

The pragmatics of and-conjunctions: The non-narrative cases

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Abstract

Utterances of *and*-conjunctions can communicate a wide range of relationships between the states of affairs described by their conjuncts. They share these possibilities with their juxtaposed counterparts, but there are also some quite strong constraints on their interpretation which do not arise for the juxtaposed cases. Focussing in particular on a range of little discussed cases in which temporal sequencing is not at issue, we attempt a relevance-theoretic pragmatic account of the interpretations that do arise, and an explanation of the non-occurrence of the others.

1 Background

There is a well-established strategy for maintaining a minimal truth-functional semantics for the natural language counterparts of the logical operators in examples such as (1) and (2), where the states of affairs described in the conjuncts are understood as having occurred in a temporal sequence.

(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.

This strategy consists of showing how the non-truth-functional suggestions which are conveyed by utterances containing the expression in question are in fact due to principles which are about general properties of discourse or communication - in Grice's case, the maxims of conversation. But just how general is the particular maxim which, according to Grice, accounts for the suggestion of temporal sequence conveyed by *and*-

conjunctions?¹ 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 *and*-utterances, which are not intended to simply narrate events. Consider, for example, the *and*-conjunction you have just read, or the one in (4a):

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

It might be argued that (4a) is just the sort of example that we *don't* need to be worried about. It is, after all, equivalent to (4b), which suggests that this is a use of *and* in which it is equivalent to the logical operator &. However, this is to assume that an account of the interpretation of *and*-conjunctions should be limited to the explanation of temporal relations. As a number of writers have shown (see, for example, König 1985, Kitis 1995), *and*-conjunctions like (4) communicate suggestions over and above the truth of their conjuncts. 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.

One solution might be to retain a special-purpose sequencing principle, like Grice's sub-maxim of manner, for discourse sequences which do present events in chronological order and to regard other sequences as exceptions to this principle. This seems to be the approach of Dowty (1986), who proposes a temporal discourse principle to account for the effects which are sometimes attributed to the semantics of a narrative past tense; he

¹ As Posner (1980) has shown, the range of temporal and causal 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 1998, chapter 4.

suggests that it only applies to cases in which time moves forward, and not, for example, to sequences like (5) in which the second segment describes a state:

(5) He walked into the room. The director was slumped in her chair.

However, from a cognitive point of view it would be preferable to show that the effects attributed to the existence of a narrative past tense fall out from a principle applying to all utterances, including those involving statives. (For further discussion of this point and of Dowty's principle, see Smith 1990).

Another solution might be to develop different sorts of principles for different kinds of discourse: sequencing principles for narratives, other principles for argumentative discourse, and so on. However, this assumes that we have a set of criteria for identifying discourse types, and that the recognition of discourse types is a prerequisite for successful comprehension. Even if these assumptions were justified, it is unlikely that many texts and discourses would be uniformly of one type, and this would mean that a hearer would be governed by a range of different and possibly conflicting principles. Furthermore, in many instances the order of explanation entailed by this discourse-type identification approach seems to be the reverse of the reality: often it is only after processing a set of utterances that it is possible to assign a discourse type or genre to that set.² Once again, it seems that a more explanatory approach lies in the development of a single principle which constrains the interpretation of all utterances in all discourses. So, in this paper we propose to approach the interpretation of *and*-conjunctions from the point of view of Relevance Theory (Sperber & Wilson 1986, 1995; Wilson & Sperber 1993), according to which the production and interpretation of utterances is governed by a single communicative principle which is grounded in fundamental assumptions about cognitive processing. It will be seen that this principle is able to account for the interpretation of *and*-utterances which fall outside the scope of temporal sequencing principles, as well as for narrative conjunctions, such as those in (1) and (2).

2 *And*-conjunctions and juxtaposed counterparts

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

² For some discussion of the role 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 (in preparation).

like (1) and (2) are also carried by their juxtaposed counterparts, as in (3). However, it has been noted that there is a range of cases for which this parallel breaks down. Consider Herb Clark's example (cited by Gazdar 1979):

- (6) a. John broke his leg. He tripped and fell.
 b. John broke his leg and tripped and fell.

While there is a possible, though not very likely, interpretation which is shared by the conjoined utterance and the non-conjoined sequence - namely, the one in which John broke his leg (say, by falling out of a tree) and *then* tripped and fell (say, when he tried to get up) - there is a more accessible interpretation for (a) that **cannot** be recovered from the conjoined utterance (b), that is, the one in which the information communicated by the second sentence is understood as an explanation for the event described in the first. In other words, in the non-conjoined sequence it is possible to present first the leg-breaking event and then the tripping-and-falling event, even though they will be understood as having happened in the reverse order.

In view of this discrepancy, it might seem that the move towards an even more general explanation for the interpretation of *and*-conjunctions is a move in the wrong direction. Certainly, the fact that (6a) falls outside the scope of any temporal sequencing maxims (and is, in fact, at odds with their predictions), shows that a more general principle is needed for non-conjoined sequences. But the question is whether this same principle could also provide an explanation for why the non-chronological interpretation recovered from (6a) is not possible for the *and*-conjunction and so avoid the need for a non-truth functional semantic explanation.

This question was addressed in Blakemore (1987) and, subsequently, the explanation suggested there was developed by Carston (1992, 1994, 1998) and Wilson & Sperber (1993), who have extended it to a wider array of cases in which a disparity between the most accessible interpretations of the *and* and the juxtaposed cases arises. Many of these further examples were first discussed by Bar-Lev & Palacas (1980) who, in contrast with us, propose a semantic explanation for why *and* cannot permit certain kinds of relations. The following examples, with the exception of (9), come from their paper:

- (7) a. Max didn't go to school; he got sick.
 b. Max didn't go to school and he got sick.
- (8) a. Max fell asleep; he was tired.
 b. Max fell asleep and he was tired.

- (9) a. I had a great meal last week. I went to Burger King.
b. I had a great meal last week and I went to Burger King.
(this example is based on one due to Deirdre Wilson)
- (10) a. Wars are breaking out all over; Champaign and Urbana have begun having border skirmishes.
b. Wars are breaking out all over and Champaign and Urbana have begun having border skirmishes.
- (11) a. Language is rule-governed; it follows regular patterns.
b. Language is rule-governed and it follows regular patterns.
- (12) a. There are his footsteps; he's been here recently.
b. There are his footsteps and he's been here recently.

In each case, there is a highly accessible interpretation for the non-conjoined sequence which is not permitted by the conjoined sequence. In (7a) and (8a), which are variants of the Clark example, the state of affairs in the second sentence is presented as an explanation for the event in the first sentence, and so as temporally prior to it. In (9a) we get the same sort of backwards temporal ordering, but the second sentence is not interpreted as an explanation of the first, and in (10), (11) and (12) temporal order is not involved at all. Coherence theorists would categorize the relations involved as sub-cases of the coherence relation of 'elaboration': specification in (9a), exemplification in (10a), restatement in (11a), (see, for example, Hobbs 1979, Mann & Thompson 1986, 1988). The relation in (12a) is different: it is a logical rather than an elaborative one, the second sentence understood as a conclusion or implication following from the previous one. Notice that there is another interpretation for (7a), not available for the conjoined example, which also involves an inferential relation rather than any sort of temporal or causal one: here the second sentence communicates information which is relevant simply in virtue of supporting or strengthening the statement in the first sentence.³ Our primary concern here is not with the appropriate labelling of these relations, or even in accounting

³ A further question raised by this possible interpretation is how wide-ranging its occurrence is. While quite accessible for cases of denials such as (7a), it is much less so for affirmations such as (6a) and (8a), though the presence of a modal greatly increases its availability:

- (i) Max may/must have fallen asleep; he was very tired.

for their occurrence, but rather with the fact that they are not available for the corresponding *and*-conjunctions, given in the (b) examples of each pair.

Bar-Lev & Palacas (1980) argue that the discrepancy between the conjoined and non-conjoined sequences is due to the meaning of *and* itself, and hence that *and* is non-truth functional. In particular, they claim that *and* encodes a relation of *semantic command* between its conjuncts:

- (13) The first conjunct, S', semantically commands the second conjunct, S''; that is, S'' is not prior to S' (chronologically or causally).

This notion of semantic command is intended to be analogous with the syntactic notion of command from generative grammar; however, it bears very little relation to the construal of command which has proved most durable in syntax, namely, c-command, and there seems little point in trying to pursue the alleged analogy. Nevertheless, 'semantic command' does appear to account for the temporal and consequential relations that conjunctive utterances can communicate and, at the same time, for why the backward relations exemplified in (6) - (9) are excluded.

A fairly detailed critique of this semantic account of the interpretive disparities is given in Carston (1998, forthcoming), which we do not repeat here. Suffice it to point out that there are discrepancies in interpretation which the notion of semantic command does not begin to explain. As we have seen, the interpretations for (10a) - (12a) do not involve temporal ordering or cause-consequence relations at all and nor does the second interpretation we noted for (7a), in which the second sentence strengthens the denial in the first. So the question of why these interpretations do not arise for their *and*-conjoined counterparts would seem to require an additional and quite distinct explanation from one which takes the semantic command analysis as its basis.

Moreover, there is a range of conjoined sequences in which the order of the conjuncts appears to be the opposite of the chronological order assumed to hold between the events described:

- (14) She did her BA in London and she did her A levels in Leeds.

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

(example due to Larry Horn)

- (16) 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; | marks intonation phrases (IPs); a fall-rise tone is likely on 'John' and 'he']

On the face of it at least, these seem to contradict the semantic command requirement on *and*-conjunctions and so to present a serious problem for Bar-Lev & Palacas's account.

In the next section, we set out to show that the interpretive possibilities and impossibilities for the examples in (6) - (12) and (14) - (16) can be explained in pragmatic, specifically relevance-theoretic, terms.

3 A relevance-theoretic explanation

3.1 Effort and effect

Our account turns first on the point introduced in Blakemore (1987), that in a conjoined utterance the presumption of relevance is carried by the conjoined proposition as a whole rather than by each constituent proposition, and second, that the interpretations which are permitted just by the non-conjoined sequences in (6) - (12) are only possible where an utterance expresses two propositions each of which is processed individually for relevance. The first point allows us to explain both chronological and non-chronological interpretations of conjoined utterances, and the two points taken together provide the ingredients for an explanation of the interpretive disparities in (6) - (12).

First, some brief reminders of the relevance-theoretic picture. To say that a proposition carries the presumption of relevance is to say that it yields the contextual effects which are necessary for the utterance which expresses it to achieve the level of *optimal relevance*. Contextual effects are simply 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. Relevance is defined in terms of contextual effects and the processing effort required for their recovery, so it is a matter of degree, increasing with the number of contextual 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 & 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), which we take up again here, was that this processing effort is justified in cases of utterances containing *and* if the conjoined proposition yield effects over and above the effects of each of the conjuncts taken individually. 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, so it is processed as a single pragmatic unit.

There are various ways in which a conjoined proposition may yield effects over and above the effects of each of its conjuncts. Our main concern here is with non-narrative *and*-conjunctions, but we'll first give a brief summary of the relevance-based account of the sort of narrative examples that Grice and Dowty were concerned with when they formulated their principles of temporal ordering.

3.2 Narrative cases

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 1998: 212). This will result in an enrichment of the semantic representation of (1), as indicated in the representation in (17):

(17) 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 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 specific sequencing principles which require speakers to present their descriptions of events in the order that they occurred. Rather, the chronological interpretation follows from a quite general communicative principle grounded in human cognition, which makes no mention of temporal ordering, and which constrains the interpretation of all ostensive communicative acts.

It has been argued that human cognition is set up so that it finds it natural (hence least costly) to process all coordinated informational units - whether ostensibly communicated or not - as chronological. After all, in the case of a sequence of visual and auditory stimuli occasioned by 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 1998, forthcoming). It follows that when there is no highly accessible script, as in the examples in (18), the hearer will tend to take the natural processing track, that is, the chronological one.

- (18) 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 sorts of examples, 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* a script but it clashes with this ‘natural’ processing track. For instance:

- (19) 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 so that a rather ‘weird’ chronological interpretation is recovered.

However, there seem to be some exceptions to this: the interpretation of (14) - (16) above accords with the standard script in each instance, so that the order in which the described events took place is taken to be the reverse of the order in which the conjuncts occur in the utterance. The next question then has to be why this is so: why and how does the hearer recover an interpretation which matches 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.

3.3 Non-narrative cases

Let’s briefly reconsider (19a). It is not too difficult to envisage a context in which this utterance 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 intonation⁴ as the one in (16B) (repeated here):

- (19) a’. BILL went to bed and | HE took off HIS shoes.
 [fall-rise pattern in each IP]

(16) 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 (16B), (19a’) 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

⁴ We are very grateful to Jill House for her valuable advice on the accent placement and probable intonation contours of these examples.

utterance is a conjunction, since neither conjunct is relevant as an example or an argument on its own. For instance, in (16) 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. Her 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 (16B) 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 (16') instead.

(16') 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 (16B), it seems that (19a) cannot be replaced by (19'a) in a situation where the speaker is trying to persuade the child to take off his shoes.

(19') 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 (16B), (16'B) and (19a') 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. But these are not cases of reverse or backwards temporal ordering interpretations, because they are not intended or understood as narrative cases, but rather as arguments against a position the hearer is taking. They are highlighted 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.

The example in (15), repeated here, works somewhat differently, though it too is not a narrative case:

- (15) A: Did John break the vase?
 B: WELL | the VASE BROKE | and HE dropped it.
 [fall-rise nuclear tones in both clauses]

It seems that the speaker is exploiting the principle of relevance by deliberately choosing a formulation which does not reflect the scripted and most accessible order, so as to convey the information that she is not taking responsibility for either the causal or temporal premise or the conclusion the hearer derives (*John broke the vase*).

The hearer is being put to some extra processing effort by this formulation and should therefore be able to derive some extra, or at least other, effects from those derivable from the more straightforward chronological ordering. One 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 claim that John broke the vase. If the hearer does conclude that John broke the vase, then this is a conclusion for which she alone takes 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. Although an interpretation along these lines may not be impossible if the conjuncts are produced in the opposite order (that is, the chronological order) as in (20), it is much less accessible (whatever the accentual and intonational patterns).

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

The examples discussed so far in this section 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 (21) has the order in B or the one in B'.

- (21) 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 these cases does not seem to lie with any argumentative role they play 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. Examples of this sort are discussed by Kitis (1995), who claims that they show that *and* does much more than conjoin the two clauses. She argues that in the example in (22) (slightly adapted here) *and* functions as an 'emotional device' that registers the speaker's involvement.

(22) 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':

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

It does seem that in examples (4) and (22) the speaker is communicating an emotional attitude - of surprise or outrage - and that she achieves this by conjoining the two clauses by *and*. When *but* is substituted for *and* a different interpretation results. Whereas in (22) the speaker is communicating her belief that it is outrageous that the two conjuncts are true together, in (23) she can only be taken to be suggesting that the inference that one

might have drawn from the first segment, that the woman isn't having a lot of fun, is illegitimate. In contradicting this conclusion, the speaker can also be taken to be contradicting the contextual assumptions which were used in its derivation, for example, the assumption that a person has a tough time when their spouse is in hospital. In contrast, the communication of the speaker's attitude of outrage/surprise in (22) hinges on the truth of this contextual premise.

Clearly, we would not want to say that *and* encodes emotional involvement. The problem is to explain the contrast between (22) and (23) without abandoning a minimal truth-functional semantics for *and*. Kitis's own explanation is what she describes as a 'frame-theoretic' one: whereas *and* is used to conjoin 'predictable default values in the same frame', *but* is used to 'call up' a distinct frame (1995:11). According to her, the use of *and* as an emotional device in examples like (22) is explained by the fact that it is making an 'abortive attempt at conjoining two incompatible frames'. And it is the fact that *but* calls up distinct frames that allows it to function in (23) as a 'back-track device', as Kitis calls it. While this explanation bears some interesting similarities to our own, we prefer to recast it in terms of how utterances are processed. The central point, again, is that the principle of relevance must be understood to be applying to the conjunction as a whole: it is the conjoined proposition which is assumed to carry the presumption of optimal relevance and which gives rise to the attitudinal effects. In contrast, *but* can only have its 'back-tracking' function in (23) because the utterance is processed as two separate units of relevance. In short, (22) is processed as a single unit, while (23) is not, in spite of the fact that it contains an expression (*but*) which is traditionally classified as a coordinating conjunction.

If this is right, then it is not surprising that (23) cannot have the interpretation recovered from (22). Since *but* constrains the interpretation of the proposition it introduces in such a way that it affects (in fact, contradicts) assumptions yielded by the interpretation of the first segment, it cannot be used to communicate an attitude towards a conjoined proposition. It also follows quite straightforwardly that an *and*-conjunction cannot have the 'denial of expectation' interpretation that is recovered from (23), for this interpretation crucially involves processing the first segment as a unit and *then* processing the second one. (For a detailed relevance-theoretic analysis of *but* see Blakemore 1989, 1999.)

We would not want to suggest that every use of *and* results in a conjoined proposition that is processed as a single unit of relevance. For example, as Kitis (1995) and Blakemore (1987) have recognized, there are uses of *and* in which it performs a function similar to that of *also*, *moreover* or *furthermore*. These uses are normally marked by heavy stress as in (24).

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

It is clear that a complete analysis of *and* must account for these uses, as well as those uses in which *and* seems to be used discourse initially. However, our concern in this paper is with the use of *and* in conjoined utterances, and, in particular, with discrepancies between conjoined utterances and non-conjoined sequences such as those in (6) - (12). We return to these in the next section, focussing in particular on sequences which exhibit the relations of explanation, evidence and exemplification, and show that these relations are precluded from the corresponding *and*-conjunctions for the same kind of reason that blocks (22) from receiving the interpretation that is recovered for the *but* case in (23).

3.4 Two processing units

We repeat examples (6) and (9) here, by way of reminder:

- (6) a. John broke his leg. He tripped and fell.
b. John broke his leg and tripped and fell.
- (9) a. I had a great meal last week. I went to Burger King.
b. I had a great meal last week and I went to Burger King.

The favoured interpretations of the non-conjoined sequences can be recovered only if each segment is processed as a separate unit which carries the presumption of relevance individually. Consequently, they are excluded from the conjoined utterances which, as we have seen, consist of a single processing unit. For example, in (6a) the second segment is relevant as an explanation for the state of affairs represented in the first; in other words, it is an answer to the question, 'Why?' or 'How?', which will be understood to have been raised by the first segment. Questions and answers are by their very nature planned as separate utterances each carrying the presumption of relevance individually. The second segments of (7a) and (8a), which are variants of example (6a), can be analysed in exactly the same way. So can the second segment of (9a), which, although it is not relevant as an explanation, can nevertheless be interpreted as an answer to a different kind of question raised by the first segment, namely, 'Where?' And it would not be difficult to make up examples in which the second sentence is understood as answering other questions, such

as ‘who?’, ‘when?’, etc.⁵ (For discussion of further cases, see Wilson & Sperber 1993, Carston 1998.)

Notice that in contrast with Bar-Lev & Palacas’s analysis, temporal priority does not play a role in this account. Clearly, the fact that someone tripped and fell is an explanation for the injury to their leg only if it is assumed that tripping and falling can cause an injury to a leg. However, this assumption, which is about a relation which we perceive to hold between states of affairs in the world, is functioning as a premise in an inference which enables us to establish a relationship between cognitive representations of the world. That is, while temporal and causal priority are relations which we assume to be out there in the world, the explanation relation is one which only exists in the mind.

The same point can be made about a range of so-called ‘elaboration’ relations.⁶ For example, in sequences such as (11a), repeated here, the second segment is construed as a reformulation or restatement of the first:

- (11) a. Language is rule-governed; it follows regular patterns.
 b. Language is rule-governed and it follows regular patterns.

As argued in Blakemore (1993, 1996, 1997), an utterance achieves relevance as a reformulation in virtue of being an *interpretive* representation of another representation (in this case an utterance), in the sense defined by Sperber & Wilson (1986). The question raised by such sequences is why a speaker who is aiming at optimal relevance should deliberately produce an utterance which requires reformulation. The answer in an example such as (11a) is that this enables the speaker not only to communicate information about the nature of language, but also to give a formal explanation of the

⁵ It may be that this is part of the explanation for another interesting interpretive disparity, noted by Moxey & Sanford (1988). The following examples are taken from their paper:

- (i) Few MPs were at the meeting. *They* stayed at home and watched it on TV.
 (ii) Few MPs were at the meeting and *they* stayed at home and watched it on TV.

While the pronoun *they* in (i) is best taken to refer to the members who were *not* at the meeting, this possibility is blocked in the corresponding *and*-conjunction case in (ii), leaving only a nonsensical interpretation where the MPs are both at the meeting and have stayed at home. Arguably, a question raised by the first segment of (i) is why a large number of MPs were not at the meeting, and this is answered in the second segment.

⁶ For a more detailed discussion of these and other coherence relations, from a relevance-theoretic point of view, see Blakemore (forthcoming).

notion *rule-governed*. That is, the second segment can again be interpreted as answering a query raised by the first (*what's meant by 'rule-governed'?*) and it provides an answer in the form of an explanation of the term or the concept represented by the term. This kind of explanation necessarily involves the use of a representation to represent another representation (linguistic or mental). Again then, this is a relationship in the mind, not a relationship which exists between states of affairs in the world.

Finally, let us consider the relation of exemplification illustrated in (10a), repeated here:

- (10) a. Wars are breaking out all over; Champaign and Urbana have begun having border skirmishes.
b. Wars are breaking out all over and Champaign and Urbana have begun having border skirmishes.

One way of providing evidence for a claim is to give an example of it. To recognize some event or state of affairs as an example is to recognize that it is typical in some respect, so that there are other states of affairs with the same property, and hence other states of affairs which could have been cited. It is this suggestion that makes exemplification such a good means of providing evidence. Clearly, the assumption that a state of affairs is typical in a particular respect, or that states of affairs share certain properties, can be regarded as the result of the way we perceive the world. However, the point is that the identification of a described state of affairs as an example (and hence as typical) plays a crucial role in the interpretation of the utterance as providing evidence for a claim. And the relationship between evidence and what it is evidence for is not a relation out there in the world, but a relationship which holds only in the mind. The same point applies to a different kind of exemplification, such as that in (25), where the speaker uses the second segment not to provide evidence for the first, but rather to illustrate what she means by it:

- (25) We try and teach you about European and Latin American languages, cultures and societies, but we also try to teach you what are known as transferrable skills. For example, we teach you how to use libraries and how to use information technology.
(example from Blakemore 1997: 15)

Here the speaker is elucidating what is meant by *transferrable skill* by listing skills which have a property which she believes is shared by all skills that fall under the concept of transferrable skill, and the success of the illustration depends on the hearer's ability to

identify that property. In other words, what is relevant is not a relationship between aspects of an external reality, but a relationship between concepts.

In all of the cases of relations between processing units discussed in this section (explanation, evidence, exemplification) a salient property is their inferential rather than real world nature. This point applies even more obviously to the relation of logical consequence illustrated in example (12a) above, where the conclusion (*he's been here recently*) is inferred from the observation (*there are his footsteps*). These relations are a function of the human logical capacity and they hold between representations; it is not surprising, then, that they are not part of what is communicated by an *and*-conjunction which, according to our account, is a single representational unit.

4 Summary and future directions

In this short paper, we've brought together work on the pragmatics of *and*-conjunction which we've been pursuing individually for some years and we've tried to push it on to the next stage. So, as well as reviewing earlier discussions of the apparently iconic temporal and causal relations that arise for the cases of 'narrative' conjunctions, we've looked at a range of other interpretations, some of which can be characterised as 'argument' cases, that is, cases where the speaker's intention is to establish a position, or to argue a case, which runs contrary to one currently maintained by one of the participants in the conversation. Although the states of affairs described in these cases might in fact be instantiations of highly accessible narrative type scripts and so be taken to have occurred in a particular sequence (possibly the reverse of their conjunctive presentations), this temporal (and perhaps causal) relation is not part of what is communicated.

As the comparison with their juxtaposed counterparts reveals, there are some quite strong restrictions on the relations which can arise for explicit *and*-conjunctions; most vividly apparent is the impossibility of the second conjunct playing an explanatory role, a role which the second utterance of a discourse sequence frequently plays. The relations which *cannot* be communicated by *and*-conjunctions have two properties which distinguish them from the relations which can be communicated. On the one hand, they may only hold between processing units which carry the presumption of relevance individually, and, on the other hand, they are relations between representations rather than states of affairs in the world. The first property has played a central role in the explanation we've developed so far for the interpretive discrepancies between conjoined and non-conjoined utterances. In future work, we would like to explore the significance of the second property for these differences.

Finally, there is the matter of what the lexical item *and* encodes. So far we have gone along with the Gricean assumption, standard among pragmatic accounts of *and*-conjunction, that the linguistic semantics of *and* is to be equated with the logical conjunction operator $\&$. However, although the analyses we've given all point to a minimal meaning for *and*, there is no reason to suppose that in a cognitively-realistic decoding semantics the characterisation of *and* (or of any of the other natural language counterparts of the truth-functional operators) should match the definition of the corresponding element in a logical calculus, whose semantics is resolutely truth- and reference-based.

Within the relevance-theoretic approach to utterance understanding, there is an important strand of linguistic semantic investigation, based on the distinction between conceptual and procedural encoding, initiated by Blakemore (1987). So within this framework, a natural question to consider is whether *and* encodes a concept (as assumed so far) or a procedure (that is, an instruction or constraint on pragmatic processing). Within the broad class of connectives, cases have been made for a procedural analysis of a class of so-called discourse connectives, including *but*, *moreover*, and *after all* (Blakemore 1987), and a subclass of subordinating conjunctions such as *although*, *whereas*, and *since* (see, for example, Iten 1998). We intend to address the issue of what *and* encodes in the context of a bigger project which examines other coordinating conjunctions (such as *or* and *for*), subordinators (both conceptual and procedural) and discourse connectors.

Of course, whatever the answer to the question of what *and* encodes, it must preserve the fundamental logical property of *and*, which is standardly captured by the deductive rule of *and*-elimination:

- (26) *And-elimination*
- a. *Input:* (P and Q)
Output: P
 - b. *Input:* (P and Q)
Output: Q

A more radical position would be that *and* has no linguistic meaning at all, conceptual or procedural, and its function of forming a unit of coordinated parts is purely a syntactic matter. Its truth-functional properties would fall out just as readily on such an assumption. Rather than having elimination rules as part of a logical (or procedural) entry, the truth of the propositions conjoined by a semantically empty *and* would simply follow as it does in the case of bare juxtapositions: P logically implies P; Q logically implies Q. A reasoned

choice among these three possibilities (conceptual, procedural, or nothing) requires further work, but for some preliminary discussion see Carston (forthcoming).

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