



The pragmatics of sentential coordination with *and*[☆]

Diane Blakemore^{a,*}, Robyn Carston^{b,1}

^a*School of Languages and European Studies Research Institute, University of Salford,
Salford M5 4WT, UK*

^b*Department of Phonetics and Linguistics, University College London, Gower Street,
London WC1E 6BT, UK*

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Abstract

It is well known that utterances of certain *and*-conjunctions communicate a range of temporal and consequence relations between the states of affairs described by their conjuncts, and there are well established pragmatic accounts of how these elements of meaning arise. Our main focus in this paper is on a different set of *and*-conjunction utterances, which have so far received much less attention. These examples do not have a narrative function, so temporal and causal relations are not at issue. There are broadly two types of case: those that play an argumentational role and those that express an attitude of surprise/disquiet to the co-occurrence of two states of affairs. We develop a relevance-theoretic pragmatic account of the full range of interpretations and show how it is able to explain (i) the interpretive disparities between *and*-utterances and the corresponding cases with *but*, and (ii) why *and* may be used together with some discourse markers, such as *moreover*, but not with others.
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* Corresponding author. Tel.: +44-161-2954-948; fax: +44-161-2955-335.

E-mail addresses: D.Blakemore@salford.ac.uk (D. Blakemore), robyn@ling.ucl.ac.uk (R. Carston).

¹ Tel.: +44-20-7679-3174; fax: +44-20-7383-4108.

1. Background

There is a well-established strategy for maintaining a minimal truth-functional semantics for what are taken to be the natural language counterparts of the logical operators, that is, such words as *and*, *or*, *not*, *if*, etc.² This strategy consists of showing how the non-truth-functional suggestions which are conveyed by utterances containing these expressions are due to pragmatic principles which govern rational communicative interaction; in Grice's case, these are, of course, his much-cited maxims of conversation.

For instance, utterances of certain *and*-conjunctions, such as those in (1) and (2), are understood as communicating that the states of affairs described in the conjuncts occurred in a temporal sequence and this meaning is taken to be a matter, not of the semantics of *and*, but of a maxim-driven pragmatic inference.

- (1) a. She jumped on the horse and rode into the sunset.
 ≠/≠ b. She rode into the sunset and jumped on the horse.
- (2) a. He gave up semantics and felt much happier.
 ≠/≠ b. He felt much happier and gave up semantics.

But just how general is the particular maxim which, according to Grice, accounts for the suggestion of temporal sequence conveyed by *and*-conjunctions?³ This maxim, a sub-maxim of the category of Manner, requires that speakers present their material in an orderly fashion, which in the case of a narrative means that their utterances should match the chronology of the events being described (Grice, 1981: 186). Clearly, this maxim is not specific to *and*-utterances, but applies equally to non-conjoined sequences:

- (3) a. She jumped on the horse. She rode into the sunset.
 ≠/≠ b. She rode into the sunset. She jumped on the horse.

On the other hand, it is specifically about utterances which are intended to locate events in time, and there are plenty of utterances, including utterances of *and*-conjunctions, which are not intended to simply narrate events. Consider, for example, the *and*-conjunction you have just read, or the ones in (4) and (5B):

- (4) Paul is a linguist and he can't spell.

² For the purposes of this paper, we accept the standard Gricean view that the encoded semantics of *and* is identical to the truth-functional conjunction operator, &. However, while we continue to favour as minimalist a semantics as possible (with all richer meanings pragmatically derived), we no longer assume that this truth-functional account will, ultimately, prove to be the correct analysis of the *linguistically* encoded meaning of *and*, nor that the semantics of natural language connectives should generally be assumed to be identical with that of the logical operators. For discussion of this point, see Carston (2002: Section 3.7.2).

³ As Posner (1980) has shown, the range of temporal, cause/consequence and other relations that can be communicated by *and*-conjunctions is much wider and more fine-grained than examples (1) and (2) suggest. We take this as further evidence of the need for a pragmatic explanation. However, since our main concern in this paper is with *and*-conjunctions that do not communicate any kind of temporal or causal relation, we do not look at these cases here. For further discussion, see Carston (2002, chapter 3).

- (5) A: Shall we start without Jane?
 B: Well, she did say to start if she was late, and we have been waiting for half an hour now.

It might be argued that (4) and (5B) are just the sort of examples that we *don't* need to be worried about. For their interpretation is not affected by the order of their conjuncts (see 4' and 5B'), which suggests that this is a use of *and* in which it is equivalent to the logical operator &.

- (4') Paul can't spell and he is a linguist.
 (5B') Well, we have been waiting for half an hour now, and she did say to start if she was late.

However, these utterances do seem to communicate suggestions over and above the truth of their conjuncts: some sort of contrast or unexpectedness in (4) and an accumulation of evidence for some conclusion in (5) (see also König, 1985; Kitis, 1995, 2000). So, if the arguments for a minimal semantics for *and* are to be maintained, we need to be able to show that these effects can be accommodated in a pragmatic theory, just as those of the narrative *and*-conjunctions in (1) and (2) can.

Apart from conjoined utterances which do not describe events at all, there is a range of cases which do describe events but present them in an order opposite to the one which would be presumed to hold:

- (6) She did her BA in London and she did her A-levels in Leeds.
- (7) A: Did John break the vase?
 B: Well, the vase broke and he dropped it. (example due to Larry Horn)
- (8) A: Bob wants me to get rid of these mats. He says he trips over them all the time. Still, I don't suppose he'll break his neck.
 B: Well, I don't know. JOHN | broke his LEG | and HE | tripped on a PERSian RUG |
 [upper case indicates accented syllables; 'l' marks intonation phrases (IPs); a fall-rise tone is likely on 'John' and 'he']

There are various ways in which these problems could be dealt with. One is to retain a special-purpose temporal ordering principle, like Grice's sub-maxim of manner, which applies just to those discourse sequences that do present events in chronological order, and to regard other sequences as exceptions to this principle. (See, for example, Dowty's (1986) 'temporal discourse interpretation principle' and the discussions of it in Smith (1990) and Wilson and Sperber (1993b).) A distinct but related approach is to develop different sorts of principles for different kinds of discourse: temporal ordering principles for narratives, other principles for argumentative discourse, still others for inquiries, and

so on.⁴ Contrary to these sorts of approaches, we believe that a more explanatory and unified approach is possible, in terms of a single pragmatic principle, the communicative principle of relevance, which constrains the interpretation of all utterances in all kinds of discourses.

As already noted, the case for a general, non-construction-specific account of the interpretation of *and*-conjunctions is strengthened by the fact that the suggestions conveyed by conjunctions like (1) and (2) are also carried by their juxtaposed counterparts, as in (3). However, as Bar-Lev and Palacas (1980) have shown, there is a range of cases for which this parallel breaks down. For example, in the juxtaposed sequence in (9a) the second segment can be interpreted as an explanation for the state of affairs described in the first, an interpretation which is not available for the conjoined utterance in (9b). Similarly, while it is possible to interpret the second segment of (10a) as a conclusion drawn from the first, this is not a possible interpretation for the conjoined utterance in (10b):

- (9) a. Max fell asleep; he was tired.
 b. Max fell asleep and he was tired.
- (10) a. These are his footprints; he's been here recently.
 b. These are his footprints and he's been here recently.

This might seem to indicate that the semantics of *and* cannot, after all, be as minimalist as simple truth-functionality and, indeed, Bar-Lev and Palacas propose a richer semantics on the basis of these and other examples.

We have addressed the issues raised by these interpretive discrepancies in previous work (Carston, 1993, 2002; Blakemore and Carston, 1999), arguing against richer semantic accounts and in favour of the minimalist semantics, complemented by an inferential pragmatics constrained by a single cognitively-grounded principle of relevance. We adopt the same approach in this paper, but focus our attention on the issues raised by non-narrative examples, such as those in (4)–(8). Our main aim here is to demonstrate that the relevance-theoretic account can be extended to capture the interpretations of those *and*-utterances for which temporal and causal relations are not at issue. The longer term aim, towards which this paper is a step, is to provide a unitary pragmatic account of the interpretations of *all* utterances employing sentences coordinated with *and* (Blakemore and Carston, forthcoming). In later sections of the current paper, we show how the account also provides an explanation for why particular inferential relationships are precluded from *and*-utterances. This enables us, first, to account for interpretive disparities between utterances containing *and* and analogous cases with *but*, and, second, to explain why *and* can be followed by certain discourse markers (for instance, *furthermore*, *indeed*) but not by others (for instance, *however*, *so* on certain of its uses).

⁴ For some discussion of the role in interpretation of special characteristics of such discourse types as 'exchange', 'debate' and 'inquiry', see Green (1995). For a wider discussion of the role of genre in pragmatics, see Unger (2001).

2. Outline of a relevance-theoretic analysis

Our account rests on a development of the position, introduced in Blakemore (1987), according to which (i) in a conjoined utterance, the presumption of relevance is carried by the conjoined proposition as a whole rather than by each constituent proposition, and (ii) the interpretations which are permitted just by the non-conjoined sequences in (9)–(10) are only possible where an utterance expresses two propositions each of which is processed individually for relevance. The original account was restricted to cases of *and*-utterances with a narrative type interpretation, that is, to cases whose relevance lies in a single conjoined explicature which is a representation of a scenario in the world (what Halliday and Hasan (1976) call ‘external’ interpretations).

However, in this paper, we show that the conjuncts of an *and*-utterance may make a rather different sort of contribution to the interpretation of the utterance, in that they may be detached from the conjunctive logical form and function as independent premises in the process of inferring an intended cognitive effect. The important point is that, in such cases, although they are no longer conjoined, the conjuncts must function collectively in the derivation of the cognitive effect. The analysis we propose is intended to accommodate both types of case, narrative and non-narrative. This unitary account, which depends heavily on relevance-theoretic assumptions, can be summed up as follows: an utterance of the form S_i and S_{ii} must have at least some cognitive effect in whose derivation both the proposition expressed by S_i and the proposition expressed by S_{ii} play parallel inferential roles. This also provides the basis for a more precise explanation than that given in (ii) above, of the various interpretive discrepancies between *and*-utterances and their non-conjoined counterparts. The essence of this is that, because they are not explicitly coordinated, the propositions expressed by juxtaposed cases can enter into inferential processes in which they play quite disparate roles.⁵

In this section, we show that this extension to the account, like the original, falls out from the principle of relevance together with the lexical and syntactic structure of utterances containing *and*. In the following sections, we show that it can explain aspects of the interpretation of conjoined utterances that were not explained by the original account. On the one hand, our analysis allows us to explain both chronological and non-chronological interpretations of conjoined utterances, including those in which *and* is followed by a discourse marker associated with the cognitive effect of strengthening, e.g. *moreover*. On the other hand, it allows us to explain why the interpretation of *and*-utterances cannot involve the inferential procedures associated with the use of *but* or *so*.

First, here are some brief reminders of the relevance-theoretic picture. To say that a proposition meets the presumption of relevance is to say that, without incurring any extraneous processing costs, it yields the cognitive effects which are necessary for the utterance which expresses it to achieve the level of *optimal relevance*. Cognitive effects are simply the result of the various ways in which a new item of information can interact with the addressee’s assumptions about the world to yield an improved representation of the world (e.g. by strengthening assumptions, contradicting and eliminating assumptions, or

⁵ For a more comprehensive account of the implications of this analysis for interpretive discrepancies between *and*-utterances and their juxtaposed counterparts, see Blakemore and Carston (forthcoming).

by implying new assumptions). Relevance is defined in terms of cognitive effects and the processing effort required for their recovery, so it is a matter of degree, increasing with the number of effects and decreasing with the amount of processing effort. According to the Communicative Principle of Relevance, a presumption of optimal relevance is conveyed by every act of ostensive (overt) communication. Optimal relevance, on Sperber and Wilson's, 1995 definition, is the level of relevance achieved when the utterance is (i) relevant enough to be worth processing, and (ii) the most relevant one compatible with the speaker's abilities and preferences. It is this single communicative principle (rather than a collection of maxims), grounded in more fundamental assumptions about cognitive processing generally, that regulates the production and interpretation of utterances. Following a least effort processing path, hearers look for an interpretation which satisfies their expectation of relevance and when they find one they stop processing; speakers are assumed (with certain caveats) to be observing the presumption.

The most important implication of the Communicative Principle of Relevance for our current purposes is that a hearer is entitled to assume that the processing effort demanded by a speaker will not be gratuitous. This means that the question for a hearer presented with a conjoined utterance which has *and* as the coordinator is how he should justify the processing effort entailed by the syntactic and lexical structure the coordination involves if *and* means no more than the truth-functional operator &. From a purely logical point of view, it seems that the speaker might just as well have produced a sequence of two individual utterances. The issue is whether we can explain the contribution made by the use of *and* without having to abandon the minimal truth-functional semantics, which we, like Grice, have argued for.

The suggestion in Blakemore (1987) was that this processing effort is justified in cases of utterances containing *and* if the conjoined proposition yields effects over and above the effects of each of the conjuncts taken individually. According to this argument, each conjunct *may* be relevant in its own right, but this is not what is guaranteed by the principle of relevance; it is the conjunctive proposition expressed which carries the presumption of optimal relevance as a whole, and hence is processed as a single pragmatic unit. However, when we look at non-narrative utterances involving *and*, it is not clear that we would always want to say that their relevance lies in the cognitive effects derived from the explicature consisting of the conjoined proposition expressed:

- (5) A: Shall we start without Jane?
 B: (Well,) she did say to start if she was late, and we have been waiting for half an hour now.

- (11) Hermione is very beautiful, and (furthermore) she comes from a wealthy family.

In (5), B's reply implicates that they should start without Jane and this implicature derives from an inferential process that takes as its input, not the single conjoined proposition expressed, but rather the two distinct propositions expressed by the conjuncts, which are jointly necessary (along with other accessible premises, of course) for the derivation of the intended conclusion.

The interpretation of (11) is similar in that both conjuncts appear to play an evidential role in the derivation of the same contextual implication(s) (*Hermione has a lot going for her, Her marriage prospects are excellent*, etc.), except that, in this case, it looks as if there are effectively two separate and parallel inference processes each issuing in the same conclusion or conclusions, which are thereby communicated with greater strength than they would be by either of the conjuncts taken alone. When the discourse marker *furthermore* is used, the intended effect of a strengthening by the second segment of a contextual implication of the first segment is made more explicit. In both examples, there are other formal indications that the conjuncts are to be detached from the conjunctive structure: there is an intonational distinction between the two parts, and, optionally, the *and* in these cases may carry heavy stress (which does not seem to be possible in the narrative cases).

The analysis we propose here is the same as the original in that it assumes that the processing effort entailed by the use of *and* in an utterance of the form S_i and S_{ii} is justified by cognitive effects which cannot be derived from either of the individual conjuncts alone. However, in contrast with the original analysis, it does not assume that these cognitive effects are, in every case, derived from the explicature which consists of the conjunction of the two conjuncts. In some cases, they are effects whose derivation involves the two conjuncts functioning as distinct premises, either together in a single inferential process or separately in distinct inferential processes which, nevertheless, result in the same conclusion. Accommodating this sort of case involves a small change to the explicature analysis of conjunctive utterances which was assumed in our previous papers.

The claim is that utterances which employ a sentential conjunction explicitly communicate not only a conjoined proposition [P & Q] but also the propositions expressed by the individual conjuncts [P], [Q], so that these latter propositions are also available to pragmatic inference. This follows directly from the definition of “explicature” suggested and independently motivated in Carston (2002, Section 2.3.1), which itself is a relatively minor modification of Sperber and Wilson’s (1986/1995: 182) original definition. According to the revised definition, a proposition communicated by an utterance is an explicature of the utterance if and only if it is a development of either a linguistically encoded logical form of the utterance or of a sentential subpart of that logical form. The conjuncts of the *and*-utterances that are the focus of this paper meet this definition: they are communicated propositions (that is, they fall within the set of propositions which the speaker manifestly intends to make manifest to the hearer) and they are the result of pragmatic enrichments of sentential subparts of the overall (conjunctive) logical form of the utterance.⁶

The upshot is that we abandon the view that a conjoined utterance must always be treated as a single processing unit—at least in the sense that this refers to a single conjunctive explicature which carries the presumption of optimal relevance—in favour of a more

⁶ It might be thought that the availability of the individual propositions expressed by the conjuncts is a simple matter of the logical inference of *and*-elimination applied to the conjoined proposition expressed, so that there is no need for this apparent complication to the definition of explicature. First, as already mentioned, the motivation for the amended definition of explicature rests on a range of cases which are quite independent of the *and*-conjunctions. Second, it is just not the case that logical elimination rules (as construed within relevance theory—see Sperber and Wilson, 1986/1995: Section 2.4) can inevitably be applied to the basic-level explicature in the derivation of sub-explicatures. For fuller discussion, see Carston (2002: Sections 2.3.1 and 2.3.3).

general analysis in which a conjoined utterance must have some cognitive effect which is the result of an inferential process or processes involving both conjuncts as input.

3. Applying the analysis

3.1. Conjoined explicatures: narrative cases

There are various ways in which a conjoined utterance may yield effects over and above the effects of each of its conjuncts taken individually. In this section, we consider the sort of narrative examples that Grice and Dowty were concerned with when they formulated their principles of temporal ordering (e.g. (1)–(2) above). In the following sections, we turn to what we are calling the non-narrative cases in which temporal ordering plays no role in the derivation of cognitive effects (e.g. (4)–(8)).

As shown in Carston (2002), a conjoined utterance in which events are narrated may achieve relevance because its conjuncts represent components of a scenario which itself is an instance of a more general stereotypical scenario; that is, its conjuncts are instances of propositions which are stored together in memory as a single cognitive unit or *schema*. For example, (1) will be understood to map onto a cognitive unit in which one event (jumping on a horse) is a necessary precursor for another (riding into the sunset), and its relevance will lie, partly at least, in ‘the reinforcing effect [it has] on the schema as a whole and the modifications it might introduce to subparts of the schema’ (Carston, 2002: 244). This will result in an enrichment of the semantic representation (logical form) of (1), giving the explicit content indicated in the representation in (12):

(12) She_i jumped on the horse_j at t_n and she_i rode the horse_j into the sunset at t_{n+1} .

If an *and*-utterance is to achieve relevance in this way, that is, by interacting with a highly accessible narrative script, then it would seem to follow from the communicative principle of relevance that a speaker will present the propositions representing the events in chronological order, thereby saving the hearer from unnecessary processing effort. This is not to say that these utterances are produced and interpreted according to a specific temporal sequencing principle which requires speakers to present their descriptions of events in the order that they occurred. Rather, the chronological interpretation follows from the quite general presumption of optimal relevance, which accompanies all acts of ostensive communication and makes no mention of temporal ordering.

The claim here is that human cognition is set up so that it finds it natural (hence least costly) to process incoming information about events—whether ostensibly communicated or not—as chronological (in the absence of contrary indications, of course). After all, in the case of a sequence of visual or auditory stimuli caused by events taking place in the natural world rather than by an intentional agent, we cannot but interpret them to a significant extent in the order in which they occur because they impinge on our receptors in that order. (For further discussion, see Carston, 2002, chapter 3). It follows that when there is no highly accessible script, as in the examples in (13), the hearer will tend to take the natural processing track, that is, the chronological one.

- (13) a. Bill saw his therapist and fell down a manhole.
 b. Mary put on her tutu and (she) pruned the apple tree.

There seems to be something slightly strange or unsatisfactory about these examples taken out of any specific context. This is most likely due to the difficulty that a hearer has in accessing a script which would enable him to map the conjunction onto a cognitive unit so that the utterance can achieve relevance over and above the relevance of each of its conjuncts. These processing difficulties are not, though, as great as those that arise when there *is* an accessible script but it clashes with this ‘natural’ processing track. For instance:

- (14) a. Bill went to bed and he took off his shoes.
 b. She rode into the sunset and jumped on her horse.

In these cases, it seems that, in the absence of any other linguistic nudging (special intonation, etc.), it is the natural processing track that prevails, resulting in a rather peculiar chronological interpretation; so, for (14a), we understand that Bill went to bed before he took off his shoes.

It’s worth noting at this point that the examples in (6)–(8) appear to be exceptions to this generalisation. For instance, the interpretation of (7B) (*Well, the vase broke and he dropped it*) does not result in the strangeness that characterises the examples in (14); that is, the interpretation is not at odds with the stereotypical script (a person drops a vase with the consequence that the vase breaks), even though the two events are presented in the reverse order. The next question then has to be why this is so: why and how does the hearer recover an interpretation which does not conflict with the script rather than taking the standard processing route to a chronological interpretation and finding himself with a disconcerting clash? We address this in the next section.

3.2. Conjoined explicatures: argumentation cases

Let’s briefly reconsider (14a) (or, at least, an elaborated version of it). It is not too difficult to envisage a context in which an utterance of this sentence could be given a non-chronological interpretation: suppose a parent is trying to persuade a small child that she should take off her shoes before she gets into bed, by pointing out that this is what her older brother, Bill, did. In this context the utterance will have the same sort of accentuation and intonation as the one in (8) (repeated below):

- (14) a’. BILL went to bed and | HE took off HIS shoes.
 [fall-rise nuclear tone in each IP]
- (8) A: Bob wants me to get rid of these mats. He says he trips over them all the time. Still, I don’t suppose he’ll break his neck.
 B: Well, I don’t know. JOHN | broke his leg | and HE | tripped on a PERSian RUG |

Like (8B), (14a') is interpreted not as a narrative but as an example or an argument which demonstrates the falsity of an assumption held by the hearer (*I will not take off my shoes*). In both examples, the demonstration depends crucially on the fact that the utterance is a conjunction, since neither conjunct is relevant as an example or an argument on its own. For instance, in (8) the speaker B takes her interlocutor A to be quarrelling not with the idea that people break parts of their anatomy nor with the idea that people trip over rugs, but only with the idea that there are people who fit both descriptions. A's earlier assertion that Bob will not break his neck is derived from a view of the world in which either (a) none (or virtually none) of the people who have broken bones are people who have tripped over rugs, or (b) none (or virtually none) of the people who have tripped over rugs are people who have broken bones. By citing John as an example of someone who fits both descriptions, the speaker of (8B) could, in principle, be making her point by contradicting either of these assumptions. However, the form of her utterance, and, in particular, the emphasis on the second conjunct suggests that she is denying the first assumption rather than the second. If she had intended to contradict the second assumption, she would have produced (8') instead.

(8') B: Well, I don't know. JOHN tripped on a PERSian RUG and HE broke his LEG.

In both cases, the fact that John is a member both of the set of people with broken bones and of the set of people who have tripped over rugs might be explained by the speaker and, indeed, by the hearer, in terms of a causal assumption relating falling over rugs and breaking limbs. However, in neither case is the identification of this assumption part of the speaker's communicative intention, nor does it play any role in determining the order of the conjuncts.

In contrast with (8B), it seems that (14a') cannot be replaced by (14'a') in a situation where the speaker is trying to persuade the child to take off his shoes.

(14') a'. BILL took off HIS shoes and HE went to bed.

For, although the demonstration depends on the conjunction of the two propositions, it is the fact that Bill took his shoes off which the speaker is hoping will impress the child.

The general point about the interpretation of (8B), (8'B) and (14a') is that the events described are not taken to have occurred in the opposite order from that of the standard scripts in each case, even though the order of presentation is at odds with the scripted order. However, they are not cases of reverse or backwards temporal ordering interpretations either, because they are not intended or understood as narrative cases, but rather as arguments against a position the hearer is taking. They are characterised by particular stress and intonation patterns which indicate to the hearer that they are not simple unmarked narrative cases calling for the unmarked, least effortful, assumption of chronological progression. Hence they are not, after all, counterexamples to the processing generalisation made in the previous section.

The example in (7), repeated here, works somewhat differently, though it too is not a narrative case:

- (7) A: Did John break the vase?
 B: WELL | the VASE BROKE | and HE dropped it.
 [fall-rise nuclear tone in each IP]

It seems that the speaker is exploiting the principle of relevance by deliberately choosing a formulation which does not reflect the scripted and so most accessible order. The hearer is put to some extra processing effort by this formulation and should therefore be able to derive some extra, or at least other, effects than those derivable from the more straightforward chronological ordering. One likely possibility is that the processing effort is offset by the recovery of the information that the speaker is not prepared to commit herself to the temporal/causal premise (that the dropping event preceded and caused the breaking event) and so maintains neutrality with regard to whether John did or did not break the vase. If the hearer does conclude that John broke the vase, then this is a conclusion for which he alone must take responsibility. There are further mildly humorous effects which follow from this, hinging on a kind of mock discretion the speaker is displaying, given the simple and obvious nature of the inference to the conclusion which she is apparently not drawing. As we would expect, these effects seem to be rather less accessible if the conjuncts are produced in the opposite order (that is, matching the chronological order) as in (15), whatever the accentual and intonational patterns used.

- (15) A: Did John break the vase?
 B: Well, he dropped it and it broke.

3.3. Conjoined explicatures: attitudinal cases

The examples discussed in the previous subsection are cases in which the order of the conjuncts is determined by something other than the chronological order of the events they represent. There are other cases in which the order of the conjuncts seems to have no relevance at all. For example, it doesn't seem to matter whether the answer to A's question in (16) is as in B or as in B'.

- (16) A: Did Mary do all of her education in the States?
 B: No. She did her BA in London and her A-levels at home in Leeds.
 B': No. She did her A-levels at home in Leeds and her BA in London.

The conjuncts here seem to constitute a list with nothing hinging on the order of the items in it. The relevance of the explicitly conjunctive utterance is that the conjoined proposition which it expresses provides a single answer to a single (implicit or explicit) question. B's initial negative response to A's question raises the further question 'so, where else did she do parts of her education?'. The conjunctive utterance answers this implicit question and

the processing of the two conjuncts as a single unit provides more support for the negative answer than would each taken individually.

Another sort of case where the reversal of the conjuncts makes little difference to its interpretation was given in (4), repeated here:

- (4) a. Paul is a linguist and he can't spell.
b. Paul can't spell and he's a linguist.

The relevance of this case does not seem to lie with any argumentative role it plays or in supplying an answer to a question (though each of these might be possible in appropriate contexts). Still, given what we've said about the way the principle of relevance applies to utterances containing *and*, it ought to follow that the conjunction has effects which do not arise when each conjunct is taken individually. The most obvious property of the conjuncts in (4), on which a cognitive effect might hinge is the apparent contrast or conflict between them. Examples of this sort are discussed by Kitis (1995, 2000), who claims that they show that *and* does much more than conjoin the two clauses. She argues that in the example in (17) (slightly adapted here) *and* functions as an 'emotional device' that registers the speaker's involvement.

- (17) Her husband is in hospital and she is seeing other men.

Her aim is to explain not only how *and* comes to have this function, but also why it is used in preference to *but*, which is 'the prototypical adversative or contrastive connective' (Kitis, 2000: 377):

- (18) Her husband is in hospital but she is seeing other men.

These are questions that we too must address.⁷ In fact, the use of *and* in examples such as (4) and (17) has led some authors (e.g. Rouchota, 1990: 69 and Iten, 2000: 224) to argue that it is possible to derive the same 'denial of expectation' interpretation from utterances containing *and* as is typically derived from the analogous *but*-utterances. Hence it follows that the relevance of *and*-conjunctions does not always lie in the cognitive effects derived from a single conjoined explication. As the discussion above in Section 2 indicates, we agree that it is not right to maintain the assumption that *and*-utterances explicate only a single conjoined proposition and that this is inevitably the source of the effects that justify the use of the conjunctive sentence. However, like Kitis, we think there are important

⁷ Kitis's own explanation is what she describes as a 'frame-theoretic' one: whereas *and* is typically used to conjoin 'predictable default values within the same frame', *but* is used to 'call up a distinct frame' (2000: 377–378). According to her, the use of *and* as an emotional device in examples like (17) is explained by the fact that it is making an 'abortive attempt at conjoining two incompatible frames' (2000: 378). And it is the fact that *but* calls up distinct frames that allows it to function in (18) as a 'back-track device', as she calls it. Her analysis captures some important distinctions, but we prefer to recast it so that it meshes with the more general account of how utterances are processed for relevance.

interpretive differences between these *and* and *but* cases; specifically, we disagree with the view that the interpretation derived for the *and*-utterances in (4) and (17) can be identified with the denial of expectation interpretation that arises for (18).

The first thing to note is that the interpretation derived from the *and*-utterance in (17) is not affected by the order in which the conjuncts are presented, whereas the interpretation of the corresponding *but* case in (18) is. Thus the interpretation of (17') is the same as the interpretation of (17) whereas (18') cannot be understood in the same way as (18).

(17') She's seeing other men and her husband is in hospital.

(18') She's seeing other men but her husband is in hospital.

In both (17) and (17') the speaker is understood to be communicating an attitude of surprise or outrage at the fact that the two conjuncts are true together, hence the symmetry of these cases. However, in the *but* cases in (18) and (18') she can only be taken to be suggesting that an inference that one might have drawn from the first segment is illegitimate and hence that its conclusion is untrue and must be eliminated (a denial of expectation interpretation). Since the conclusion that is eliminated depends on the first segment, it is not surprising that the interpretation of the *but*-utterance is affected by the order in which the segments are presented. So, whereas in (18) the hearer could take the speaker to be suggesting that the inference that the woman is not having a lot of fun is not legitimate, in (18') she might be taken to be suggesting that the inference that the woman is having a lot of fun is not legitimate.

This is not to say that expectations do not play a role in the interpretation of the *and* examples: the point of an utterance of (17) or (17') lies in the communication of the speaker's attitude (of surprise or disapproval), which itself hinges on the acceptance of the assumption that a woman is not expected to see other men while her spouse is in hospital. In other words, the communication of the emotional attitude depends on the hearer's ability to see that the truth of the conjunction is at odds with a mutually manifest assumption about the way women are expected to behave. However, while the hearer is expected to recognise that the truth of the conjunction is at odds with this assumption, he is not expected to eliminate it. On the contrary, the communication of outrage/surprise depends on the hearer's acceptance of its truth. Naturally, these observations carry over to (4), where the explicature presents a conjunction of facts that conflicts with the standard assumption that linguists are literate, once again resulting in the expression of an attitude of surprise/bewilderment by the speaker towards the conjoined proposition.⁸

⁸ There is a relevance theory-internal classificatory point that remains to be resolved here regarding the status of the communicated assumption which expresses the speaker's attitude of surprise/disapproval. It may be a higher-level explicature of the utterance (see Wilson and Sperber, 1993a; Carston, 2002: Section 2.3.1), or it may be an implicature. While implicatures (intended contextual implications) are one kind of cognitive effect, technically, higher-level explicatures are not. So, if the attitudinal proposition is best construed as a higher-level explicature, as seems likely, the cognitive effects that justify the use of *and* will have to be derived from this proposition; in the case of (17)/(17'), they could include implications concerning the speaker's view of the woman's character.

The asymmetry of the *but* cases, on the other hand, follows from the very semantics of the word. As argued in Blakemore (1987, 1989, 2002), what *but* encodes is a procedure that specifies that the segment it introduces achieves relevance by contradicting and eliminating a mutually manifest assumption or assumptions. In the case of (18), the manifest assumption at issue is derived as part of the interpretation of the first segment. This means that while the two segments joined by *but* can be seen as both playing a role in the inferential process which yields the intended cognitive effect, their roles are very different: the role of the first segment is as an input to the inferential process which makes manifest an assumption (e.g. *She's having a tough time*), while the role of the second is as an input to the inferential process which results in a contradictory assumption (e.g. *She's having fun*), which eliminates the assumption made manifest by the first segment.

Furthermore, there are numerous examples of *but*-utterances in which the segment introduced by *but* is understood to lead to the elimination of an assumption which, although it is mutually manifest, has not been made so by the preceding segment. For instance, in (19), the *but*-segment is discourse-initial, so it patently cannot be understood to contradict an assumption which is communicated by a preceding segment, and in (20), the assumption that is to be eliminated (*Bill's party was for Mary's birthday*) is made manifest by the question in the previous utterance rather than by the first segment of the *but*-utterance.

- (19) [Speaker, who has received a shock, is given a whiskey]
But I don't drink.
- (20) A: Did you go to Bill's party for Mary's birthday?
B: I did go to Bill's party, but it wasn't for Mary's birthday.

In these cases, there is no sense at all in which one can say that two segments of a *but*-utterance are jointly involved in the derivation of the intended cognitive effect.

The crucial difference, then, between corresponding *and* and *but* utterances can be summed up as follows: in the *and* cases the two segments play the same role in the inferential processes leading to a particular cognitive effect, while in the *but* cases the two segments play different inferential roles. If this is right, it is not surprising that (17) and (18) have different interpretations. Since *but* constrains the interpretation of the proposition it introduces in such a way that it contradicts a manifest assumption, an assumption which in the case of (18) is part of the interpretation of the first segment, it cannot be used to communicate an attitude towards a proposition consisting of a conjunction of the two segments. It also follows from the arguments of this paper that an *and*-conjunction cannot have the 'denial of expectation' interpretation that is recovered from (18). The claim is that the use of *and* in an utterance of the form S_i and S_{ii} is justified only if both conjuncts play parallel roles as input to the inferential process involved in the derivation of some cognitive effect. While the interpretation of (18) does happen to depend on both segments, it does not involve

them as conjuncts of an explicature, both of which are required to play joint and parallel roles in establishing the relevance of the utterance; on the contrary, the inferential roles played by the two segments in (18) are quite distinct and at odds with one another.

To end this section, let's consider the *and* counterpart to the discourse-initial use of *but* above in (19):

- (21) [Speaker, who has received a shock, is given a whiskey]
And I don't (even) drink.

The question is how this sort of case can be reconciled with our claim that the use of *and* must be justified by cognitive effects whose derivation depends on the inferential input of *both* conjuncts. First, note that, as with the other *and* examples in this section, the salient interpretation of (21) seems to be an expression of dismay (negative surprise) on the part of the speaker. Clearly, this attitude isn't directed at the proposition expressed by the articulated conjunct (*S doesn't drink alcohol*) on its own, but rather at a more complex proposition of which this one is a part. Given the now widely accepted fact that pragmatic inference plays a major role quite generally in the recovery of the explicit content of utterances by enriching the linguistically encoded logical form, we suppose that the missing first conjunct is recovered by such a process of pragmatic enrichment. In the case of (21), it is the assumption, mutually manifest and highly accessible in the context, that the speaker is being given alcohol as a palliative. The resulting conjoined explicature is at odds with the standard assumption that someone who doesn't drink alcohol shouldn't have alcohol pressed upon them. Thus, provided the pragmatic enrichment story is accepted, the example works in just the same way as the other cases for which the crucial cognitive effect hinges on the expression of an attitude (of, broadly speaking, surprise) to the content of the conjoined explicature.

Every example of sentential conjunction discussed in this section and the preceding one has been a case in which the processing effort that follows from the use of *and* is justified by the fact that both conjuncts contribute to a conjoined explicature which has relevance (cognitive effects) over and above the relevance of each conjunct taken individually. In some cases, relevance is achieved by using a highly accessible narrative script to arrive at an enriched propositional form which includes information about the chronological order of the events represented. In other cases, the order of the conjuncts is either immaterial to the intended cognitive effects or is determined by factors other than the chronological order of the events represented. In the next section, we turn to cases where it is not the conjoined explicature that is responsible for the required cognitive effects.

3.4. Detached conjuncts: argumentation cases

As we saw in Section 2, the two conjuncts of an *and*-utterance may function separately, though collectively, in the derivation of a cognitive effect, a property

which seems to be reflected in the prosodic structure of the utterance. Recall (5) and (11):

- (5) A: Shall we start without Jane?
 B: Well, she did say to start if she was late, and we have been waiting for half an hour now.
- (11) Hermione is very beautiful, and (furthermore) she comes from a wealthy family.

Deriving the intended interpretation of (5B) seems to involve an inferential process along the following lines (we assume various elements of pragmatic enrichment of the unjoined explicatures):

- (22) a. Jane said to start without her if she was late. } *Explicatures*
 b. We have been waiting for Jane for half an hour now. }
- c. If someone says to start without her under such and such conditions, it is reasonable to start without her if those conditions pertain. *Highly accessible contextual assumption*
- d. We should start without Jane if she is late. *Conclusion inferred from (a) and (c)*
- e. If we have been waiting for half an hour for Jane, she is late. *Highly accessible contextual assumption*
- f. Jane is late. *Conclusion inferred from (b) and (e)*
- g. We should start without Jane. *Conclusion inferred from (d) and (f)*

The important point, given our claim about the pragmatics of *and*-utterances, is that the two conjuncts are playing the same kind of role here, as premises which are jointly necessary in the derivation of the conclusion, which is an implicature of B's utterance.

The process of interpreting (11) is similar, except that each of the two detached conjuncts is a premise in a distinct but parallel inference resulting in the same conclusion (say, that Hermione has excellent marriage prospects), which is, therefore, all the more strongly communicated. Given the left-to-right nature of on-line processing, this can be seen as a case of the second conjunct having the cognitive effect of strengthening a cognitive implication of the first conjunct. Note the symmetry of both of these examples, so that while reversing the order of the conjuncts might make some difference to the order in

which the inferences take place, it would make no difference to the cognitive effect collectively achieved.

As (11) shows, such cases may involve the use of *and* in combination with the discourse marker *furthermore*. Other discourse markers which can occur in combination with *and* are *moreover*, *indeed* (as in (23)) and *after all* (as in (24)):

(23) John said he'd come and, indeed, here he is.⁹

(24) A: Shall we start without Jane?
B: Well, she did say to start if she was late, and, after all, we do want to finish by 6.00 p.m.

These examples reflect the fact that the propositions expressed by the conjuncts are distinct explicatures, detached from the conjoined proposition expressed, since the discourse markers, *furthermore/moreover*, *indeed*, and *after all*, must be understood as constraining the interpretation of the segments that contain them rather than the interpretation of a conjoined explicature. Thus, the use of *furthermore/moreover* in (11) indicates that the point of the segment it introduces is to provide further evidence for a manifest assumption (e.g. that Hermione has excellent marriage prospects); the use of *indeed* in (23) indicates that the relevance of the segment it introduces lies with its strengthening effect on a manifest assumption, here an implication of the first segment (that John will come); the use of *after all* in (24B) indicates that the segment it introduces is relevant as an assumption which, although it is presumed to be manifest to the hearer, is not manifest to her as an assumption from which the answer to her question can be inferred (see Blakemore, 1987 on the procedure encoded by *after all*).

(25) A: Shall we start without Jane?
B: Yes, lets start now; (? and) after all, we do want to finish before 6.00 p.m.

Compare the use of *after all* in the conjunction in (24) with its use in (25), where *and* seems to be unacceptable:

The meaning of *after all* is the same in each case: it encodes the information that the segment it introduces is evidence or justification for a mutually manifest assumption. The crucial difference between the two cases is that in (25) the segment is being presented as evidence for the assumption explicitly communicated by the first segment in the sequence,

⁹ There are uses of *indeed* on which it does not combine with *and*, for example:

(i) The lecture was very good; (? and) indeed it was excellent.

However, in this example *indeed* indicates strengthening not in the sense of providing independent evidence for a cognitive effect derived from the first segment, but rather in the sense that the second segment is intended to replace an utterance in which the lecture was represented as being lower on a scale of quality. Since, on this interpretation, the two segments cannot be interpreted as functioning collectively in the derivation of a single cognitive effect, it is not surprising that *and* is not possible.

while in (24) it is being presented as further evidence for the assumption for which the speaker has already provided evidence in the first segment. In other words, while in (25) the two segments are related inferentially as conclusion and premise, in (24) they are related in the sense that they are both premises in (separate) inferences which have the same conclusion.

What is the point of providing two separate arguments for the same conclusion? As Sperber and Wilson (1986: 112–113) say, a conclusion which is independently implied by two different sets of premises inherits a degree of strength which is greater than it would receive from either set independently. Hence their label for the effect achieved in these examples—*independent strengthening*. In the *and* cases involving *after all* it seems that the second segment is intended to provide stronger evidence than the first by virtue of the fact that it is an assumption which the speaker believes is already accepted by the hearer. However, our point here is that, since each argument involves a conjunct of the utterance as a premise, it seems that once again we can say that both conjuncts are jointly necessary for the cognitive effect of strengthening (hence the acceptability of *and* in (24)). In contrast, only the second segment in (25) is involved as input to the inferential process which yields the cognitive effect intended by the speaker, the first being identical to the output of the process. In other words, as in the *but* example in (18) above, while the interpretation may depend on both segments, they do not play the same kind of role in its derivation. Hence the unacceptability of *and*.

Another inferential relation which seems to be precluded for the conjuncts of an *and*-utterance is the one signalled by *so* (on one of its uses):

- (26) a. These are his footprints; so he's been here recently.
 b. ??These are his footprints and so he's been here recently.

What *so* does in the non-conjoined case in (26a) is signal that the segment that it prefaces is to be interpreted as in a relation of logical consequence to some mutually manifest assumption, which in this case is the proposition expressed by the first segment. Given the preceding discussion, it should be fairly obvious why (26b) is unacceptable. According to our account of the pragmatics of *and*-coordinated utterances, the two conjuncts must play the same inferential role in the derivation of some cognitive effect and this is directly at odds with the relation of logical consequence between two (or more) propositions, where one is a conclusion and the other a premise on which the conclusion is based. Note that the examples in (26) are more explicit versions of those given earlier in (10) (repeated below), where there is an interpretive disparity between a juxtaposed sequence and the corresponding *and*-conjunction:

- (10) a. These are his footprints; he's been here recently.
 b. These are his footprints and he's been here recently.

While a logical consequence interpretation is very natural for (10a), it is quite inaccessible for (10b), which is more readily interpreted like the other *and*-conjunctions in this section,

that is, as providing two pieces of evidence pointing to one and the same conclusion, perhaps something like *he's not far away, we'll catch him soon*.¹⁰

As noted earlier, these argumentational cases of *and*-conjunction are symmetrical; the resulting cognitive effect is the same whichever order they are uttered in. However, (23), repeated here, appears to be an exception, with or without *indeed*:

(23) John said he'd come and (indeed) here he is.

The crucial cognitive effect here, to which both conjuncts contribute, is that John can be relied on, he is a man of his word. The evidence for this implication has its own internal structure (reflected to some extent in the tenses of the conjuncts): John said he would do something and he has *subsequently* done that thing. It looks as if it is this temporal order, which is intrinsic to the evidence provided by the conjuncts, that accounts for the asymmetry in this case. However, another angle on this example, which might extend to a greater number of other cases, is that the first conjunct provides a small amount of evidence in support of the proposition that John can be relied upon to turn up, while the second one provides overwhelmingly much stronger evidence to support this implication. Given the left-to-right nature of processing, one inevitably mounts a more compelling argument by building up the evidential picture, moving from the weaker grounds to the clinching argument.

Finally, let's consider an example that has been mentioned in the literature but not so far satisfactorily explained (see Blakemore and Carston, 1999; Kitis, 2000):

(27) A: I'm not sure that I liked John's friend. All he could talk about was logic.
B: AND (moreover) he'd never heard of relevance theory.

Recall the claim made in Section 3.3 that utterance-initial uses of *and* license *and*, *indeed*, require the pragmatic recovery of the unarticulated first conjunct. Assuming this is right, the conjoined explicature of B's utterance (perhaps better thought of as A's and B's joint utterance) is as given in (28), with each of the individual conjuncts also explicitly communicated:

(28) All John's friend could talk about was logic and he had never of relevance

¹⁰ Of course, there are many cases where *and* does combine readily with *so*:

- (i) He lost all his money and so he turned to a life of crime.
- (ii) She knew those were his footprints and so she deduced that he'd been there recently.

However, in these cases the constraint encoded by *so* is cashed out not as a relation of logical consequence holding between propositions, but as a cause-consequence relation holding between states of affairs, a relation which contributes to the conjoined explicature of the utterances. So these examples are cases of narrative conjunctions, as discussed in Section 3.1, where the cause-consequence relation between the states of affairs, a relation which is often supplied by pragmatic enrichment alone, happens to be made more explicit by the presence of *so*. For more discussion of these examples and of the two ways of cashing out the consequence constraint encoded by *so*, see Blakemore (1987: 87ff), and Carston (1993: 44–47).

The example then works in pretty much the same way as (5) and (11) above; it is another “and what’s more” sort of case. The two unconjoined explicatures (i.e. the conjuncts) play parallel roles, as premises in arguments with the same conclusion (that John’s friend is a dubious character), which is thus communicated with the strength it inherits from the two arguments.

4. Conclusion

According to the account we have given, *and* has a minimal (truth-functional) semantics and the various ways in which the conjuncts can be understood as relating to each other, as well as the restrictions on their possible relations, are explained in terms of the pragmatics of explicit coordination. On this relevance-based account, every utterance in which two sentences are coordinated with *and* communicates three explicatures, one of which is conjunctive, the other two of which are the propositions expressed by the individual conjuncts. In all cases, what justifies the processing effort entailed by the *and* structure is that the conjuncts function together as premises, whether conjoined or not, in the derivation of a cognitive effect. In some cases, including the narrative cases and the expression of an attitude to the co-occurrence of the two states of affairs in the conjuncts, the conjoined explicature as a whole functions as a premise in the inference that leads to the cognitive effect; in other cases, the two detached explicatures function together as premises in a single inference leading to the effect or as premises of distinct inferences both of which converge on a single effect. We have further claimed that, given the independently established assumption that there is extensive pragmatic enrichment at the level of explicit utterance content, this analysis carries over satisfactorily to utterance-initial occurrences of *and*.

There are several cases of sentential *and* that we have not addressed here and whose susceptibility to the analysis we have given has yet to be shown. Among these are cases of conjoined speech acts, the interesting question being why combinations of different speech acts are possible in some cases (for example, (29a), (29c) and (29d)) but not in others (e.g. (29b) and (29e)):

- (29)
- a. I went to the lecture and who do you think I saw?
 - b. *I went to the lecture and who was there?
 - c. He arrived very late and what a state he was in!
 - d. I am doing the dishes and don’t try to stop me!
 - e. *Your mother has already left and go home!

Potentially even more tricky are examples where *and* introduces a parenthetical:

- (30)
- a. I have to tell you, and I’m very sorry about it, that you haven’t got the job.
 - b. If she gets the job, and there is a reasonable chance of it, she’ll be happier.

Obviously, a truly unitary account of sentential coordination with *and* has to apply to these sorts of cases. This is a challenge we intend to confront in future work.

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