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1 Introduction

The Greek connective *ke* 'and' performs a variety of functions, some of which are more unexpected than others, and the challenge is to provide an economical and unitary treatment for all. Within (neo-)Gricean pragmatics the tendency is for natural language connectives such as *and*, *but*, *or*, *therefore* to be treated as equivalent to the logical connectives \wedge , \vee , \rightarrow etc., and any additional functions are taken to be a result of implicature. This type of pragmatic analysis arguably falls short of instances of *asymmetric conjunction*, especially in view of the age-old argument that interpretive differences due to pragmatic processes should be irrelevant to truth-conditions, a claim which is very obviously invalidated by the data. In this paper I show that the problem outlined above can be circumvented and a unitary radical pragmatic analysis of the seemingly multiple functions of the Greek connective *ke* can be attained within a relevance-theoretic approach. I assume that it is not propositions but pragmatically enriched utterances that are assigned truth-conditions and I suggest that particles like *ke* function as *semantic constraints on relevance* in that they act as guides delimiting the process of pragmatic interpretation and constraining processing effort in specific ways; I show that the seemingly multiple pragmatic readings that *ke* induces can be accounted for by treating *ke* as an operator carrying the semantic feature 'additive', which makes it focalizing and presuppositional.

2 The Trouble with Natural Language Connectives

This paper addresses some seemingly puzzling properties of the Greek connective *ke* 'and' and an attempt is made to show that the varying pragmatic readings induced in conjunction involving *ke* are not erratic and uncon-

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strained but a uniform treatment is possible within a radical pragmatic framework such as Relevance theory. One of the most interesting aspects of Relevance theory is its re-casting of the semantics-pragmatics 'divide' in terms of the distinction between explicature and implicature, which is of particular relevance to the analysis I will be proposing.

Natural language connectives such as *and*, *but*, *or*, *therefore* etc. are troublesome in that they seem to carry 'semantic' content over and above that of their logical counterparts \wedge , \vee , \rightarrow etc.; such additional semantic content demonstrably affects the truth-conditional content of the utterances/propositions they conjoin. However, such purportedly semantic content is not always clearly definable. Natural language connectives are therefore particularly pertinent to the precise delimitation of the semantics-pragmatics 'divide'.

2.1 Some Examples

The examples below all involve *and*, since this is the connective on which this paper focuses. While in example (1) *and* seems to carry no more semantic content than its logical counterpart (\wedge),

- (1) a. Sophia goes to work and John stays at home.
 b. John stays at home and Sophia goes to work.

as the order of the two conjuncts can be reversed with no effect on the truth-conditions of the whole, this is not the case with what has been termed *asymmetric conjunction* (Schmerling, 1975):

- (2) a. The road was icy. She slipped.
 b. She slipped. The road was icy.
 c. The road was icy and she slipped.
 d. She slipped and the road was icy.

A comparison between (2a) and (2b) on the one hand and (2c) and (2d) on the other indicates that while in (2a) and (2b) any additional temporal or causal link between the two conjuncts is a result of pragmatic interpretation, this is not the case when the connective is present; in (2c) it seems that the temporal/causal interpretation is induced in virtue of some kind of additional semantic content carried by the connective, as, if this were not the case, the truth-conditions of (2d) would be identical to those of (2c). The idea that connectives are hence amenable to a semantic treatment is quite widely spread in the literature (see, for example, Bar-Lev and Palacas, 1980, and,

more recently, Asher and Lascarides, 1998; Gómez Txurruka, 2003). As indicated by the examples in (3), the semantic approach faces the obvious problem of being forced to allow for wild proliferation of lexical meanings for the connective:

- (3) a. I walked into the room and the cat was eating a banana.
 b. I walked into the kitchen and the cat had eaten all the bananas.
 c. Stav can't spell and she's a linguist.
 d. I had a great meal last week and I went to Burger King.

Moreover, these purportedly distinct lexical meanings are not always clearly definable (cf. (3a) and (3b)) and seem to be largely dependent on intonation and context (cf. (3d); see Blakemore and Carston, 1999 for a full discussion).

3 The Greek Connective *ke*

The Greek connective *ke/ki* 'and' performs a variety of functions, some of which are more unexpected than others. Traditional grammars of Greek (cf. Tzartanos, 1948/1991) distinguish between 'connective', 'adverbial' and 'intensifier' *ke*, among others; several of these descriptive distinctions have been taken up and recast in more theoretical terms in recent linguistic work on *ke* (Canakis, 1995; Kitis, 1995).

Examples (4–8) illustrate some of the more expected uses of *ke*.

- (4) a. *i sofia ðulevi ke o janis meni spiti*
 Sophia works and John stays at home.
 b. *o janis meni spiti ke i sofia ðulevi*
 John stays at home and Sophia works.
- (5) a. *kliðosa ke efiya*
 I locked up and left.
 b. *efiya ke kliðosa*
 I left and I locked up.
- (6) a. *ylistrisa ke epesa*
 I slipped and I fell.
 b. *epesa ke ylistrisa*
 I fell and slipped.

- (7) kaθomuna stin kuzina ke akuya raðjofono
I was sitting in the kitchen and I was listening to the radio.
- (8) a. i stavrula ðen kseri orθoγrafia ke ine γlosoloyos
Stavroula doesn't know how to spell and she's a linguist.
b. i stavrula ine γlosoloyos ke ðen kseri orθoγrafia
Stavroula is a linguist and she doesn't know how to spell.

In (4) *ke* functions as a mere co-ordinating conjunction, while in (5a) and (6a) *ke* induces a temporal and/or a resultative reading. The meaning of *ke* is harder to define in (7) (cf. (3a) and (3b) above) and in the sentences in (8) *ke* preferably induces a contrastive or a 'denial-of-expectation' interpretation, as it does in the corresponding English sentences, although this is largely dependent on context and intonation (cf. also (3d) above).

The host of unexpected uses of *ke* includes its concessive use, its function as a causal particle, the 'out-of-the-blue' *ke* (Canakis, 1995) and the 'double *ke*' construction, which relates to either a focalizing or a concessive function. In (9), the preferred interpretation is concessive

- (9) ðe me akuse, ke tu ipa na proseksi
He didn't listen to me, and I told him to be careful.

while in (10) the preferred interpretation is 'causal', in the sense that the second conjunct is interpreted as providing the reason why the speaker has uttered the first conjunct:

- (10) pame ke aryisame
lit. Let's go and we're late.

The examples in (11) are instances of the ('out-of-the-blue' or 'à propos of nothing' *ke*), since *ke* seems to contribute absolutely nothing to the interpretation of the sentences. Crucially, *ke* does not induce a presupposition, i.e. (11a) does not necessarily mean that the speaker thinks that someone other than Sophia came and (11b) does not necessarily mean that the speaker expects the hearer to do anything other than give her a call.

- (11)a. irθe ke i sofia
lit. There came and Sophia.
b. pare ke kanena telefono
lit. Give us and a call.

Finally, the sentences in (12) are instances of what I term the ‘double *ke*’ construction:

- (12)a. pira mila ke pira ke bananes
lit. I got apples and I got and bananas.
- b. i stavroula den kseri orθoyrafia ke ine ke ylosoloyos
lit. Stavroula doesn’t know how to spell and she’s and
 a linguist.

The two examples in (12) have very different interpretations. In (12a) the first *ke* seems to function as a mere co-ordinating conjunction, while the second *ke* is presuppositional, with narrow scope over ‘bananas’. This is not the case in (12b), where we have a preferred overall concessive reading but the second *ke* is by no means presuppositional, as no interpretation seems to be induced whereby Stavroula is something else besides a linguist.

4 Semantic vs. Pragmatic Approaches

Within (neo-)Gricean pragmatics the tendency is for natural language connectives such as *and*, *but*, *or*, *therefore* to be treated as equivalent to the corresponding logical connectives \wedge , \vee , \rightarrow etc., and any additional functions are taken to be a result of conventional or conversational implicature (Grice, 1975, 1978); the temporal, resultative and other similar meanings/functions of natural language connectives such as *and* are treated as implicata arising from the application of maxims such as Manner (‘Be orderly’) etc. This type of pragmatic analysis arguably falls short of instances of *asymmetric conjunction* such as those in (2), (5) and (6) above, especially in view of the age-old argument that interpretive differences due to pragmatic processes are or should be irrelevant to truth-conditions, a claim which is very obviously invalidated by e.g. (2d), (5b) and (6b) above.

As mentioned briefly in section 2.1, semantic approaches face two obvious problems:

(i) the proliferation of distinct lexical meanings for connectives, which is both conceptually and empirically unwarranted given the impossibility of defining and delimiting the set of precise meanings for each connective (cf. (3a), (3b) and (7) above)

(ii) the need for specific and often *ad hoc* syntactic/semantic mechanisms for blocking inappropriate meanings/interpretations, such as the notion of *semantic command* (Bar-Lev and Palacas, 1980) or its more formal reflexes in Segmented DRT (Asher and Lascarides, 1998; Gómez Txurruka, 2003). The idea behind semantic command, a notion apparently modeled on

syntactic c-command, is that in sentences such as (2c) above the temporal reading is due to the fact that the first conjunct semantically commands the second and hence all other readings (e.g. contrast, elaboration etc.) are blocked. It is however hard to see why semantic command does not guarantee the temporal reading in all cases (cf. (3c) and (3d) above), or, worse, under what specific conditions the temporal reading is waived and another interpretation arises. The approach therefore seems highly stipulative.

5 Towards a Unitary Radical Pragmatic Account

5.1 Relevance Theory (Sperber and Wilson, 1986/1995)

This section will provide a very brief outline of basic tenets of Relevance theory necessary for the purposes of my discussion. Let us begin by noting that Relevance theory is a radical neo-Gricean pragmatic theory with a strong cognitive orientation. The latter becomes immediately apparent in the definition of the *Communicative Principle of Relevance*, which states that every act of ostensive (overt) communication communicates a presumption of its own *optimal* relevance, where an utterance (and/or an interpretation thereof) is *optimally relevant* iff

- (i) it achieves enough contextual effects to be worth the hearer's attention
- (ii) it puts the hearer to no gratuitous effort in achieving those effects (Sperber and Wilson, 1986/1995).

The general idea is that a piece of information is relevant to an individual if it has certain cognitive effects for that individual; such cognitive effects include interaction with assumptions in the individual's mental context to yield new implications (*contextual implications*); contradiction of an existing assumption, which leads to its being abandoned, and strengthening of an existing assumption by providing additional evidence for it.

The degree of relevance is a matter of cognitive effects and processing effort; humans do not indulge in endless processing of a new piece of information, but they abandon the endeavour when the returns threaten not to offset the effort. In other words, in processing an utterance the hearer opts for an *optimally relevant* interpretation, i.e. one which yields adequate cognitive effects for the least cognitive effort, rather than a *maximally* relevant one, i.e. an interpretation that maximizes cognitive effects at the cost of increased processing effort.

In other words, utterances, and ostensive stimuli in general, come with a guarantee that the cognitive effects the speaker intends are sufficient to make the stimulus worth processing and that the stimulus is the least costly in terms of processing effort that the speaker could have chosen to have these

effects, i.e. they come with a guarantee of *optimal relevance*. This has the interesting consequence that the first interpretation which the hearer finds to be consistent with the Principle of Relevance is taken to be the correct one, i.e. the one intended by the speaker.

5.2 Pragmatic Enrichment and Truth-Conditions

A basic tenet of Relevance theory is that language is underdetermined; in other words, utterances are *blueprints for propositions*; truth-conditions are assigned to *pragmatically enriched* utterances. Utterances are pragmatically enriched via a process of inference constrained by the principle(s) of Relevance and the linguistic meaning plus the set of implicata necessary for the establishment of truth-conditions are collectively termed the *explicature* of an utterance (Carston, 1988, 1998, 2002; cf. the Gricean notion of conventional/generalized conversational implicature).

It follows that the truth-conditions of, e.g., (2c) will be different than those of (2d) above, as the explicature of each utterance is different. At this stage it is still unclear what the role of the connective is in establishing explicature and what the process of pragmatic enrichment entails.

5.3 Semantic Constraints on Relevance

Within this framework connectives/particles/discourse markers like *and* or *ke* function as *semantic constraints on pragmatic interpretation* (Blakemore, 1987, 1988; Blakemore and Carston, 1999) in that they act as guides delimiting the process of pragmatic interpretation/pragmatic enrichment and constraining processing effort in particular ways. Connectives encode *procedural* rather than conceptual meaning, i.e. they point to specific ways in which a preceding utterance can be relevant to what follows; in other words, they point to *types* of relevance. Crucially, they may point to specific ways in which the contextual assumptions or implicata associated with a preceding utterance establish the relevance of a subsequent one (or vice-versa).

For instance, in Grice's famous example in (13):

(13) He is an Englishman; he is therefore brave.

the role of *therefore* is to indicate that the second utterance is to be interpreted as a conclusion from the first utterance plus a premise/contextual assumption along the lines of 'all Englishmen are brave'; *therefore* thus constrains the range of potential contextual assumptions/implicata from the first utterance to those intended by the speaker, in accordance with Relevance

(Blakemore, 1987). In other words, the Principle of Relevance ensures correct context selection at minimal cost in processing, and the particles referred to as *semantic constraints on relevance* both aid in context selection and they ensure the recovery of the correct/intended interpretation of the conjoined proposition as a whole.

6 Back to the Greek Connective *ke*

It emerges from the preceding discussion that connectives/discourse particles which induce semantic constraints on pragmatic interpretation do so in virtue of (preferably) minimal and unitary semantic content and that they have truth-conditional import in virtue of helping establish propositional content (explicatures).

I propose that *ke* can be analyzed as a constraint with the semantic feature *additive* as part of its lexical/procedural meaning; in this sense *ke* is necessarily focalizing and ‘presuppositional’ in that the constituent(s) over which it takes scope must be interpreted as information which is additional to information that is known or presupposed (cf. the analysis of *also* in Blakemore, 1987). Crucially, however, this need not be information that is linguistically encoded or mentioned in the discourse, but may be adduced as a contextual assumption necessary for adequate, i.e. optimally relevant, pragmatic interpretation (cf. the analysis of *therefore* in 5.3 above).

In this vein, the focalizing, causal, contrastive/concessive and even the ‘out-of-the-blue’ uses of *ke* can be accounted for if we assume that *ke* establishes an inferential link whereby the propositional content of the utterance containing it is interpreted as an addition to the implicata from the first conjunct.

More specifically, in (10), repeated below, the second conjunct can be interpreted as singling out the main reason, the strongest among a host of possible weak causal implicatures from the first conjunct.

- (10) pame ke arysame
lit. Let’s go and we’re late.

Similarly, the contrastive or ‘denial-of-expectation’ interpretation of the conjoined utterances in (8), repeated below, arises if we assume that the second conjunct provides/singles out the main reason, among a host of potential implied others, for why Stavroula should be expected to know how to spell.

- (8) a. *i stavroula den kseri orθoyrafia ke ine ylosoloyos*
 Stavroula doesn't know how to spell and she's a linguist.
 b. *i stavroula ine ylosoloyos ke den kseri orθoyrafia*
 Stavroula is a linguist and she doesn't know how to spell.

What then of the more puzzling 'double *ke*' and 'à propos of nothing *ke*'? Let us first take another look at the data:

- (12) a. *pira mila ke pira ke bananes*
lit. I got apples and I got and bananas.
 b. *i stavroula den kseri orθoyrafia ke ine ke ylosoloyos*
lit. Stavroula doesn't know how to spell and she's and a linguist.

In (12a) we can argue that the first *ke* merely conjoins the two utterances, while the second one takes narrow scope over 'bananas'. This is in line with the basic semantic feature *additive* that we have assumed, and the presuppositional reading follows. Note, however, that no such narrow/presuppositional reading can be assumed for (12b), as the intended interpretation is not 'Stavroula is a linguist and other things besides' (cf. the discussion in 3 above); note, also, that either the second or the first *ke* can be omitted:

- (14) a. *i stavroula den kseri orθoyrafia ke ine ylosoloyos*
 Stavroula doesn't know how to spell and she's a linguist.
 b. A: *den ksero orθoyrafia.*
 I don't know how to spell.
 B: *ise ke ylosoloyos*
lit. You're and a linguist.

We can, however, assume that the *ke* in (14b) does not necessarily take narrow scope over 'linguist', but over the whole sentence through Association with Focus, i.e. for the same reason why *too* in (15) below may take narrow scope over the object DP, the VP, the subject DP or even the whole IP (cf. Rooth, 1992):

- (15) John cooked the pasta too

Although research is still pending on the precise mechanics of Association with Focus in Greek, we can extend the basic proposal for (14b) to the 'à propos of nothing *ke*' in (11)

- (11) a. *irθe ke i sofia*
lit. There came and Sophia.
 b. *pare ke kanena telefono*
lit. Give us and a call.

and we can argue that rather than taking narrow scope over 'Sophia' or 'call', the 'out-of-the-blue' *ke* functions in precisely the same way as in (12b) and in (14b), its role as a semantic constraint being to signal the addition of a new assumption/premise to the context.

7 Conclusion

In this paper I have argued that some particularly resilient properties of natural language connectives can be shown to be amenable to a pragmatic account. The proposed analysis of some of the most salient properties of the Greek connective *ke* brings together notions such as 'focalizing particle' and 'asymmetric conjunction' and recasts them within a radical pragmatic framework which addresses the underdeterminacy of linguistically encoded meaning and views its enrichment as a dynamic pragmatic/cognitive process.

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