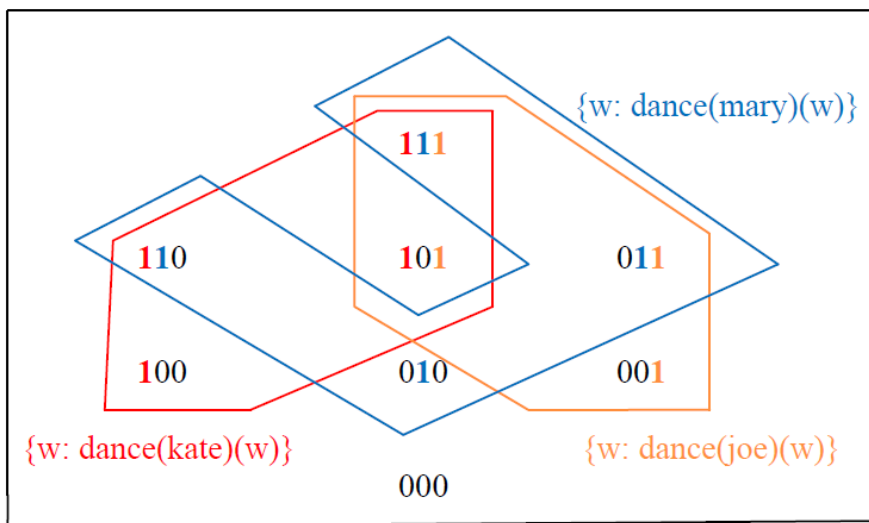
The treatment of MO-style particles does not seem to raise special questions in this framework, given the availability of the meet operation, so I will not dwell on it below.

3.2 Define "preserve and boost" as [[X]]∠[[Y]]

Now recall the informal requirement (15), repeated as (42):

(42) KA requires that the alternatives in [[X]] be **preserved and boosted** in [[Y]].

I will write [[X]]∠[[Y]] to express the requisite relation between [[X]] and [[Y]]. Just like the term "boost", the symbol "∠" is intended to be a fresh one that can be defined to

satisfy our needs. The definition of [[X]]∠[[Y]] must ensure at least the following things.

(43)   If [[Y]] = ∪([[X]], [[Z]]), then [[X]]∠[[Y]] holds.
(44)   If [[Y]] = ((∪([[X]], [[Z]]))*)*, then [[X]]∠[[Y]] holds.
(45)   If [[Y]] = ∩([[X]], [[Z]]), then [[X]]∠[[Y]] does not hold.
(46)   If [[Y]] = (([[X]])*)*, then [[X]]∠[[Y]] does not hold.

Note that (43)-(46) are empirical claims about the contexts in which KA is satisfied; there is no logical necessity for a "∠" relation to exist with exactly these properties. It may be that I am wrong about what makes KA happy; in that case "∠" will have to be redefined, whether or not we retain the particular InqS-NC framework.

(43) says that if KA attaches to X, and [[Y]] is obtained by joining [[X]] with some [[Z]] in an "inquisitive fashion," then KA's requirement is satisfied. The desirability of this goes without saying -- questions, inquisitive disjunctions and inquisitive indefinites are formed by such join.

(44) says that KA does not actually demand inquisitiveness. If [[X]] and [[Z]] are combined using one-fell-swoop non-inquisitive join, KA is still happy. See for example the discussion of vala/vagy in Section 2.3.

(45) says that that combining [[X]] and [[Z]] by meet does not satisfy KA's require- ments. This corresponds to the claim that the presence of KA forces JOIN and overrides the default operation MEET.

(46) requires a little more explanation, because it pertains to something that might be considered an artifact of the framework.

I noted in Section 1.6 that "preserve and boost" is very much like a proper subset re- lation. So can the requirement be that the alternatives (maximal possibilities) in [[X]] should be a proper subset of the alternatives (maximal possibilities) in [[Y]]? No. Among other things, the inquisitive version of a disjunction has multiple maximal possibilities, but its non-inquisitive version has just one. Consider [!(A∪B)], the join of A and B under non-inquisitive closure. [!φ] is the proposition expressing the informative content of [φ], which is obtained by joining all the possibilities in [φ]. Non-inquisitive closure flattens out the alternatives.

Can the requirement be that the possibilities in [[X]] should be a proper subset of the possibilities in [[Y]]? This is almost correct. It would deliver the desired results in the cases (43)-(45) want to cover, as will be demonstrated below. But it would overgenerate in at least one case -- (46). It turns out that if [X] is an inquisitive proposition, then the possibilities in [[X]] are a proper subset of those in the non-inquisitive closure of [X]. Observe that [!φ] = ℘(info(φ)), where info(φ) is obtained by joining all the possibilities in [φ]. The powerset of this big flat set contains all the possibilities that the inquisitive version [φ] raised, plus we have all the joins of the original maximal possibilities, includ- ing the big flat one itself, that were not there before. So, [[X]]⊂[[Y]].

This would predict that if we have an inquisitive proposition [X] and subject it to non-inquisitive closure, that allows us to append an extra KA to X. But that is wrong. For example, if an inquisitive proposition finds itself within the scope of negation, its inquisi- tiveness vanishes -- it reduces to its classical logical self. This is accounted for by sub- jecting [φ] to non-inquisitive closure within the scope of negation. But whereas being in

the scope of negation may not make an independently motivated KA's unhappy, the mere performance of non-inquisitive closure does not justify an extra KA. Hence the definition in terms of $[[X]] \subset [[Y]]$ does not quite work, given the framework we are using.

I dub the problem case endogamy. There are new possibilities, but they are all joins of old possibilities. This is not good enough for KA, so we must exclude it.

Rather than tweak the framework and abandon downward closure, I define "preserve and boost" in terms of $[[X]] \angle [[Y]]$, as follows.

(47) a. If KA is appended to X, it requires that the possibilities in $[[X]]$ be preserved and boosted in the immediately larger context $[[Y]]$. This obtains if $[[X]] \angle [[Y]]$.

   b. $[[X]] \angle [[Y]]$ iff every possibility in $[[X]]$ is a possibility in $[[Y]]$, and $[[Y]]$ contains at least one possibility that is excluded in $[[X]]$.

Let me now demonstrate that this definition works well for (43)-(46). In the examples below I add only one KA; this suffices for the formal demonstration, since each KA does the same thing. Assume a universe with just Mary and Kate. mk is a world in which both of them run, and {mk} is the corresponding possibility. m¬k is a world in which Mary runs but Kate does not run, and {m¬k} is the corresponding possibility. And so on.

(48) $[[Y]]$ $= \cup([[\mathbf{KA}(\underline{\text{Mary runs}})]], [[\text{Kate runs}]])$
            $= \wp\{w: \text{run}_w(m)\} \cup \wp\{w: \text{run}_w(k)\}$
            $= \{\varnothing, \{m¬k\}, \{mk\}, \{m¬k,mk\}, \{k¬m\}, \{k¬m,mk\}\}$

(49) $[[Y]]$ $= (\cup([[\mathbf{KA}(\text{Mary runs})]], [[\text{Kate runs}]])^*)^*$
            $= \wp\{w: \text{run}_w(m) \vee \text{run}_w(k)\}$
            $= \{\varnothing, \{m¬k\}, \{mk\}, \{m¬k,mk\},$
                $\{k¬m\}, \{k¬m,mk\}, \{m¬k,k¬m\},\{m¬k,k¬m,mk\}\}$

In both (48) and (49), we have that $[[Y]]$ preserves all the possibilities in $[[\text{Mary runs}]]$, and has a possibility excluded in $[[\text{Mary runs}]]$, e.g. {k¬m} = only Kate runs. KA is happy. Not so in (50) and (51).

(50) $[[Y]]$ $= \cap([[\mathbf{KA}(\text{Mary runs})]], [[\text{Kate runs}]])$
            $= \wp\{w: \text{run}_w(m) \wedge \text{run}_w(k)\} =$
            $= \{\varnothing, \{mk\}\}$

In (50), the meet operation is performed on the two juncts. Possibilities are shrinking! $\cap$ eliminates {m¬k} from $[[\text{Mary runs}]]$. KA is deemed unacceptable.

(51) $[[Y]]$ $= (([[\mathbf{KA}(\text{Mary runs or Kate runs})]])^*)^*$
            $= ((\wp\{w: \text{run}_w(m)\} \cup \wp\{w: \text{run}_w(k)\})^*)^*$
            $= \{\varnothing, \{m¬k\}, \{mk\}, \{m¬k,mk\}, \{k¬m\}, \{k¬m,mk\},$
                $\{m¬k,k¬m\}, \{m¬k,k¬m,mk\}\}$

In (51), non-inquisitive closure ! preserves the possibilities in inquisitive [[Mary or Kate runs]], but the new possibilities are all joins of old possibilities: we have endogamy. Again, KA is deemed unacceptable.

Before leaving the definition of "preserve and boost," notice that the fact that (47b) requires for [[Y]] to have possibilities that are excluded in [[X]] derives Hurford's (1974) Constraint, at least for two disjuncts.

(52) Hurford's Constraint: A sentence that contains a disjunctive phrase of the form
      'S or T' is infelicitous if S entails T or T entails S.

If disjunct [S] entails disjunct [T], then T cannot have KA. That goes against my assumption that KA (and MO) always occur on all the juncts, whether all of them are overt or not. This result may be a good thing, but I will not explore the matter here further.

3.3 Non-informative and non-inquisitive closure in play

Finally, let me comment on the fact that InqS-NC makes the closure operators ! and ? available and that they are linguistically useful in the domain investigated here.

I have already proposed that polarity questions in the sense of Krifka (2001) should be interpreted by the non-informative closure operator ?, cf. $[?\phi] = [\phi] \cup [\phi]^*$. The availability of ? is important, because these questions do not contain KA and do not spell out the exclusive alternative. Therefore it would be difficult to compositionally derive them using the same ingredients that alternative questions contain.

The importance of the non-inquisitive closure operator has already been mentioned in connection with the fact that some KA-particles may be quite determinedly non-inquisitive. The fact that Hungarian vala and vagy correspond to the participial and finite stem of the existential and possessive verb is a striking example (etymologies from the *Historical-Etymological Dictionary of Hungarian*). At least when the KA particle serves as the stem of an existential predicate, it is classically Boolean.

(53)   val-ó   `be, present participle'
        vagy-ok   `be, present indicative 1sg'
        vagy   `be, present indicative 2sg'
        vagy-on, van   `be, present indicative 3sg'   etc.

But the general significance of ! has to do with the pervasive similarities between the dynamic and the inquisitive behavior of indefinites and disjunctions. In dynamic semantics the scope of externally static operators undergoes existential closure/retrieval of static content. So far as I can see, in the same contexts non-inquisitive closure must apply. A few examples will illustrate this. Inspired by AnderBois (2011) I use sluicing as a test.

Generally, ! attaches to the scopes of externally static operators. The `neither Kate nor Mary' reading of (54) does not support sluicing:

(54)   Bill didn't invite Kate or Mary, but I forget which
        # `didn't invite !(Kate or Mary)'
        ✓ `didn't invite Kate or didn't invite Mary'

However, ! does not attach to all finite clause boundaries, as the availability of the reading in (55) indicates:

(55)   Bill thinks that they hired Kate or Mary, but I forget which
          ✓ `whether Bill thinks that they hired Kate or he thinks that they hired Mary'

In a universe where the girls are Kate and Mary, one expects that <u>Bill saw some girl</u> is the same as <u>Bill saw Kate or Bill saw Mary</u>. However, when <u>(Bill saw) some girl</u> appears as a disjunct, interest in whether Bill saw Kate or Bill saw Mary does not survive. The desired reading can only be obtained by subjecting <u>(Bill saw) Kate or Mary</u> to non-inquisitive closure, thereby creating the "flat set" of girls:

(56)   Bill saw Joe or some girl, but I forget who/which
          ✓ `whether Bill saw Joe or Bill saw some girl'
          won't suffice: [φ_joe] ∪ [φ_kate] ∪ [φ_mary]
          needed: [φ_joe] ∪ ((([φ_kate]∪[φ_mary])])*)*

These examples support the usefulness of Inquisitive Semantics in the analysis of KA-style particles, although they do not necessarily commit one to the particular version InqS-NC used here.

Appendix
These sections are identical to the 8-13-2013 version.
Their fate is to be determined.

4 Interim taking stock, with reference to Hungarian

Following Cable and Slade, I proposed that KA and brothers appear in the presence of increasing possibilities (alternatives), but unlike them I proposed that KA does not choose one of the alternatives. It postsupposes and (by markedness) highlights their presence. It might in principle make sense to say that KA is a join operator and therefore pulls the separate alternatives together into a menu, so to speak. The reason we didn't want to do that has to do with the appearance of KA-style morphemes on both disjuncts. If both instances contribute, and they contribute in the same way, then it is not likely that they serve as join operators. We could allow KA to operate on a single alternative, but then we'd miss the fact that in the slightly broader environment there must always be multiple alternatives. Another advantage of this view will be its easy applicability to Hungarian -e and vajon, elements of interrogatives.

Before turning to questions, let me survey the other uses of KA's relatives in Hungarian. Szabolcsi, Whang & Zu (2013) discuss the following uses of the morpheme that roughly corresponds to KA. The *Historical-Etymological Dictionary of Hungarian* recognizes all these items as being related to the existential verb (57g).

(57) **a.** **vala**ki 'someone'
    b. **vala**-mi diák 'some student (=whose identity is unknown or irrelevant)'
    c. **vala**-mi tíz diák 'some ten students (=approx. ten)'
    d. Kati **vagy** Mari 'Kate or Mary'
    e. **vagy** Kati **vagy** Mari 'either Kate or Mary, not both'
    f. **vagy** tíz diák 'some ten students (=approx. ten; at least ten)'
    g. **vagy**-, **val**- allomorphs of 'be' (existential, locative, predicative copula)
    h. **vaj**on 'puzzlement' (optional modifier)

Re: (57a,b) *valaki* `someone' and *valami diák* `some student'

The determiner SOME that forms an epistemic indefinite has been discussed widely in the literature. What may not have been noted before Szabolcsi, Whang & Zu (2013) is that this item is probably not quite the same as the component of "someone". Note the German equivalents:

(58)   irgend-wer   *irgend-ein-wer   `someone'
        *irgend Doctor   irgend-ein Doctor   `some doctor'

We see the same contrasts in Hungarian:

(59)   vala-ki   *vala-mi-ki   `someone'
         *vala doktor   vala-mi doktor   `some doctor'

I assume that free-standing English epistemic <u>some</u> contains a null counterpart of German <u>ein</u>, Hungarian <u>mi</u>. Compare also (all these form a constituent):):[14]

(60)   vala-milyen doktor   `some kind of a doctor'
         vala-melyik doktor   `one of the doctors'
         vala-hol Európában   `somewhere in Europe
         vala-mikor tavaly   `some time last year'

I suppose the reason is that KA-style operators always attach to indeterminate pronoun bases as alternative-generators -- or other units that supply multiple alternatives.

Slade (2011) makes very interesting comments on Sinhala epistemic indefinites.

(61) a.   I saw Sanath buy Jean-Baptiste Greuze's painting *The White Hat*.
      b.   I saw Sanath buy some piece of artwork, but I don't really know what it was. (I.e. I might be able to describe it, but I don't know what it's called, who painted it, etc.
      c.   Sanath told me that he bought something, but I have no direct experience of the event.

According to the table below, <u>Sanath bought wh-də</u> is only felicitous in the epistemically most uncertain context, (31c), whereas <u>Sanath bought wh-hari</u> is ideal in a mid-level uncertain context, (61b). Slade makes an important connection between these facts and the

	deyak `thing' is felicitous	what-hari is felicitous	what-də is felicitous
In scenario (31a)	✓		
In scenario (31b)	✓	✓	
In scenario (31c)	✓	?	✓

occurrence of <u>də</u> and <u>hari</u> elsewhere. Only <u>hari</u> occurs in declarative disjunctions, whereas only <u>də</u> occurs in interrogative disjunctions (i.e. alternative questions). <u>Də</u> (and not <u>hari</u>) occurs also in wh-questions as well as yes/no questions. Slade uses the epistemic difference between <u>hari</u> and <u>də</u> to explain the fact that <u>hari</u> occurs in disjunctions in declaratives and in antecedents of conditionals, whereas <u>də</u> forms alternative questions.

But Slade (2012) modifies this description: the <u>wh-də</u> vs. <u>wh-hari</u> distinction seems to hang more on modes of identification than on degrees of ignorance. If that is so, then it is

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[14] In the epistemic cases the case marker is always on the noun or adjective, never on the indeterminate pronoun, even when that item could stand on its own and take a case marker:
      (i)   vala-mi doktor-nak   `some doctor-dative'
            *vala-mi-nek doktor(-nak)
      (ii) valami-nek   `something-dative'

not clear if the interrogative vs. declarative disjunction contrast can be derived from the epistemic considerations.

Wh-də and wh-hari contrast with bare deyak `thing' that occurs in both contexts as well as in his (13a), where the speaker who says Sanath bought deyak would know perfectly well what Sanath bought. English something and Hungarian valami would be similar to deyak (they cover the whole range), whereas some picture and valami kép would probably cover both wh-hari and wh-də (the speaker either doesn't know or pretends not to know the specifics of the thing).

Re: (60c,f) *valami tíz* `some ten'

Although English has the construction, I have rarely seen it discussed (but see Farkas):

(62)   They have some ten students.
        The rod is some (*ten) feet long.

Clearly related to the epistemic indefinites discussed above. Hungarian has two ways of expressing (62): (57c) contains valami 10, whereas the (57f) version contains vagy 10, the plain-vanilla disjunction. I am not sure what the semantic difference is, if any. The *Historical-Etymological Dictionary* treats vagy+numeral as polysemous, one interpretation being `at least n' and the other `approximately n', and gives one historical context each in which these are plausible. If valami+numeral is any different, then it's probably approximate, although it's difficult to argue for the distinction.

I am assuming that in both cases vala/vagy requires the presence of increased possibilities and thereby forces the `approximately/at least n' reading on the numeral. I speculate that the reason why this is possible with numerals but not with, let's say, names is that if vagy Kati were acceptable, it would have to completely rely in the context to come up with the alternatives. It would effectively mean `Kate or someone else', which isn't very useful (why mention Kate?). This is different from even Kate, only Kate, and also Kate. The latter expressions invoke focus alternatives, but we are at least saying something solid about Kate, so it makes sense to mention her explicitly. In contrast, numbers come with their own alternatives (the other numbers in their neighborhood).[15]

Re: (57d,e) *vagy* `or' and *vagy ... vagy ...* `not both'

Nothing special to add here, see the discussion of Mitrović in Section 6; I assume that his

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[15] Marcel den Dikken (p.c.) points out that vagy Mari could still mean "at least Mari" or "for example Mari". Dutch Neem een Chomsky 'lit. take a Chomsky' is best paraphrased as "Take Chomsky, for instance". Likewise, although vagy tíz means "at least/approximately ten", speakers do not seem inclined to accept vagy hány, although it could mean "approximately how many". I have no idea why these gaps exist. Likewise, Donka Farkas (p.c.) points out, based on Kagan & Spector (2008), Modern Hebrew Kxi eyze tapuax! `Take an apple or something = Take an apple or some other fruit'. Een and eyze are "indefinite articles" and thus belong to the range of KA-particles in an extended sense.

analysis carries over to Hungarian. I do not think it is a problem that Hungarian <u>vagy</u> does not contain a specific scalar component like <u>i</u> in <u>ili... ili...</u>. Stress by itself can invoke a scale. E.g.

(63)   Ten HORSES can't drag me there!
     `even ten horses'

(64)   A LELKEMET kitettem érte!
     the soul-1sg-acc out-put-1sg for-him
     `I put out my soul (=even my soul) for him'

Hungarian uses the same <u>vagy</u> in both declaratives and alternative questions. In other words, it makes no distinction parallel to Sinhala <u>hari</u> and <u>ho:</u> (declarative disjunction) vs. <u>də</u> (interrogative disjunction, forms alternative questions).

<u>Re: (57g) *val-, vol-, vagy-, va[n]*- `be, exist'</u>

The *Historical-Etymological Dictionary* relates all the items discussed above to the participial and finite stems of the copula BE (predicative, locative, existential=possessive), exemplified below. (<u>Vagyon/vagynak</u> became <u>van/vannak</u> in the last 300 years; <u>-n</u> marks 3rd person, and it is not historically part of the stem.)

(65)   Hat fiam vala / volt.   Voltak kicsi dinoszauruszok.
     six son-1sg was   were   small dinosaurs
     `I had six sons'          `There were small dinosaurs'

(66)   Hat fiam vagyon / van.   Vannak kicsi   dinoszauruszok.
     six son-1sg is   are   small dinosaurs
     `I have six sons'        `There are small dinosaurs'

(67)   Örülök, hogy vagyok.
     rejoice-1sg that am
     `I'm glad I'm alive (lit. exist)'

In the other languages I have information about, only the Modern Literary Sinhala <u>ho:</u> also has a life as an existential verb (Slade 2011; he gives no example sentences). Slade says it is not known whether <u>ho:</u> is related to <u>hari</u>, but it is similar to <u>hari</u> in being a declarative disjunction (unlike <u>də</u>). Since Hungarian <u>vala/vagy</u> never carries a high level of epistemic uncertainty, it seems unsurprising that it stretches itself all the way to the Boolean join, i.e. serving to assert existence, and it is good to know that at least Sinhala <u>ho:</u> does the same thing.

More formally, I suppose that at least in its existential verb reincarnation <u>vala/vagy</u> is irrevocably bundled up with InqS's de-inquisitivizing operator (officially: informative closure). That operator, abbreviated as *!,* unions the maximal possibilities (alternatives) in

the issue. The result is non-inquisitive: a singleton set of alternatives:

(68) $!\{\{w: p(w)\}, \{w: q(w)\}\} = \{\{w: p\lor q(w)\}\}$

If the verbal version of vala/vagy spells out a composition of the basic KA-meaning with *!*, viz., *! ° KA*, then it will assert existence. (Whether a sentence that contains an existential verb is overall inquisitive depends on whether the verb is its main operator.)

In general, I assume that *!* can be an obligatory or optional component of various constructions or surface words, originating as a phonetically null morpheme or as a shifter. Ciardelli et al. (2012: 44) briefly suggest that *!* may be the declarative complementizer. I do not find that likely, because the possibilities introduced by indefinites project right past the complementizer that when the indefinite scopes out of its clause. On the other hand, if certain operators *O* trap the inquisitive potential of their complements, similarly to how externally static operators trap the context change potential of indefinites in their scope in dynamic semantics, that can be expressed by composing them with *!* as the minor function (viz., *O ° !*). More work to do here, but not now.

Now we turn to vajon (57h), the last item in the Hungarian list. [16]

5 VAJON `I wonder' and the speech act operators ANSWER and PUZZLE

This section argues that vajon is an adjunct that occurs exclusively in interrogative clauses (main or complement) and is incompatible with answer-seeking. It is a member of the vala/vagy family and has the characteristic semantics of KA-particles: it needs to be in a possibility-increasing environment. The relation between vajon and might is briefly discussed at the end.

Let us start with some descriptive background on Hungarian interrogatives. Much like Japanese, Korean, and Kashmiri, and unlike English, Hungarian has two kinds of overt finite "complementizers": a subordinator and a clause-type indicator. Clause-initial hogy is a pure subordinator, invariant across declarative/interrogative and indicative/subjunctive clausal complements. Clause-type indicators occur in both complement and main clauses. Unlike Japanese, Korean, Sinhala, or Tlingit, and like English, Hungarian has no overt interrogative clause-type indicator in constituent questions. It has a morpheme -e,

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[16] In some of the Slavic languages (not Russian, Gouskova p.c.) the KA-morpheme -li also serves as something like a domain widener. For example (Veselinović 2013),
(i)   a. Gdje je Marko?   Bosnian/Serbian/Croatian
                `Where is Marko?'
       b. Gdje li je Marko?
                `Where could Marko be?'
It seems to me that in (i) corresponds to English Where EVER is he? Where on earth is he?. I suppose that signalling that there are multiple live alternatives can be stretched into domain widening, but I won't speculate about how that works. I don't suppose that this extension happens by default (Hungarian doesn't do it...).

suffixed to the finite verb, that can come under the rubric of a clause-type indicator for yes/no questions. It is in complementary distribution with yes/no question intonation in main-clause questions. I will discuss -e at some length in Section 11. Here we only need to distinguish it from vajon.

Vajon occurs equally in main and complement questions; in the latter case it co-occurs with hogy. It only occurs in clauses that are independently identifiable as interrogatives by the presence of a question word, -e, or question intonation. Thus vajon is neither a subordinator, nor a classical clause-type indicator. It seems like an optional question modifier. It expresses that I will call "puzzlement". Gärtner & Gyuris (2007, 2012) discuss the distribution and the pragmatics of vajon in detail; I will supplement their observations with some of my own in the discussion below.

Vajon is acceptable when the answer is neither known, nor is directly requested. Consider first main clause questions. When the speaker wants an answer and the addressee could straightforwardly answer the question, vajon is nonsensical (69a) or extremely rude (69b). (69a) is nonsensical because it shares the speaker's interests with the policeman, instead of asking for directions, an unusual thing to do. (69b) is rude, because it effectively talks *about* the hearer, as though that person were dumb or presumed to be a fraud. In contrast, (69c) with vajon is appropriate on the natural assumption that the hearer does not know for sure what he/she will be doing ten years after the ongoing conversation. But, I note, the vajon-less version of (69c) can be used to the same effect, maybe with a slightly different intonation.

(69)   a.   To policeman: (# Vajon) Merre van az Erzsébet-híd?
                              `Which way is the Elizabeth Bridge (# I wonder)'

       b.   (# Vajon) Mi a neved?
            `What is your name (# I wonder)'

       c.   (Vajon) Mit fogsz csinálni tíz év múlva?
            `What will you be doing ten years from now (I wonder)'

Gärtner & Gyuris propose that vajon "puts an issue on the table" in the sense of Farkas and Bruce (2010), who briefly discuss oare, a close Romanian counterpart.[17] That is a

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[17] "The most often discussed non-default questions are those involving some type of bias. Here, we mention another non-default question, special in that it indicates that settling the issue is not necessarily a projected conversational future and therefore that answering the question is optional. In Romanian, such questions are signalled by the presence of the particle *oare*:

(14) Oare Petru a sosit deja?
        oare Peter has arrived already
        Has Peter arrived already?

prudently cautious position, but I believe it is a bit too weak for <u>vajon</u>. In my judgment, <u>vajon</u> does not simply allow for the question to be left unanswered; it excludes answer-seeking. This is especially clear when embedding is considered. In main clauses, it is somewhat difficult to separate literal meaning from all the polite, sarcastic, etc. uses that the sentence can be put to.

A <u>vajon</u>-modified clause happily embeds under "be curious", "would like to know", or "make guesses at".

(70) ⎰ Kíváncsi vagyok ‵I am curious’   hogy (vajon) félnek-e.
      Szeretném tudni ‵I'd like to know’   subord VAJON afraid.3pl-Y/N
      Találgattuk ‵we were making guesses at ’   ‵whether they are afraid’

(71) ⎰   Kíváncsi vagyok ‵I am curious’   hogy (vajon) ki fél.
      Szeretném tudni ‵I'd like to know’   subord VAJON who afraid.3sg
      Találgattuk ‵we were making guesses at ’   ‵who is afraid’

The matrix verbs that are not happy with <u>vajon</u>-complements require more careful consideration. Embedding under <u>tud</u> ‵know’ is unacceptable. Embedding under imperative <u>meg-mond</u> ‵tell, perfective’, <u>meg-kérdez</u> ‵ask directly, perfective’ and <u>meg-tudakol</u> ‵inquire and find out, perfective’ is highly degraded. More precisely, I believe, it is only acceptable to the extent the verb allows the complement to function as an "embedded main clause" (a phenomenon subject to much research in syntax). If there are no plain syntactic clues, "embedded main clause questions" may be recognized by exhibiting a quotation-like wording: a rhetorical flavor, a roundabout way of posing the question that the main clause subject would use but the speaker who reports the situation would have no reason to use, and so on. In my judgment <u>meg-tudakol</u> is the least likely to tolerate "embedded main clause questions".

(72) ⎱ Tudom ‵I know’   hogy (# vajon) félnek-e.
      Mondd meg ‵tell me’   subord VAJON afraid.3pl-Y/N
      Megkérdeztem ‵I asked’   whether they are afraid’
      Megtudakoltam ‵I inquired and found out’

(73) ⎱   Tudom ‵I know’   hogy (# vajon) ki fél.
      Mondd meg ‵tell me’   subord VAJON who afraid.3sg
      Megkérdeztem ‵I asked’   ‵who is afraid’
      Megtudakoltam ‵I inquired and found out’

We can accommodate *oare* questions in our system by assuming that the output *ps* includes not only projected common grounds in which the question is decided but also a copy of the elements of the input *ps*, thereby indicating that not answering the question is one of the projected discourse futures. Such questions are special in that for them removal from the Table without change in the current *cg* is a projected option. Our characterization correctly predicts that *oare* questions are not appropriate on forms, as exam questions or as questions asked in court or by a policeman." (Farkas & Bruce 2010)

Notice that <u>meg-kérdez</u> and <u>meg-tudakol</u> strictly subcategorize for interrogative complements.[18] Finally, <u>fel-sorol</u> `enumerate, perfective' that only takes interrogative complements with "what (all)", "who (all)", and other appropriately listable ingredients is entirely incompatible with <u>vajon.</u>

(74)   Felsoroltam,   hogy (### vajon)   ki   volt jelen.
        enumerated-1sg   that   VAJON   who was present

Based on these data I would like to experiment with the stronger position that <u>vajon</u>-modified interrogatives do not merely leave it open whether the question will be answered; they want the question not to be answered, and at least not locally.

The distinction between the two classes of (verbs and) interrogatives is highly reminiscent of Groenendijk & Stokhof's (1984) (verbs that take) **extensional vs. intensional interrogative** complements. But their criteria and mine **cross-classify** the data. In the G&S theory the decisive factor is whether a given verb takes both interrogative and <u>that</u>-complements, or only interrogative complements. For example, the complements of <u>tell</u> and <u>know</u> always denote a classical proposition, the set of worlds in which $\lambda x.f(x)$ is the same as in the world of evaluation. This clause may either be a factive <u>that</u>-clause or an interrogative; in the latter case the proposition is the answer.

(75) G&S complements of <u>tell</u>, <u>know</u>, etc.: $\lambda i[\lambda x[f(x)(i)]=\lambda x[f(x)(w^*)]]$

In contrast, <u>ask</u>, <u>inquire</u>, <u>be curious</u>, and <u>wonder</u> never take <u>that</u>-clause complements, and so their complement is always the intension of the above: the set of pairs of worlds in which the sets $\lambda x.f(x)$ are the same (the famous partition, a proper question meaning):

(76) G&S complements of <u>be curious</u>, <u>wonder</u>, <u>ask</u>, etc.: $\lambda j\lambda i[\lambda x[f(x)(i)]=\lambda x[f(x)(j)]]$

The finer distribution of <u>vajon</u>-complements cannot be captured in terms of the 1984 theory: whether or not the embedding verb also takes a <u>that</u>-complement does not fully predict whether the interrogative complement can be modified by <u>vajon</u>. On the other hand, the semantic insight in (75)-(76) could be very useful if the interpretation of sentences with (the relevant versions of) <u>megkérdez</u>, <u>megtudakol</u>, and <u>felsorol</u> proceeded in two steps, somewhat like the decomposition of <u>seek</u> into TRY and TO FIND. The first step involves resolution, i.e. "answer" operator, cf. TO FIND. It is shared with the interpretation of the complement of <u>tud</u> `know', which is now complete. But the interpretation of the complement of <u>megkérdez</u> and <u>megtudakol</u> `ask, inquire and find out' involves a further step that eliminates access to the answer, cf. TRY. In contrast, the interpretation of the complement of <u>kíváncsi</u> and <u>találgat</u> would not involve the same resolution step ("an-

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[18] In checking intuitions about the verb "ask" in other languages, the gentle reader should take care to discount "ask self" locutions, which many languages dedicate to expressing "wonder". Hungarian does not have "wonder" but neither does it have "ask self".

swer" operator). It either involves nothing special, or it involves an operator that I will dub "puzzle." Whatever "puzzle" does with the issue it operates on, it does not resolve it, even temporarily. Finally, let us suppose, for the sake of argument, that the interpretation of main clause interrogatives also involves either "answer" or nothing/"puzzle", depending on whether we are dealing with an answer-seeking question or not.

This very rudimentary sketch will allow me to unify vajon with other members of the vala/vagy family. The idea is that vajon, like those expressions, wants to occur in a **locally possibility-increasing (or, at least, possibility-preserving)** environment. **Resolution of the issue** introduced by the interrogative that vajon modifies **eliminates possibilities**.

Although "answer" and "puzzle" may seem like inventions that merely serve to bring vajon into the fold, I believe there is good independent motivation for something of this sort. Notice that Inquisitive Semantics attributes the same inquisitive content to questions and sentences with indefinites/disjunctions:

(77)   Who dances?
(78)   Someone dances / Joe dances or Mary dances.

Even if the two classes differ as to informative content and can thus be globally distinguished (see AnderBois 2012 for further refinements), the theory does not give us the difference between uttering <u>Someone dances</u> while looking very, very insistently in the eyes of the interlocutor and uttering <u>Who dances?</u>. But <u>Who dances?</u> is really a question, it does not merely manage to pass as a question. So far as I understand, the theory does not have this effect. That is perfectly alright, Inquisitive Semantics is not intended to cater to all aspects of the meanings of natural language sentences (maybe it is not intended to cater to any specifically linguistic phenomena directly). But linguists need to supplement it, then. A theory of speech acts as formulated in Krifka (2013), may be a good supplement, especially because it subsumes the embedding of speech acts.

The long and short of it is that I assume that the operators "answer", "puzzle", and whatever else is needed are speech act operators.

(79)   a.   The speech act operators ANSWER and PUZZLE are in complementary distribution.
       b.   Both ANSWER and PUZZLE require for their arguments to present multiple alternatives.
       c.   ANSWER demands to pick the true alternative.[19]
       d.   PUZZLE demands to preserve the live alternatives.

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[19] Kobuchi-Philip (2010) expresses a similar intuition in invoking a silent CHOOSE function in turning KA-phrases into actual questions. -- Benjamin Slade (p.c.) has raised the possibility that ANSWER is (defined in terms of) the *!* operator.

Vajon is receiving much attention here, because it belongs to the vala/vagy family. The *Historical-Etymological Dictionary of Hungarian* gives a full and solid account of its composition. (For many centuries the spelling reflected the geminate [j]; current orthography mandates one j, although many speakers pronounce a geminate)

(80)   vaj   -j   -on
        be   subjunctive   3sg
        `may/let be'

The morphosyntax receives a special significance in view of M. den Dikken's observation that vajon has parallels in Germanic that are based on "happen" and modals:

(81)   "I've always wondered whether vajon could be likened to English perhaps,
        Dutch misschien, Scandinavian kanske when used in yes/no-questions: "I won-
        der whether they are perhaps afraid"; "Would you perhaps have a pair of tweezers?"
        The kinds of y/n-questions that English perhaps is used in are typically not the kinds
        of questions that would call for an answer; if they call for a reaction on the interlocu-
        tor's part at all, it is typically not a yes-or-no answer (but an action instead). What's
        noteworthy about perhaps, Dutch misschien and Scandinavian kanske is that they're
        all based on happen (hap in English, (ge)schie(de)n, ske in Scandinavian), plus a
        modal element (mis goes back to the same modal that English epistemic may also
        represents; Scandinavian kan is the cognate of can; I don't know about English per).
        Happen is, of course, an existential verb -- very much like the vaj part of vajon (with -
        [j]on probably a subjunctive inflectional form(?), which will give you the rough
        equivalent of the modal of Dutch and Scandinavian). I don't think Gaertner & Gyuris
        mention this link -- perhaps they didn't catch it because German "perhaps" (i.e., viel-
        leicht) happens not to be based on "happen". (Alongside perhaps, English of course
        also has maybe, which is based on be plus a modal -- closer, morphologically, to
        Scandinavian kanske than perhaps. But I don't think maybe has quite the same kind of
        effect in a y/n-question as the one that perhaps gives rise to. That's why I concentrat-
        ed the above discussion on perhaps, not maybe.)"
                                                            (M. den Dikken, p.c., May 2013)

Even if happen-based elements are used to a similar effect in questions as Hungarian va-
jon, the modal connection is important. Connection could be sought, especially, with ep-
istemic might in declaratives. Informally, Hungarian vajon is the interrogative version of
declarative epistemic might.

On the semantics of might see, among others, Groenendijk-Veltman-Stokhof (1996), and
Ciardelli-Groenendijk-Roelofsen (2010). The latter team accounts for might by adding
attentive content to informative and inquisitive content as a third component of the
meaning of a proposition.[20] They even make a connection between might and German ob,

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[20] The attentive content of ϕ is $\Pi(\phi)$, which includes the non-maximal possibilities. Might is formalized
using $[[\Diamond\phi]]$, which abbreviates $\phi \vee T$, the latter any tautology.

another relative of <u>vajon</u> and <u>oare</u>.[21] (We do not yet know whether these items are merely similar or identical.) I leave the possibility of combining or even replacing the speech act theoretic approach with theirs entirely open here.

To summarize, the descriptive aspect of my semantic analysis of <u>vajon</u> is inspired by and rather simila to Gärtner & Gyuris's pragmatic analysis. But rather than moving right into the pragmatics, I attempt to capture what is common to <u>vagy</u>, <u>vala</u>, and <u>vajon</u>. The requirement of a possibility-increasing (or, possibility-preserving) environment seems to do the job.

<div align="center">*</div>

We are now moving on to the application of the theory to the yes/no question particle <u>-e</u> of Hungarian, which I regard as part of the KA-family, even though it is not etymologically related to <u>vala/vagy</u>. But that cannot be done directly. Sections 6 and 7 feed into the analysis of yes/no questions.

6. Questions and focus

So far I have simply been assuming that interrogatives get the standard Hamblin--Karttunen--InqS interpretation in some way or other. How does that work? How are issues generated and collected together, and what role does focus play?

6.1 Basic data about questions and focus

In many languages that have a syntactically recognizable "focus position", wh-questions have one question-word in that position; in other languages the question word receives phonological focus accent. These facts are traditionally attributed to question-answer congruence. In addition, alternative questions always have each of the disjuncts focussed (in whatever way the language does focusing). This is traditionally attributed to the ex-

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[21] "Another phenomenon that seems to require an account of attentive content is that of *insubordinate interrogatives*. Truckenbrodt (2006) provides the German example in (48), which contrasts with the non-insubordinate interrogative in (49):

  (48)   Ob   es ihm gut geht?
           Whether it him well goes
           'I wonder whether he is doing well.'

  (49)   Geht es ihm gut?
           Goes it him well
           'Is he doing well?'

Again, sentences like (48) are reported to 'present' a certain issue, without really requesting an informative response from other participants. There is a sharp contrast in this respect between (48) and (49): the latter does request an informative response. These are precisely the type of distinctions that the framework developed in this paper could help to elucidate." (Ciardelli-Groenendijk-Roelofsen 2010: 46).

clusivity of the alternatives.

In contrast, yes/no (=polar) questions don't by default involve focusing, i.e. unless the proposition we are asking about happens to contain focus.

Some nice Sinhala examples from Slade (2011). Sinhala verbs have an E-ending form when the sentence has focus and an A-ending form when there is no focus. The overt movement of the phrase with focus accent to the right is optional. We don't need to indicate movement, since the -E (focus) vs. -A (no focus) distinction already makes things clear for present purposes. I underline the phrases that could move to the right.

Note that all four sentences have particle <u>də</u>, Sinhala for KA. In the plain yes/no question <u>də</u> is IP-final. (Please do not confuse the Sinhala focus particle with the Hungarian yes/no particle, even though both are suffixed to the verb.)

(82)   <u>X də Y də</u>   gamətə   giy-e   /   *giy-a   Was it X or was it Y
       X DA Y DA   village-dat   went-E   went-A   who went to the v?

(83)   [kau də]   aaw-e   /   *aaw-a   Who came?
       who DA   came-E   came-A

(84)   [mokak də]waetun-a   /   *waetun-e   Something fell.
       what DA   fell-A   fell-E

(85) Chitra ee potə   kieuw-a də   /   *kieuw-e   Did Chitra read
      Chitra that book   read-A   DA   read-E   that book?

Sinhala focus (as indicated by V-E) has an existential presupposition and is exhaustive. "Even/also" associates with focus accent but doesn't co-occur with V-E and does not allow rightward movement. These properties have direct equivalents in Hungarian.

Slade (2011) points out that in Sinhala, not all wh-questions contain focus: some don't involve V-E, and don't have an existential presupposition. These can occur embedded under verbs like "know," "understand," "examine," and in main clause "how many" questions. This phenomenon is not yet understood.

I note that in Wolof wh-questions are formed with gaps instead of wh-word (Torrence 2012); it remains to be seen how that strategy fits into the general picture.

6.2 A little literature review (rewrite)

There was a period in generative syntax when the movement of question words in languages in which they occupy a special position was thought to be driven by a syntactic focus feature. Horvath (2000, 2007, 2012) and Cable (2010) both argue that this is wrong: focus per se is intonational, and not a syntactic feature. Horvath argues that focus-

accented phrases move when they are attracted by a focus-sensitive operator. They move obligatorily when this operator has a truth-conditional impact: csak `only' and EI-Op `exhaustive identification'. When focus-accented phrases associate with is `even/also' they move optionally and not to the same position.

Horvath's operators "only" and EI-Op head their own projection, which in turn occurs in the specifier of EIP. The EI head adjoins to TP and the verb raises to it. The EI head has an uninterpretable [uEI] feature. EI-Op has interpretable [iEI] or [iEI, iQ]. The interrogative complementizer head C_Force has [uQ].

(86)
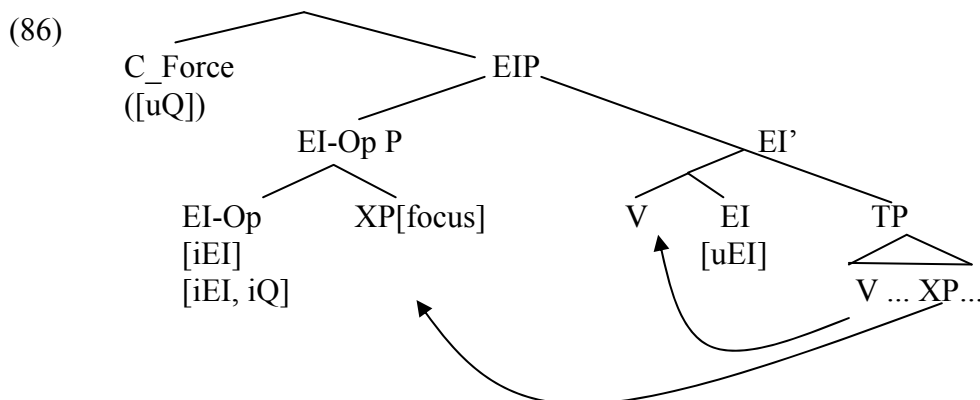
The -E morpheme on Sinhala verbs in sentences with focus is quite straightforwardly Horvath's EI head. Horvath (2012) notes that Hungarian csak `only' is also able to spell out EI when it occurs postverbally, instead of the EI-Op position.

Now, questions. Horvath and Cable, as well as Slade (2011), argue that when question-words move, they do so in order to facilitate the deletion of the [uQ] feature of the Force (interrogative complementizer) head by the [iQ] feature of the question-word; this deletion happens in a syntactic Agreement configuration. For Cable and Slade, the Q morpheme is ka/də (recall: they interpret it as a choice function variable), and it is the Q morpheme that has an [iQ] feature.[22] A "question word" is an indeterminate pronoun base plus a Q-morpheme. The Q morpheme may move on its own or together with the indeterminate pronoun (and overtly or covertly).

How does focus get into the picture? Following Rizzi, Cable and Slade assume that one of the C heads, the one right under Force, is Focus. So the Q morpheme, alone or together with the indeterminate pronoun, moves to C_Focus in order to be close to C_Force and thereby be able to Agree and delete the latter's [uQ]. In this way the specifier of the Focus head is almost accidentally involved. It just serves as a convenient landing site. The focus accent on the question word plays a role for Cable (recall: Beck, focus-alternatives) but not really for Slade (recall: he argues that the alternatives are not focus-alternatives, just plain Hamblinian alternatives).

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[22] Although Cable vigorously argued that ka/də-like elements are not interrogation-related, since they occur on indefinite pronouns as well, he retained the name "Q" for them.

On Horvath's (2012) account, the Q-feature (about whose semantics she is silent) is bundled with the EI (exhaustive identification) feature in the operator EI-Op. EI-Op must bind the question word, a variable, which has phonological focus. When the question-word is attracted by the focus-sensitive EI-Op, in the same breath [iQ] deletes Force's [uQ] feature; everybody is happy. So on Horvath's account question-words have an exhaustive semantics (she refers to Haida 2007), which however is not the doing of focus (phonology) or Focus (she doesn't talk about Rizzi's C_Focus at all). The relation to focus is the focus-sensitivity of EI-Op (cf. Rooth's <u>only</u>). But the movement part on her account is pretty much the same as in Cable's and Slade's. (Historically, Horvath came first.)[23]

Haida (2007) re: focus. One interrogative wh per clause is focused; indefinite wh is not focused, even when not Given (<u>jemand</u> introduces new referent). Details:

(87)   <u>F-marking, syntax</u>: [wh, F] enables Agree with C[+Q], which erases the uninterpretable [wh]-feature. Just [F] is an interpr. feature. Foc head is meaningless.

<u>F, semantics</u>: $\exists$-presupposition and maximality (exhaustivity):
$[[F]]_i = \lambda \wp \lambda P. \ \wp(i)(\lambda i \lambda v'(\underline{v'=\sigma v.P(i)(v)}))$
Referent v' has as its value the maximal element of the plural pred P.
So, $[[F]]_i(\lambda i. \ [[who]]_i) = \lambda P. \exists u_1(u_1 = \sigma v.P(i)(v))$

Haida (2007) also gives a dynamic reformulation of partition theory that allows wh-words to be indefinites, and to antecede pronouns:

(88)   John knows who won and that she's British.

Haida utilizes the maximality component for cases of plural anaphora.

7. Mutually exclusive alternatives

Alternative questions are known to involve separate intonational foci on each of the alternatives, whether they are clausal or phrasal. [24]

(89)   Do you want TEA, or do you want COFFEE?   I want TEA.
         Do you want TEA, or COFFEE?   I want TEA.

---

[23] Szabolcsi's (1981, 1994) exhaustivity is the same as G&S's EXH and Chierchia/Fox's O, and is adopted by Haida.

[24] Pruitt & Roelofsen (2013) observe that alternative questions are intonationally distinguished by their final contour. But the focus intonation I am concerned with in the text is a crucial fact about alternative questions, even though it is not their distinctive prosodic marker.

(90)   Do you want [tea or COFFEE]?   Yes.

This has the effect that the **alternatives are presented as individually exhaustive and thus mutually exclusive**. Notice that mutual exclusivity holds even with three disjuncts, and even if intonation indicates that the alternatives listed do not exhaust the possibilities (rising intonation on the 2nd disjunct in Roelofsen and van Gool 2009):

(91)   Do you want [tea and nothing else] or [coffee and nothing else] or [juice and nothing else] or [tea and coffee and nothing else] or ...?

Alternative questions also have an existential presupposition. (The latter may be a bit stronger than exhaustivity: <u>Neither</u> may be a more defiant answer than <u>Both</u>.)

Yes/no questions are understood as offering the alternatives {φ, ¬φ} that are **by definition mutually exclusive**. (Here the existential presupposition is the weaker guy: "neither" is a logical though not a conversational possibility. φ itself may be a presupposition failure, to take the simplest case.)

We are left with wh-questions. If we can argue that **wh-questions present mutually exclusive alternatives**, then **all questions** could be seen as presenting mutually exclusive alternatives. I believe this argument **is entirely tenable**, because it is empirically indistinguishable from the non-mutually-exclusive alternatives version. It is only when we consider question-answer pairs that they become distinguishable. But the core semantics of questions should not be mistaken for the whole set of rules that pertain to question answering, semantics and pragmatics and all that. Compare the classical issue of numerical indefinites and +/- maximal anaphora:

(92)   Three boys were crying. They were scared.

Following Kamp & Reyle (1993) , the first clause is represented as,

(93) $\langle X, \{boys(X), |X|=3, cry(X)\}\rangle$

(93) can be embedded in any model with three or more boys crying, cf. "There is a set of exactly three boys crying" is logically equivalent to "At least three boys are crying". But the fact that the dref X with cardinality exactly 3 is used enables the non-maximal reading of <u>they</u> in the second clause, which means that those three that the speaker had in mind were scared; maybe other boys were also crying and maybe they were not scared. (92) contrasts with texts involving <u>more than three boys</u> and other increasing quantifiers that only enable maximal anaphora (all the boys who were crying were scared). But (92) can also be interpreted with maximal-reference anaphora, and often is.[25]

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[25] The exclusive alternatives approach can be extended to questions such as,

The question-answer relation is somewhat similar to the antecedent-pronoun relation. They are definitely similar in that the way we set up questions and antecedents does not fully determine how answers and anaphora will work.

Szabolcsi (1981) argued that wh-questions do not require exhaustive answers. It is elliptical answers that get an exhaustive interpretation, because they are interpreted as exhaustive foci of elliptical sentences. If a non-exhaustive answer is intended, either the addition of "for example" is required ("For example, Bill"), or else a full-sentential answer in which the constituent corresponding to the wh-word is not focused but is instead contrastively topicalized. I assume that only elliptical answers with focus prosody are strict linguistic answers and, therefore, call for a more complex set of rules to handle full-sentential non-exhaustive answers.

The **partition theory** of questions was abandoned at the early stages of Inquisitive Semantics (Mascarenhas 2009 and others), it seems, in order to unify questions and disjunctions. Disjunctions were definitely not thought to partition the space. **But the complete identification of question semantics and disjunction semantics cannot be serious anyway.** And the old arguments for partition semantics (if only Mary walks, and John knows who walks, then John knows that only Mary walks) have not been reassessed and invalidated, so far as I know.

So, I am going to assume that interrogatives (embedded and main clause questions) involve a set of mutually exclusive alternatives. In alternative questions and wh-questions exhaustification, commonly implemented by languages by a focus-sensitive operator, has to ensure that. In yes/no questions mutual exclusivity holds automatically.
The requirement that the alternatives be mutually exclusive could be **imposed by the ANSWER or PUZZLE speech act operators**, which are specific to interrogatives.

What are the implications?

First, I am claiming that focus is instrumental in defining mutually exclusive alternatives in wh-questions and alternative questions (via an EXH operator that associates with focus, not directly!), whereas focus is not needed in yes/no questions, whose meaning specifies two mutually exclusive maximal alternatives anyway. The requirement for there to

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How many nails are there in the box?
Approximately how many nails are there in the box?
I estimated how many nails there were in the box.

Let's say that approximately n means "n +/- m". (This is roughly what some n means.) 5 +/- 2 is still distinct from 6 +/- 2. We have to assume that numerals can have null "approximately" modifiers. Maybe this is what is reflected by the possibility in Sinhala to not use focus (i.e. to use -A, not -E, on the verb) with how many-questions. Slade focuses on the fact that -A questions do not have an existential presupposition and so can be answered in the negative. But he says clearly that Sinhala foci are exhaustive, even though he doesn't write it into the formalization.

be a set of mutually exclusive alternatives is attributable to the interrogative speech act operators. If all this is correct, then no syntactic agreement relation with C_Force and overt or covert movement that serves that relation needs to be invoked to account for **why focus plays a role in wh-questions and alternative questions**, and the pertinent parts of the Cable/Horvath theory become unnecessary. It also falls out that **focus does not play such a role in yes/no questions**, something that these authors do not explicitly address. [26]

Second, the (trivial) fact that yes/no questions present two mutually exclusive alternatives such that one of them is entirely predictable from the other will play a role in the reasoning below. I will argue that KA-style particles in yes/no questions do the same thing as in disjunctions and indefinites: they just postsuppose possibility-increasingness. They do not contribute "or not". When the question takes the shape KA(John walks), KA demands that an alternative to [[John walks]] be **accommodated**, and under such circumstances there is only one candidate: [[John does not walk]].

Probably, accommodation is not the right theoretical notion. What is happening here is semantic, not pragmatic, and it is the grammar, not the hearer, that "accommodates". Finding a better notion remains on the agenda.

8. KA versus "or not"

Hamblin and Karttunen interpret whether John walks as {{w: walk(w)(j), {w: ¬walk(w)(j)}}, and InqS's *?* operator serves to abbreviate $\varphi \vee \neg\varphi$ as $?\varphi$.[27]

Recall the brief discussion of the yes/no particle -e from the vajon section. There is a wide-spread belief in the literature that -e is obligatory in embedded yes/no questions. I analyze -e as a KA-style particle, even though it is not etymologically related to vala/vagy. This is not unusual. For example, Slade (2011) has argued, to my mind convincingly, that the various Tlingit morphemes that all corespond to Japanese ka and old Malayalam -oo are syntactically conditioned allomorphs, and Distributed Morphology would also easily deal with such a situation (Neil Myler, p.c.).

(94)   Félnek-(e)?
        afraid.3pl-Y/N
        `Are they afraid?'

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[26] Is there an interrogative C_Force at all? Hm…

[27] More precisely, Karttunen's (1977) Yes/No Question Rule assigns the same interpretation to whether ϕ, whether or not ϕ, and whether ϕ or not. This can be seen as treating "or not" as a meaningless flourish or as assuming that "or not" is the meaningful component but it is sometimes silent. Karttunen does not comment.

b. Ki   fél-(*e)?
    afraid.3sg-Y/N
    `Who is afraid?'

(95) a. Kíváncsi vagyok /   Mondd   meg   hogy   félnek-*(e).
         curious be.1sg   tell.imp.2sg perf   subord. afraid.3pl-Y/N
         'I am curious / Tell me whether they are afraid'

    b.   Kíváncsi vagyok /   Mondd   meg   hogy   ki   fél-(*e).
         curious be.1sg   tell.imp.2sg perf   subord   who afraid.3sg-Y/N
         'I am curious / Tell me who is afraid'

Maria Gouskova (p.c.) points out that Russian -li that superficially seems to be obligatory in embedded polar interrogatives actually alternates with a negated disjunct:

(96)   Ja ne znaju, prishel li Ivan domoj.
        I not know came LI Ivan home
        `I don't know whether Ivan came home'

(97)   Ja ne znaju, prishel Ivan ili ne prishel.
        I not know came Ivan or not came
        `I don't know whether Ivan came or didn't come'

(In main clauses without focus ili ne V / ili net is preferred to -li, which sounds formal or old-fashioned.)

All this seems like great justification for assuming that [[-li]] = [[ili net]], but here's a glitch: according to Google, **-li happily co-occurs with ili net**. The Russian National Corpus has few examples, but gives one from Nabokov, which is apparently a deal-breaker. Transforming the above,

(98)   Ja ne znaju, prishel li Ivan ili net.
        I not know came LI Ivan or not
        `I don't know whether Ivan came or not'

The exact same thing happens in Hungarian: the yes/no suffix -e on the verb (please don't confuse this with the Sinhala focus suffix) both alternates with `or not' and co-occurs with `or not'. I can attest to the fact, based on my intuitions as well as Google searches, that in Hungarian this is possible in both main and complement interrogatives and without regard to what the embedding verb is. (In Hungarian main clauses -e is in complementary distribution with yes/no question intonation.) In English, both whether and if optionally combine with or not:

(99)   I don't know whether/if he saw it (or not).
        I don't know whether or not he saw it.

*I don't know if or not he saw it.

My assessment of the situation is this.

Case (96), with just a particle. These particles (KA, DA, LI, Hung.-E) play **the same role as members of the KA family in general**: they require to be in a possibility-increasing environment and thus indicate that the clause they are attached to is a member of a set of live possibilities. They do **not** mean "or not". When we see just φ+particle, another possibility must be accommodated. ¬φ **is easily accommodated, because it's the only thing that can serve** as a possibility mutually exclusive with φ.

Case (97), with just a negative disjunct. Just as in alternative questions, the set of possibilities can be enumerated, without using a particle.

Case (98), with both particle and negative disjunct. There's nothing wrong with combining the two strategies. **Since "or not" is added, there's no need to accommodate.**

Hungarian alternative questions confirm the plausibility of that scenario. Surveying a very small but dedicated set of linguist and philosopher speakers I have found a bewildering cross-speaker variation in what combinations are good under what embedding predicates.[28] But, all these speakers, as well as myself, converge on the general judgment that all the interrogative clauses below are perfectly okay:

(100)　(Szeretném tudni, hogy) TEÁT vagy KÁVÉT ivott.
　　　　(Szeretném tudni, hogy) TEÁT vagy KÁVÉT ivott-e.
　　　　(Szeretném tudni, hogy) TEÁT ivott-e, vagy KÁVÉT (ivott) / (*ivott-e) .
　　　　all `(I would like to know) if he/she drank TEA or COFFEE'

(101)　TEÁT vagy KÁVÉT ivott?
　　　　TEÁT vagy KÁVÉT ivott-e?
　　　　TEÁT ivott-e, vagy KÁVÉT (ivott) / (*ivott-e) ?
　　　　all `Did he/she drink TEA or COFFEEE?'

In alternative questions there is no way to avoid listing the alternatives, but this is compatible with also adding -e. Note that two full-sentential disjuncts are possible, but the second one cannot have -e on the verb. The reason may be that Hungarian, unlike Sinhala, never allows the "alternatives particle" to appear on all disjuncts in disjunctions.[29]

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[28] I am not sure why such a variation exists. One trivial reason may be that in many contexts these options are in fact in free variation, and speakers develop stylistic preferences, perhaps under the pressure from the insistent field worker...

[29] Ciardelli et al. (2012) suggest that the inquisitive closure operator ? ("or not") is the interrogative complementizer. I am not sure that there are interrogative complementizers, and I have also analyzed "or not" differently. It is not clear that ? is an actual operator that natural languages employ. It is worth not-

9. Summary

I have argued that both MO and KA-style particles can be assigned a unified semantics across their various roles (well, at least those that I have looked at, a fairly big portion). Their role is to impose postsuppositions, which can be satisfied when the immediate larger context is interpreted as the meet/join of their host's semantic contribution with something else. They do not perform meet/join themselves. I formalized the semantics using the toolkit of Inquisitive Semantics.

In the course of making that argument I have recast the traditional syntax and semantics of many of the constructions involved. However, most of these innovations built on or drew from existing proposals in the literature. Those proposals were made in isolation from one another. Hopefully, they will live together happily ever after.

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ing that Cable (2010) offers strong syntactic arguments against the earlier assumption that KA-style morphemes in interrogatives are complementizers.

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