Explaining Conjunction Systems: Russian, English, German

Katja Jasinskaja
University of Heidelberg & IMS, Stuttgart University

jasinsk@ims.uni-stuttgart.de

Henk Zeevat
ILLC
University of Amsterdam

henk.zeevat@uva.nl

Abstract

The paper analyses the Russian conjunctions *i*, *a* and *no*, the English conjunctions *and* and *but* and the German conjunctions *und*, *aber* and *sondern* in terms of specialised additivity: special cases of the relation between sentences expressed by *too* and *also*. The first section gives an overview of the analysis, the second section tries to give an explicit characterisation of additivity and its specialisations. The third section uses an OT-like framework to explain the complementary distribution of the conjunctions and the blocking effects that result.

1 Conjunctions

A much debated issue in Russian linguistics is the precise demarcation of the conjunctions *i*, *a* and *no*. *I* corresponds to the English *and*, *a* has to be translated sometimes as *and* and sometimes as *but*, where all the uses of *no* seem to correspond to English *but*. We refer to Jasinskaja and Zeevat (ms) for an attempt to do justice to the descriptive problems and the debate. In this paper, we try to look at the theoretical side of the proposal. That comes down to the semantical analysis of additivity and an account of the blocking of one conjunction by another that is needed to make the explanation work.

The theory can be recapitulated as follows.

The English *and* is a general marker of additivity. Additivity is a property of a clause to give a distinct answer to a question that was already addressed before. If the question contains a single *wh*-element, the additive clause and its antecedent must give distinct values to the *wh*-element. If the question has more than one *wh*-element,

the additive clause and its antecedents give distinct values to each of the *wh*-elements—otherwise, it can still be additive, but with respect to the corresponding question with fewer *wh*-elements. The theory assumes that polar questions have *wh*-elements and are *wh*-questions that can take values from the set of truth-values. Accordingly they will be called *whether*-questions.

The conjunction *and* is indifferent to the number of *wh*-elements and the type of these *wh*-elements. But *and* competes with *but* that is a special case of additivity asking for questions with at least two *wh*-elements of which one must be *whether*. (1) gives an example of a *who-whether*-question, which can be split into two *whether*-subquestions: whether John likes football, answered by the first conjunct, and whether Bill does, answered by the second.

(1)   Who "whether" likes football?
        John does, but Bill doesn't.

The Russian system is more complex. The conjunction *i* requires a single *wh*-element in the question. The conjunction *a* can be taken as the generic additive marker (like *and*) that is blocked from single *wh*-questions by the presence of *i* and from the case covered by *no* by the presence of that marker[1]. *No* marks additivity with respect to a *why-whether* question. That means that the first conjunct gives a reason for some statement *C* and the second one a reason why *C* should not be adopted. This makes the argumentative function of *no* the basic one and constructs the *denial of expectation*-reading as the case that *C* is identical to the second conjunct.

(2)   Why "whether" should we buy this ring?
        It is beautiful, *but* (russ.: *no*) expensive.
        Why "whether" didn't John make it?
        He wanted to come, *but* (russ.: *no*) did not make it.

Whether-questions are special. Distinctness implies that there cannot be conjoined distinct answers to a single *whether*-question. They would have to answer *yes* and *no* to the same question and would be contradictory. But there can be conjoined answers to double *wh*-questions with one of the elements being whether.

A special case are correction markers like *sondern* in German (Spanish has a similar marker *sino*).

(3)   Peter ist nicht in Berlin, *sondern/*aber* in Paris.
        Peter is not in Berlin, *but* in Paris.
        Peter ne v Berline, *a* v Pariže.

These are a special case of distinct answers to double *wh*-questions with one of the elements being *whether*, in (3) a *where-whether*-question: where whether is Peter? It provides the negative answer to whether Peter is in Berlin and a positive answer to

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[1]In Jasinskaja and Zeevat (ms), *i* is taken to be the unmarked case, and *a* as the special case. It is however *i* that has the simpler semantics and it is hard to see how the property of marking for additivity with respect to multiple *wh*-questions can grammaticalise, while many additive particles allow only a single associate and provide a good source for conjunctions like *i*.

1wh	add	wh-whether	why-whether	correction
i	a		no	
	and	but		
	und	aber		sondern

Table 1: Correlations between the Russian, English, and German conjunction systems. (*1wh* stands for "single wh-element".)

whether Peter is Paris. *Sondern* marks *wh-whether*-questions with a correction presupposition: the first conjunct is presupposed (and denied by the second). Typically, in languages like Russian, where *a* has to do the job, the presupposition is not marked and the correction can be made in both orders.[2]

(4)   Peter v Pariže, *a* ne v Berline.

Double *wh*-questions in Russian select *a* and not *no* because *no* requires both *why* and *whether*. This is not even satisfied in (5): John hits Peter in both conjuncts.

(5)   John did not hit Peter because he was angry, but because he was drunk.

The conjunction answers: whether John hit Peter because of what? (a *whether-what*-question) by two doubly distinct answers. It would be *sondern* in German and *a* in Russian.

In providing different answers to the same questions, conjunctions belong to the class of additive markers, like *too* and *also*. Zeevat and Jasinskaja (2007) argue that some *and*-like conjunctions can be historically related to additive particles and need additivity for the proper understanding of their behaviour.

Blocking is the final ingredient of the explanation. If *no* or *i* can be used, *a* cannot. If *i* cannot, *a* must be used, if *but* can be used, *and* cannot.

Given these ingredients, it is possible to give a parsimonious description of the Russian system, the English system and the German system and correlate them as shown in table 1. It follows that *no* always translates to *but*. *A* translates as *but* and *aber* if one of its *wh*-elements is *whether*, unless one of the conjuncts is presupposed to be false (in the common ground or in the interlocutor's information state) in which case it is rendered by *sondern* and the presupposed conjunct is preposed. Otherwise, *a* translates as *and* and *und*. *I* always corresponds to *and* and *und*. *Sondern* always translates as *a* and *but*.

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[2]The presupposition of the first conjunct is also missing in the English *but*, nevertheless *but* shows a slight preference for the negative-positive order of conjuncts under the correction reading, cf.: *Peter did not go to Paris, but to Berlin* vs. *Peter went to Berlin, but not to Paris*. Umbach (2004) claims that in the latter case the positive-negative order is only compatible with the non-corrective reading: Peter did not go to Paris in addition to (rather than instead of) going to Berlin, which in our theory results just from answering a *wh-whether*-question without any additional presupposition. The correction reading with the positive-negative order is conveyed better by using *and*: *Peter went to Berlin, and not to Paris*. This difference between the English *but* and the Russian *a* could be related to the asymmetry of the conjuncts of *but* that also shows up in its argumentative and denial of expectation uses like (2). An account of this asymmetry is presented in section 3.

Aber is always translated into English as *but*. Into Russian it translates as *a* unless it answers a *why-whether*-question in which case it becomes *no*. *And* translates as *i* if it marks *1wh* and as *a* otherwise and in German to *und*. These translation relations are illustrated below.

wh1:

(6)   Vera prinimala vannu, *i* razgovarivala po telefonu.
        Vera was taking a bath *and* talking on the phone.
        Vera nam ein Bad *und* telefonierte.

(7)   Idet sneg, *i* duet veter.
        It is snowing *and* the wind is blowing.
        Es schneit *und* der Wind weht.

wh>1:

(8)   Vera prinimala vannu, *a* Lena razgovarivala po telefonu.
        Vera was taking a bath *and* Lena was talking on the phone.
        Vera nam ein Bad *und* Lena telefonierte.

(9)   V Moskve idet sneg, *a* v Amsterdame duet veter.
        It's snowing in Moscow *and* it's windy in Amsterdam.
        In Moskau schneit es *und* in Amsterdam weht der Wind.

(10)   Oleg ljubit futbol, *a* Roma basketbol.
        Oleg likes football *and* Roma likes basketball.
        Oleg spielt gern Fussbal *und* Roma Basketball.

wh-whether:

(11)   Oleg ljubit futbol, *a* Roma ne ljubit.
        Oleg likes football, *but* Roma doesn't.
        Oleg spielt gern Fussball, *aber* Roma nicht.

why-whether:

(12)   Èto kol'co krasivoe, *no* dorogoe.
        This ring is beautiful, *but* expensive.
        Dieser Ring is schön *aber* teuer.

wh-whether correction:

(13)   Peter ne v Berline, *a* v Pariže.
        Peter is not in Berlin, *but* in Paris.
        Peter ist nicht in Berlin, *sondern* in Paris.

2   Additivity

The first formal semantics of additivity has been provided by theorists of presupposition like Gazdar (1978) and Karttunen and Peters (1979) who assigned to additive particles associating with a name the property that an object non-identical with the referent of the name also has the property that is expressed by the rest of the clause. This is too restrictive since additive particles also associate with other NPs and other constituents and even with sequences of NPs. Also the property of being non-identical seems too weak in two respects: for sequences there must be additivity at each coordinate and following Hendriks (2004), there should be more than just non-identity: the two elements should not overlap: John's hand cannot be in addition to John, a part of the content of a bottle of milk cannot be in addition to the content itself, an event cannot be additive with respect to a subevent. (14) is an illustration.

(14)   John is coming. His whole family is coming (*too).

   A third failure of these accounts is that they allow accommodation and satisfaction by common ground knowledge, something criticised by Kripke (ms) by the example (15).

(15)   Tonight John is having dinner in New York too.

   Kripke's point is that (15) is not acceptable out of the blue, even though everybody knows that there are millions who have dinner every evening in New York. *Too* seems to require an overt antecedent in the context and the property that allows and necessitates the occurrence of *too* would be that the clause readdresses a question that has already been addressed in the discourse. This gives the following definition.

(16)   **Definition 1:**
   $\varphi(a)$ and $\varphi(b)$ are **additive** to each other with respect to ?$x\varphi$ in w iff
   (1) both are true in w and answers to ?$x\varphi$.
   (2) and there is no c such that $c \leq a$ and $c \leq b$

   This is one-place additivity. A more general definition is needed to capture additivity on pairs (and more generally, tuples) as in the examples below:

(17)   A: I love you.
        B: I love you too.

(18)   Tim loves Louise and Sandra.
        Sandra loves him too.

   The tuples need to be distinct in each of the corresponding elements, that is why (19c) is infelicitous with *too*. It cannot be construed like (19a) as one-place additive (John is another person loving Sandra). While (19b) can be construed in terms of two-place additivity ($\langle$John, Monique$\rangle$ is another pair standing in a *love* relation whose every element is distinct from the corresponding element in $\langle$Tim, Louise and Sandra$\rangle$),[3] (19c) cannot because *Sandra and Monique* has a common part with *Louise and Sandra*.

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[3]For some speakers *too* can only associate with a single constituent (Krifka, 1999, n. 7), however others accept (19b) with the reading where *too* associates with the pair of constituents *John* and *Monique*, giving rise to two-place additivity.

(19)   Tim loves Louise and Sandra.
          a. JOHN loves Sandra, too.
          b. JOHN loves MONIQUE, too.
          c. JOHN loves Sandra and MONIQUE, (*too).

       A general definition of additivity uses questions of the form $?x_1 \ldots x_n \varphi$ with $n \geq 1$.

(20)   **Definition 2:**
       $\varphi(a_1 \ldots a_n)$ and $\varphi(b_1 \ldots b_n)$ are **additive** to each other with respect to $?x_1 \ldots x_n \varphi$
       in w iff
       (1) both are true in w and answers to $?x_1 \ldots x_n \varphi$.
       (2) for all $1 \leq j \leq n$ there is no c such that $c \leq a_j$ and $c \leq b_j$

       This would be general additivity and correspond with markers like *and* and *und*,
apart from blocking effects. If a is the default case, it is also just a general marker
of additivity like *and* and *und*, but subject to more blocking. All the other markers
discussed, including *too* are more restricted by putting more constraints on the number
of *wh*-variables or on the type of these variables.

Some remarks on the definition: First of all, the definition appeals to a notion of
$x \leq y$ which needs further motivation. Intuitively, distinctness between objects is about
not sharing parts. There are a number of part-relations that are relevant. The following
list seems to cover the most important cases.

1. objects and their constituent parts

2. set of objects and their subsets and elements

3. quantities of matter (some bread) and the subquantities that make them up

4. events and the subevents that constitute them

5. states and their component states

6. regions and their subregions

7. temporal intervals and their subintervals

8. truth values have no parts

       This suffices for the *wh*-phrases considered here. *Why* takes events and states
as values, *who* persons, *what* non-human objects, *when* and *where* spatial and temporal
regions. The problems are mainly with abstract objects like habits, tendencies, disposi-
tions, propositions and properties[4].

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[4]A good deal of progress can be made by a reduction to their instances. If an instance of a property
invariably or typically has another property that property could count as a part or a prototypical part of the
property. If a proposition is true in virtue of events or states with invariable or prototypical subevents that
make another proposition true, the other proposition is a part or prototypical part of the proposition. And
the same would hold for habits, tendencies, and dispositions.

Second, the definition is about objects and not about generalised quantifiers, the general case of an NP meaning. The idea is that a linguistic answer with a generalised quantifier as a value for the *wh*-variable can always be witnessed in a world by an object answer.

This works as follows: If $\varphi(a)$ is true in w and $w \models N(a)$ (N is the meaning of a noun) then $\varphi(a)$ will witness a whole range of sentences of the form $(\neg)QN\varphi(x)$ (Q is a determiner meaning). Which determiners are witnessed (possibly under a negation) depends on the size of a and the size of the extension of N minus a and (sometimes) on contextual standards of comparison.

Let $\varphi(a)$ be true in w and a be in the extension of N in w.
Then

1. $\varphi(a)$ witnesses *some N* $\varphi(x)$ in w

2. $\varphi(a)$ witnesses *all N* $\varphi(x)$ in w iff a is the extension of N in w

3. $\varphi(a)$ witnesses *3 N* $\varphi(x)$ in w iff a has size 3

4. $\varphi(a)$ witnesses *many N* $\varphi(x)$ in w iff a has a large size

5. $\varphi(a)$ witnesses *most N* $\varphi(x)$ in w iff a outsizes the set of members of the extension of N in w which do not satisfy $\varphi(x)$

6. $\varphi(a)$ witnesses *few N* $\neg\varphi(x)$ in w iff a is nearly all of the extension of N in w.

Given an information state $X \subseteq W$, the sentences with NP semantics are additive with respect to the question, if they can be witnessed by additive object answers to the question, in each world $w \in X$.

The definition also does not directly allow for pragmatic additivity, where the additivity holds not with respect to the common ground or the speaker's information state but with respect to the hearer's information state, as in (21).

(21)   A: Did you invite the mayor and the doctor?
        B: Well, the mayor is the doctor. So by inviting the mayor I invited the doctor too.

Thus in the most general terms, the conditions licensing additive marking can be characterised as follows[5]:

(22)   The context must contain an answer A to a question $?x_1 \ldots x_n \varphi$ and the contribution B of the speaker must be witnessed by an additive answer with respect to the information state of the hearer as it is known to the speaker.

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[5]Lexical —unlike the grammaticalised markers considered in this paper— expressions of additivity like "in addition" or "additionally" enforce additivity with respect to the common ground after the update: i.e. additivity is part of the truth-conditional content of the utterance. Another difference is that they do not need to have an additive antecedent, but can introduce it or accommodate it.

Additive conjunctions vs. additive particles: The additive conjunctions considered in this paper are special in that the antecedent is always the first conjunct and that the question is directly related to the goal of the speaker in producing the conjunction. This does not need to be the case for normal additive marking with *too* and *also*.

The speaker can answer a question with his contribution that is different from the question which makes his contribution additive as in (23).

(23)   What did Susan do?
        SUSAN had spaghetti TOO.

The speaker answers the question but in producing the answer also readdresses the question who ate spaghetti and marks the fact that he is readdressing it with the additive marker.

Specialisations of additivity: The first kind of specialisation is simplex vs. duplex (multiplex) questions. *I* marks single *wh*-questions, *no* the particular case of double questions with *why* and *whether* as the two *wh*-elements. The Russian *a* does not impose any restriction on the number of *wh*-elements *per se*, but because of blocking by *i* it is only possible with multiplex questions. All the other conjunctions do not have a restriction on the number of *wh*-elements with or without blocking.

The second kind is typing. The *wh*-variable in a question can allow only values of a certain type, like object, event, truth-value, region, quantity etc., corresponding to wh-words like *who*, *why*, *whether*, and *which*, *whether*, *where*, *how much* and others. Polar questions are treated as normal *wh*-questions. This is not problematic, *whether p* gets the logical representation: $?x_t \; ext(p) = x_t$.

Whether-questions are a special case: the only way to be a distinct truth-value is to be the other truth value. This makes it impossible to have simplex additivity of type truth-value: one would affirm and deny the same statement. But duplex and multiplex questions can include a type truth-value: it is possible that *P* holds of *x* but does not hold of *y*.

There is a similar problem with *why-whether*-questions. If *A but B* addresses *Why whether p?* and *A* addresses the positive side, i.e. *A* gives a reason for *p*, and *B* a reason for $\neg p$, then the answer does not decide the *whether*-question. Markers like *but* are however implicating that *B* is the decisive part. So if *B* gives a reason for $\neg p$, the speaker implies that $\neg p$ is true or should be the decision that has to be taken.

3   Blocking

As described in section 1 the various specialised additive markers block each other when their condition of application is more specific: *but* is preferred to *and* when the conditions for *wh-whether* hold, even though *wh-whether* is also compatible with the weaker conditions imposed by the generalised additive marker *and*. Similarly, *i* and *no* block *a* in Russian. In German, *sondern* blocks *aber*, which is otherwise very similar to English *but* or Dutch *maar*.

and/und/a	
but/aber	WHETHER, 2ND
sondern	CORRECTION
i	SINGLE
no	WHY, WHETHER, 2ND

Table 2: Conjunctions and the features they realise

How does this happen? It is not a general property of natural language that what is more specific in semantics is preferred. It is not necessary to refrain from calling Bill a man, if he is an actor and a bachelor. Blocking is known from morphology (the more specific rule that makes the plural of *goose geese* wins from the more general rule that would make *gooses* out of *goose*). But the system of conjunctive markers is not normally seen as a paradigm.

It could however be compared to a paradigm. The present of the verb *to be* is the paradigm *am*, *is* and *are*. For the negation, the form *amn't* is missing and gives way to *aren't* in *Aren't I clever?*. This makes *are* and *aren't* into the unmarked form and lets the special forms *am* and *is* come out of a constraint that tries to realise the input features of number and person on the output form, when this is possible. Bresnan (2000) employs a constraint AGR for this purpose.

We could do the same, by assuming that AGR tries to realise a special category of features on conjunctions. Candidates for such features would be WHETHER, 2ND (second), SINGLE, WHY and CORRECTION with our conjunctions realising these features as in the following table 2. WHETHER requires that one of the *wh*-elements be typed as truth value, 2ND makes the second conjunct resolve the *whether*-issue, WHY types one of the *wh*-elements as a proposition giving an argument for ϕ, SINGLE restricts the number of *wh*-elements to one, and CORRECTION introduces the presupposition of the first conjunct characteristic of corrections.

Unfortunately, conjunctions are not obligatory as such. Quite systematically, conjunctions of any type can be replaced by two adjacent unmarked sentences.

(24)   John came and Mary left.
        John came. Mary left.
        John is tall but Bill is small.
        John is tall. Bill is small.
        Johann ist nicht in Paris, sondern er ist in Berlin.
        Johann ist nicht in Paris. Er ist in Berlin.

This makes the problem different from agreement marking. There is nothing optional about agreement, at least in English, while additive conjunctions can be left out if distinctness is obvious from the context or signalled by other means, e.g. by additive particles like *too* and *also*, or adjectival markers like *another*, *a different*.

The paradigmatic approach also does not explain why the system emerged. For the verbal agreement system, it is generally accepted that the agreement morphemes come from fusion of the verb with pronouns and would be remains of clitic doubling. It

needs to be explained of course why such remains are stable, but there is a general explanation that applies here: the agreement morphemes mark finiteness and their presence increases semantic redundancy and therefore supports understanding. It seems wrong to consider the conjunction systems to be atavistic remains of any other paradigm, even though they do make understanding more robust.

Another approach is to assume a maximisation constraint MAX(OTHER) that checks that the items that are distinct in the input are also distinct in interpretations of the output (see Zeevat, 2003). The check can be understood as part of the self-monitoring of the speaker and is here directed to checking that objects are not identified in interpretation when this is not intended. The constraint is closely related to the fact that perception is strongly oriented towards identification: identify when there is no reason not to. Pragmatic formulations of that principle are *NEW (Zeevat, 2008), DO NOT ACCOMMODATE (Blutner, 2000) and DOAP (Williams, 1997; Hendriks and de Hoop, 2001). The approach by MAX(OTHER) however also runs into a number of problems.

Distinct objects can be associated with different descriptions, but if they share descriptions, it is necessary to use a marker of distinctness like *other* or *different*. If the same predicate applies to a different object, it is necessary to employ an additive marker. It is important to realise that in these cases there can be plenty of other cues to infer that the objects are different. In (25), the two men need to be different because one cannot non-metaphorically meet oneself, because a full NP cannot be coreferential with another NP in the same clause and because indefinites introduce new referents.

(25)   A man met another man.

The interpretation of the phenomenon as a max-constraint does not work in these cases precisely because of the fact that distinctness can be completely clear and the marker is still needed. The rule seems to be that *other* (or an equivalent marker) needs to be used if there is another object with the same description.

The same point can be made about additive marking by particles. In (26), the different names are sufficient to guarantee that John and Bill are distinct people.

(26)   John went to the party. Bill went too.

So it is best to see other-marking and additive-marking as production constraints along the following lines.

(27)   **OTHER:** mark the re-use of the same description for a different object

(28)   **ADD:** mark the application of the same predicate to a different object

That does not mean that MAX(OTHER) is not involved. The existence of lexical markers together with MAX(OTHER) would be responsible for the formation of the grammaticalised markers and the production constraints as partial grammaticalisations of MAX(OTHER). The pattern would presumably be that the markers appeared sufficiently often in response to MAX(OTHER) that their absence started being a signal that there is no OTHER. This forces the emergence of these production constraints, since the

English:

and		¬ (WHETHER, 2ND)
but	WHETHER, 2ND	

German:

und		¬ (WHETHER, 2ND)
aber	WHETHER, 2ND	¬ CORRECTION
sondern	CORRECTION	

Russian:

i	SINGLE	
a		¬ SINGLE, ¬ (WHY, WHETHER, 2ND)
no	WHY, WHETHER, 2ND	

Table 3: Blocking in the conjunction systems of English, German, and Russian

probability of misunderstanding increases with the signalling function of the absence of the marker.

The same would be applicable in the case of conjunctions: conjunctions grammaticalise in response to MAX(OTHER) as additive markers. Specialised additive markers can grammaticalise because they mark distinctness even better (type, number) and MAX(OTHER) is then responsible for a pragmatic preference for the specialised marker in favour of the less specialised marker when they are in competition.

For the choice to leave out any conjunction, one has to assume that there is no other principles than MAX(OTHER) involved in conjunction (unlike the additive particles and adjectives discussed above). Not marking is then possible, if the distinctness is sufficiently clear from other cues (which may include additive and contrastive particles, intonation, choice of lexical items, overtness of the question addressed etc.). MAX(OTHER) by itself would allow the use of the less specialised conjunction when more specialised conjunctions can be used, if there are enough cues to infer the distinctions.

The way out is to assume that the non-specialised markers have become signals that the more specialised markers do not apply. This will happen if in fact MAX(OTHER) would make the specialised marker dominant over the general marker in the cases where the specialised marker can apply. There is a legitimate probabilistic inference from not using the more specialised marker to the assumption that the conditions for its use do not hold.

This would turn our earlier table 2 into the schemata shown in table 3.

There is some evidence for setting it up in this way in the interpretations that arise when *and* is used in situations that seem to require *but*, or *a* in situations that seem to require *no*, or *aber* in the situations that seem to require *sondern*.

An empirical observation about *why-whether*-conjunctions (expressed by *but*, *no* or *aber*) is that the second conjunct decides the issue, in the sense that the speaker indicates that the second argument is better than the first (Anscombre and Ducrot, 1977). This is illustrated in (29). This observation is not a consequence of the theory presented in this paper and may perhaps be explained by the fact that if one of the two conjuncts is

old, it should be the first. In that case, the speaker adds a new argument for consideration in the second conjunct, presumably because she deems it important enough to be considered. The preference of the speaker for the course of action advocated in the second conjunct can therefore be inferred and the standard ways of expressing *why-whether*-conjunction can become signals of this conclusion. In the schema, this corresponds with the feature 2ND.

(29) The ring is beautiful, but expensive. (Let's not buy it)
     The ring is expensive, but beautiful. (Let's buy it)

If one assumes that the conventional markers of *why-whether*-conjunction indeed signal the decisiveness of the second argument for the speaker, replacing the marker by a less specific one would cancel the effect, as in (30) under the assumption that the question of buying the ring or not is at issue.

(30) The ring is beautiful and expensive. (I don't know what to do)

This may give the explanation of the mirative uses of *and* and *a*.

(31) Max can't read *and* he's a linguist.
     Her husband is in hospital *and* she is seeing other men.
     Leto, *a* idet sneg.
     It's summer *and* it's snowing.

In all these cases, *but* (*no*) is possible with a *why-whether*-reading: Why whether Max can read?: he should because he is a linguist, he does not because (it is known that) he cannot. The point is to establish the second conjunct and protect it from the expectation arising from the first conjunct.

It can be argued that this is the proper content of the feature 2ND: it makes the conjunction marked by *no*, *but* or *aber* a contribution to the issue *whether C?* given by the *why-whether*-question *Why whether C?* and lets the second conjunct resolve that issue. In the cases at hand, *C* is identical to the second conjunct *B*. The negation of 2ND will then in general stop the conjunction from being a contribution to the issue *whether C* and thereby remove the special role of the second conjunct. In the examples of (31), this means that the issue addressed by the whole conjunction is not *whether B?* but something else. (32) provides some possible alternative issues. The examples all seem to be of the kind that denies a rule: linguists can read, wives behave when their husband is in hospital, it doesn't snow in summer. These rules are precisely the ones evoked in the first conjunct by interpreting the conjunctions, just like their variants with *no*, *but* and *aber* as giving distinct answers to *why whether B?* and relate directly to the wider issues assumed in (32).

(32) Are linguists any good?
     Is she a good person?
     Is the weather as it used to be?

While we think that this is an attractive option and the alternative of postulating that *a* lexically codes for a mirative reading is unappealing, there is reason for doubt. A variant of an example by Blakemore and Carston (2005, p. 571) is (33).

(33) A: Loose rugs are pretty harmless.
B: Well, John slipped on a Persian rug and he broke his leg.

Mirative uses of *and/a* like those in (31) usually can be paraphrased with *but/no* with the loss of mirativity, but (33) cannot be paraphrased by (34), which means that it cannot be addressing a *why-whether* question. It is not clear though that (33) is an instance of a mirative use of *and*.[6]

(34) (???) John slipped on a Persian rug, but he broke his leg.

How about the other cases? Does *and* mean ¬(WHETHER, 2ND)? Does *aber* mean ¬CORRECTION? Does *a* mean *multiple*? The prediction that they do have these additional effects is confirmed. Assigning *a* the meaning of DOUBLE is the most frequent line taken by the tradition on *a*, often next to other readings (Jasinskaja and Zeevat, ms). Apart from the mirative uses which were analysed above as avoiding the feature *2ND*, *and* is not used for arguing in different directions. For *aber*, consider example (35).

(35) Johann is nicht in Paris, sondern/aber bei seiner Frau.
John is not in Paris, but (he is) with his wife.

With *sondern*, John is with his wife instead of being in Paris. In particular, the sentence implies that John's wife is not in Paris. With *aber*, there is an expectation that John would be both in Paris and with his wife (because his wife lives in Paris), but contrary to this expectation, John is with his wife outside Paris. The fact that such non-correcting interpretations arise is predicted by the assumption that *aber* signals the absence of correction.

It is consistent to assume that these three effects of blocking arise by reasoning about alternatives, as e.g. in scalar implicatures, but if that is so one would expect similar effects: extra processing costs and the possibility of cancellation. It seems unlikely that there are such effects, but we are not aware of any empirical studies in this area.

4   Conclusion

This paper tried to show that additivity can be seen as a common "semantics" for the conjunctions under consideration. For this purpose it is necessary to define additivity as the property of giving an answer that is distinct on each dimension corresponding to a *wh*-element x_j of a question $?x_1 \ldots x_n \varphi$.

While there seems to be no other way to deal with the problem given by the example "I love you too" and the conjunctions discussed in this paper, it is a bit of a mystery why this is the crucial notion and not the simpler one: distinct answer to the same *wh*-question. It can be argued that blocking is again at work: for a good representation of the relations involved, it may be mandatory to construct answers constituted by distinct

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[6]*I* is quite possible in Russian for this example. This suggests that this is probably not a mirative use, which would require *a* in Russian.

tuples that coincide on one of their elements (e.g. $\langle John, Mary \rangle$ and $\langle John, Susan \rangle$) to be additive with respect to the question with one *wh*-element removed. This makes the distinctness marking that is the most probable functional advantage of additive marking unoperative for markers that do not have a fixed arity, such as *and*, *und* and *a*, while at the same time providing a functional motivation for the markers with a fixed arity (*i*, *no*, *aber*, *but* and *sondern*).

The account of blocking by means of extra meaning being generated by the same process that generates complementary distribution patterns needs further explanation. The departure point is the situation that the default marker of additivity competes with the specialised marker and that pragmatics decides whether the specialised marker is used: the speaker judges that he will be misunderstood without the special marker. This in turn turns the generic marker into a stochastic signal that the specialised meaning is not intended. The stochastic signal pushes up the probability of misunderstandings arising with the use of the generic marker for the special case. This will increase the frequency with which the speakers will judge that they will be misunderstood in that particular case. The end result is a complementary distribution and the generic sign being a categorial signal that the specialised meaning does not obtain. The argument is identical to the model of grammaticalisation proposed in Zeevat (2006).

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