

# A Syntactic Correlate of Semantic Asymmetries in Clausal Coordination\*

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## 1. Introduction

It is widely-recognized that natural language *and* can express many relations other than truth-functional conjunction, even when it connects two clauses. Besides the ‘logical’ connection expressed by (1a), *and* can be used to express a temporal or causal sequence between two clauses, as in (1b-c).

- (1) a. Water freezes at 0°C, and London is the capital of England.
- b. The lights came on and the singer stepped onto the stage.
- c. The sniper shot him and he died.

I will refer to these ‘non-logical’ uses of *and* as *asymmetric*, because they do not allow the two conjuncts to be reversed (unlike logical *and*, (2a)):

- (2) a. London is the capital of England and water freezes at 0°C. (= (2a))
- b. The singer stepped onto the stage and the lights came on. (≠ (2b))
- c. He died and the sniper shot him. (≠ (2c))

In the literature on the topic, it has generally been argued that the logical interpretation of *and* is semantically basic, and that asymmetric interpretations should be derived from this basic semantics, typically by rules of pragmatic inference (Grice 1975, Schmerling 1975, Posner 1980, Carston 1993, 2002). On this view, *and* is always semantically *symmetric*, with asymmetries being introduced by discourse factors. Some authors have disagreed, arguing on interpretive grounds that the asymmetry of examples like (2b-c) should be built more directly into the interpretation of *and* (Bar Lev and Palacas 1980, Txurruka 2003). Where the traditional view of *and* holds that asymmetric uses of *and* are derived from its logical use, these authors have argued that instead the logical use of *and* should be seen as a limiting sub-case of its basic asymmetric properties.

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\*Many thanks for helpful discussion and suggestions to Kai von Fintel, Claire Halpert, Sabine Iatridou, David Pesetsky, Maribel Romero, the participants in the *Without glue what do we do?* seminar at MIT in Fall 2009, and the audiences at NELS 41 and *On Linguistic Interfaces 2*.

This paper brings syntactic evidence to bear on this issue, a source of evidence that has been often overlooked in previous work. The relevant cases will involve *embedded* clausal coordination. I will show that asymmetric interpretations for *and* are available in embedded contexts only for TP-level coordination, while logical interpretations are available only for CP-level coordination. This complementary distribution suggests that the variation in *and*'s interpretation is a case of *structural ambiguity*: a uniform compositional semantics of *and* has different interpretive results depending on the semantic properties of the constituents it conjoins. This requires a denotation for *and* that is not only able to compose with constituents with different semantic properties, but which also results in different interpretations when it does so. Section 3 sketches a possible semantics for *and* with these properties.

This kind of analysis for asymmetric *and* suggests unification with another instance of asymmetric clausal coordination in which coordinated clauses have a *conditional* interpretation. This conditional interpretation has been called *left-subordinating and* (Culicover and Jackendoff 1997, 2005), discussed widely for its ability to take a morphological imperative as its first conjunct (Bolinger 1967, Han 2000, Schwager 2005). Left-subordinating *and* has previously resisted unification with other uses of *and*, and it is a point in the present analysis of *and*'s favour if it can provide such a unification.

## 2. Motivating a Structural Ambiguity

Past discussions of the contrast between asymmetric and logical *and* have framed the contrast in semantic or pragmatic terms. It has been implicitly assumed that all instances of clausal coordination have the same underlying syntactic structure. Using evidence from *embedded* clausal coordination, this section casts doubt on this assumption, showing that asymmetric *and* appears to involve coordination of *smaller* constituents than logical *and*. Consider the pair of sentences in (3):

- (3) a. The newspaper reported that a new mayor was elected and there was a riot.  
b. The newspaper reported that a new mayor was elected and that there was a riot.

First of all, notice that these sentence differ structurally. (3a) involves a single instance of *that*, and an embedding verb that strongly prefers an embedded clause introduced by *that*. It therefore appears to involve TP coordination of the embedded clauses – if it involved CP coordination, the subcategorization properties of *report* would favour a second clause introduced by *that*.<sup>1</sup> (3b), by contrast, has an instance of *that* in both coordinated clauses, and so must involve the coordination of constituents larger than TP – namely CP. These structures are illustrated in (4):

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<sup>1</sup>There are examples reported in the literature in which a second conjunct is able to violate the subcategorization requirements of the embedding verb: e.g. *You can depend on my assistant and that he will arrive on time.* (Progovac 1998, citing Gazdar et. al, 1985). It is therefore possible that (3) involves CP coordination, with *report*'s subcategorization requirements (for a non-null complementizer) violated by the

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- (4) a. ...confirm [<sub>CP</sub> that [<sub>TP</sub> ...] and [<sub>TP</sub> ...] ]  
b. ...confirm [<sub>CP</sub> that ...] and [<sub>CP</sub> that ...]

Correlating with this structural difference is an *interpretive* difference. While (3a) communicates an asymmetric relationship between the coordinated clauses, (3b) does not. The scenario in (5) illustrates the contrast:

- (5) *Scenario: the newspaper ran two unrelated stories yesterday. In the first it reported that the incumbent mayor was defeated in yesterday's election; in the second it reported on a riot that occurred in the wake of last night's hockey game.*
- a. #The newspaper reported that a new mayor was elected and there was a riot.  
(= TP coordination)
- b. The newspaper reported that a new mayor was elected and that there was a riot.  
(= CP coordination)

This scenario makes it clear that there is no connection between the events described in the embedded clauses, and speakers judge that embedded TP coordination is a misleading or false report of what was said, but that CP coordination is acceptable. By contrast, in scenarios where it is clear that there *is* a connection between two events, speakers judge *both* TP and CP coordination as felicitous or accurate, but report that TP coordination is a better or more informative report. This is illustrated by (6):

- (6) *Scenario: An engineer said: "The dam broke. As a direct consequence of that, the valley below the dam flooded."*
- a. The engineer has confirmed that the dam broke and the valley flooded.  
(= TP coordination)
- b. The engineer has confirmed that the dam broke and that the valley flooded.  
(= CP coordination)

In this case both sentences are judged to be truthful reports of what was said, but (6b) is felt to leave out some details of what was actually said (i.e. the causal relationship between the reported events). Finally, CP coordination *remains* felicitous even when it connects clauses that are the "reverse" of the sequence of events that actually obtained:

- (7) *Scenario: same as (6)*
- a. #The engineer has confirmed that the valley flooded and the dam broke.  
(= TP coordination)
- b. The engineer has confirmed that the valley flooded and that the dam broke.  
(= CP coordination)

As we saw in the introduction, asymmetric interpretations of *and* are characterized by *not* permitting a reversal of the coordinated clauses. In (7) both the embedded coordinations present their conjuncts in the reverse of this natural temporal/causal relation, but

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second conjunct. This, however, would fail to explain the systematic contrasts observed in this section.

while TP coordination as in (7a) produces an infelicitous report of events, the embedded CP coordination in (7b) is judged to be acceptable.

Taken all together, these data suggest the following generalization: embedded TP coordination results in asymmetric interpretations for *and*, while embedded CP coordination results in logical (symmetric) interpretations.<sup>2</sup>

The same patterns for embedded coordination can be found in languages other than English; here I discuss examples from Modern Greek and Dutch. In Greek, as in English, matrix coordination can receive either an asymmetric or a logical interpretation. In embedded contexts, moreover, the contrast between TP and CP coordination is always visible: unlike in English, Greek finite embedded clauses *must* be introduced by an overt complementizer. This is illustrated in (8):

- (8) Ksero \*(oti) i Maria ton apelise  
 know.1SG COMP DET Maria him fired.  
 ‘‘I know (that) Maria fired him.’’

Thus, while in English any of the examples identified so far as TP coordination *could* potentially involve CP coordination (with a second silent complementizer), this will never be the case in Greek. Turning to Greek embedded coordination, the examples in (9a) and (9b) differ in whether they involve TP coordination (one complementizer) or CP coordination (two complementizers). As in English, this structural variability correlates with an interpretive difference: TP coordination results in a strong causal reading, whereas CP coordination does not.

- (9) a. Ksero oti o Yanis skondapse ke i Maria ton apelise  
 know.1SG COMP DET Yanis tripped.3SG and DET Maria him fired.  
 ‘‘I know that Yanis tripped and Maria fired him.’’ (... from the dance troupe)  
 b. Ksero oti o Yanis skondapse ke oti i Maria ton apelise  
 know.1SG COMP DET Yanis tripped.3SG and COMP DET Maria him fired.  
 ‘‘I know that Yanis tripped and that Maria fired him.’’ (... but the two aren’t necessarily related)

Embedded coordination in Dutch shows the same pattern. Again, embedded TP coordination (as in (10)) has an asymmetric interpretation, while embedded CP coordination (as in (11)) has only a symmetric/logical interpretation:<sup>3</sup>

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<sup>2</sup>There is also some evidence that this is true of embedded non-finite clauses:

- (i) a. The opposition planned for the vote to take place and the government to fall.  
 b. The opposition planned for the vote to take place and for the government to fall.

(ib), but not (ia), seems to be compatible with a plan in which the government is not planned to fall as a result of the vote.

<sup>3</sup>The facts from V2 languages such as Dutch become more complex when matrix coordination is considered. V2 word order in Germanic languages is generally assumed to involve the CP layer of the clause,

- (10) The newspaper reported. . .
- a. **dat** [ de minister een nieuwe burgemeester benoemd had ] en [ er rellen  
that the minister a new mayor appointed had and there riots  
waren. ]  
were  
“... that the minister appointed a new mayor and there were riots.”
- b. [ **dat** de minister een nieuwe burgermeester benoemd had ] en [ **dat** er  
that the minister a new mayor appointed had and that there  
rellen waren. ]  
riots were  
“... that the minister appointed a new mayor and that there were riots.”

While more cross-linguistic comparison is needed, we can be secure that the structural correlates of the interpretive contrast between asymmetric and logical *and* are not simply a curious property of English, but are instead stable across several languages.

Having established a correlation between structure and interpretation in embedded contexts, we now turn to the original question of matrix coordination. (11) illustrates a range of the temporal and causal interpretations available to *and*:

- (11) a. The lights came on and the singer stepped onto the stage.  
b. The sniper shot him and he died.  
c. The dam broke and the valley flooded.  
d. The lights were off and I couldn't see.<sup>4</sup>

Importantly, all of these sentences potentially *also* have logical/symmetric interpretations. There is also no way to determine, in these cases, whether the coordinated constituents are TPs or CPs. I therefore propose that matrix coordination is a case of *structural ambiguity*. Asymmetric *and* always involves coordination of TPs, while logical *and* always involves coordination of CPs.

This position – that varying interpretations for *and* arise due to structural ambiguity – is supported by the fact that interpretations of *and* can be manipulated in a way that parallels known cases of structural ambiguity. To begin with, the temporal and causal inferences of *and* have been observed to be *cancelable* by subsequent assertion, as in the following example from Bar Lev and Palacas 1980:

- (12) If the old king has died of a heart attack and a republic has been formed, and the

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and so coordination of two V2 clauses would necessarily involve coordination of CPs. By the generalizations above coordination of V2 clauses would always have logical (non-asymmetric) interpretations. This prediction, however, is not borne out: both Dutch and German allow asymmetric interpretations for coordinated V2 clauses (Erik Schoorlemmer, Patrick Grosz, p.c.). This may indicate that speaking of TP vs. CP coordination is an oversimplification, and that a more fine-grained division of the left-periphery is involved in coordination. This is an important consideration for further cross-linguistic development of this work.

<sup>4</sup>Example originally from Schmerling (1975).

latter event has caused the former, then Tom will be upset.

This cancelability has been used to argue that asymmetric *and* arises from pragmatic reasoning (the hallmark of conversational implicatures is their cancelability). We could also view the ‘canceling’ clause in (12) (“and the latter event has caused the former”) as a *resolution* of an ambiguity, in which case the example would be parallel to the classic case of structural ambiguity in (13):

(13) I saw a man with a telescope (. . . though he was close enough to see with the naked eye).

In a similar vein, there are cases in which world knowledge influences us to infer a reverse temporal relationship. Such cases have been put forward by Blakemore and Carston 1999 and subsequent work to argue that *and* does not require a ‘forward’ temporal or causal relationship between two clauses:

(14) She did her PhD in the US and she did her MA in Canada.

If clausal coordination is structurally ambiguous, however, we can view this as a case in which it is world knowledge rather than an explicit cancellation that influences a parse as logical/symmetric *and*, just as it does in (15):

(15) I saw a man with a teapot.

(15) is in principle ambiguous, but our knowledge about teapots and seeing influences us to parse it in a particular way. The structural ambiguity hypothesis thus allows us to address several cases that have previously been put forward as arguments for a purely logical semantics of *and* (and for a pragmatic account of asymmetric *and*).

The position that asymmetric *and* is associated with a small clausal constituent – TP – is supported by another set of examples that have been used to argue against asymmetric semantics for *and*. These examples involve focus intonation in both conjuncts, as in (16). Carston (1993), attributing the observation to Larry Horn, argues that the reverse temporal interpretation naturally available to the coordinated clauses in (B) is problematic for an intrinsically asymmetric semantics for *and*.

(16) A: Did Bill break the vase?  
B: Well, the vase BROKE, and HE dropped it.

The reverse interpretation in (16) is *less-direct* than the “forward” interpretation usually available to coordination (Carston 2002, among others) – while asymmetric *and* directly conveys a temporal relation, (16) appears simply to invite the listener to draw a certain conclusion.

It is reasonable to think that the separate focus in each of the conjuncts in (16) requires that *each* conjunct have a CP layer, given the proposal that focus involves a relationship between a focused element and the left periphery, as in, for example, the articulated

proposals for the CP layer in Rizzi (1997). We can therefore attribute the availability of the “reverse” interpretation to the fact that focus requires a parse of CP coordination. CP coordination, by the generalization above, results in an interpretation of symmetric or logical *and*. Listeners are free to draw reverse temporal/causal inferences on the basis of logical *and*, because it does not convey any such relation on its own. In connection to this, note that parallel reverse inferences are available to *embedded* CP coordination:

- (17) a. WELL, the millionaire DIED, and the butler gave him POISON.  
b. We know that the millionaire died and that the butler gave him poison.  
... and so we can conclude that the butler intentionally murdered him.

Rather than being an argument against semantically asymmetric interpretations of *and*, examples such as these provide evidence that the difference between asymmetric and logical interpretations of *and* correlates with structural differences between TP and CP coordination in matrix as well as in embedded contexts. This should not be a surprising result: various asymmetric instances of VP coordination depend on the coordination of particular syntactic constituents (including or not including modal and auxiliary verbs, Goldsmith 1985, Lakoff 1986, Ross 1967), and it is well-known that different properties arise in DP versus NP coordination (described in some detail in Heycock and Zamparelli 2005).

This gives a strong reason to investigate a denotation for *and* that is not variable in itself, but that will produce asymmetric interpretations when combined with objects with the semantic properties of TPs, but logical interpretations when combined with objects with the semantic properties of CPs. The next section turns briefly to this project.

### 3. Towards a Structure-Sensitive Semantics for *and*

What we have seen so far is that the interpretation of coordination tracks the size of the constituents coordinated. This section proposes that *and* has a single denotation, and that the interpretation of coordinated clauses changes as a function of the semantics types of the constituents it coordinates – only TP vs. CP, but potentially VP, NP, and DP as well.<sup>5</sup> It is useful to begin with the asymmetric interpretation of TP coordination, which is the interpretation that diverges from standard semantic assumptions about *and*'s meaning. As we have seen above, particularly in (11), asymmetric *and* does not express only a sequence of events: it can also express a *causal* relationship between events, and a relationship of *containment* (as in *The lights were off and I couldn't see.*). Asymmetric *and* appears to express a general relationship between events: the event of the second clause *follows upon* the event of the first clause.

Here I sketch a semantics for *and* that can derive this general asymmetric relation

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<sup>5</sup>This differs from previous semantic approaches to asymmetric *and*: Bar Lev and Palacas (1980) proposed that *and* had temporal asymmetry built into its meaning, but proposed that logical *and* should be pragmatically derived from asymmetric *and*, while the proposal here is that *and* has a single denotation that can appear in a variety of structures.

when combined with a plausible denotation for TPs, drawing on semantic proposals within the domain of *nominal* coordination. Heycock and Zamparelli (2005) propose that *and* in the nominal domain involves set product, illustrated in (19):

- (18) Set Product (SP) (Heycock and Zamparelli 2005, p. 241)  
 $SP(S^1, \dots, S^n) =_{def} \{X : X=A^1 \cup \dots \cup A^n, A^1 \in S^1, \dots, A^n \in S^n\}$
- (19)  $\llbracket A \text{ and } B \rrbracket$ , where  $A = \{a, b, c\}$  and  $B = \{c, d\}$   
 $= \{\{a,c\}, \{a,d\}, \{b,c\}, \{b,d\}, \{c\}, \{c,d\}\}$

Combined with the assumption that TPs denote sets of temporally-located situations (i.e. *propositions*, in a situation-based semantics), this denotation for *and* can be extended to TP coordination; it would not, however, yield the required *asymmetry* between events. I therefore propose that we might modify Heycock and Zamparelli's denotation for *and* so that it returns not a set of tuples (sets) but a set of *ordered* tuples.<sup>6</sup>

- (20)  $\llbracket A \text{ and } B \rrbracket$ , where  $A = \{a, b, c\}$  and  $B = \{c, d\}$   
 $= \{\langle a,c \rangle, \langle a,d \rangle, \langle b,c \rangle, \langle b,d \rangle, \langle c,c \rangle, \langle c,d \rangle\}$

This modification does produce an intrinsic semantic ordering between conjuncts. To avoid widespread pernicious effects of this ordering, we would have to assume that this ordering will be semantically meaningful only when the members of the ordered tuples are of an *orderable* type. I assume that situations, as objects with temporal extension, can be ordered with respect to one another; by contrast, I assume that concrete individuals or sets of individuals/situations cannot be.

The core of this proposal is that *and* is interpreted asymmetrically when it coordinates situations, but symmetrically when it coordinated non-situations. This requires a denotation for CPs such that, unlike TPs, they do not denote bare propositions. Unfortunately for these purposes, the semantic literature does not assume a single denotation for CPs, or even for CPs introduced by *that*. Embedded CPs can be viewed as *abstractions* over propositions (i.e. sets of sets of situations, Portner 1992) when they occur under attitude predicates – in this case they would not denote situations, and so fit the generalization above. Embedded CPs can also be viewed as *facts*, which are independent of particular times and so presumably not temporally orderable (Asher 1993).

Preliminarily, then, we might propose that embedded CPs denote objects that have no meaningful interpretation as 'ordered'. For matrix CPs, we will want to say something similar. We might assume that matrix CPs simply denote truth values (propositions that have been saturated by the utterance context), which have no semantically relevant ordering and so produce symmetric results.

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<sup>6</sup>This would require some modification to work in Heycock and Zamparelli's analysis of nominal coordination. In general, ordered tuples of individuals would have to behave for all DP-internal purposes just like unordered sets (i.e. plural NPs). Among other details, this would require objects ordered with themselves ( $\langle c, c \rangle$ ) to behave like singleton sets for the purposes of their cardinality (i.e.  $\langle c, c \rangle$  would need a cardinality of 1). Exploring the details of this unification is beyond the scope of this paper.

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The link between asymmetric coordination and event-denoting constituents continues to hold beyond the domain of clausal coordination. VP coordination, for example, is well-known for having a wide range of asymmetric interpretations (Ross 1967, Goldsmith 1985, Lakoff 1986), illustrated by the non-equivalence of the (a) and (b) examples in (21) and (22). This can be explained, on the present account, by the fact that VPs (or rather, *v*Ps) are situation-denoting constituents (Kratzer 1993, et seq.).

- (21) a. Alice went to the store and bought milk.  
b.  $\neq$  Alice bought milk and went to the store.
- (22) a. A student can take six courses and stay sane.  
b.  $\neq$  A student can stay sane and take six courses.

In the nominal domain, DPs and NPs show variable asymmetric properties. Some nominals denote concrete individuals, and when coordinated these appear to produce symmetric (unordered) interpretations: *the orange and the apple* is equivalent to *the apple and the orange*. Some nominals, however, do denote situations, particularly derived nominals such as gerunds (Portner 1992). When coordinated, these appear to be related asymmetrically:

- (23) a. Someone's fall and death was the cause of improved safety regulations.  
b.  $\neq$  Someone's death and fall was the cause of improved safety regulations.
- (24) a. Someone's falling and breaking a leg was the cause of new safety regulations.  
b.  $\neq$  Someone's breaking a leg and falling was the cause of new safety regulations.

Though work remains to be done developing this proposed semantics for *and*, it should be clear how it stands to account for the contrast between asymmetric and logical *and*. Moreover, this approach suggests a way to unify clause-connecting *and* with the *and* that coordinates VPs, DPs, and NPs, all of which have potentially asymmetric interpretations.

This proposal diverges enormously from the common assumption that *and* is equivalent to the logical connective  $\wedge$ . Such a move may seem undesirable on grounds of theoretical parsimony; indeed, it is on precisely such grounds that writers since at least Grice (1975) have argued in favour of a pragmatic analysis of asymmetric *and* (with  $\wedge$  providing the semantic basis of logical *and*). It is therefore worth asking whether we are committed to the view that the connectives of classical logic have precise counterparts in natural language semantics. The view that they do has been losing ground in generative linguistics for some time: for example, the once-widespread view that *if-then* conditionals express material implication has now been largely replaced by the modal restriction analysis (Kratzer 1986, et seq.). In addition to its empirical difficulties, such as the syntactic data discussed in this paper, the analysis analysis of *and* as  $\wedge$  has thus independently lost some of its force since Grice (1975).

#### 4. Previous approaches to asymmetric *and*

This section briefly reviews the main previous approaches to asymmetric *and*. The earliest accounts of asymmetric *and* argued that it arose from similarly asymmetric interpretations of clause sequences, such as those in (25):

- (25) a. The lights came on; the singer stepped onto the stage.  
b. The dam broke; the valley flooded.  
c. The lights were off; I couldn't see.

Posner (1980) argued that we should not propose new mechanisms to generate the temporal/causal interpretations in coordinated clauses, given the independent need to generate these interpretations in clause sequences. In both cases, a unified application of a Gricean maxim of orderliness may require that (all else being equal) situations described earlier in a discourse should temporally precede situations described later (Grice 1975, Schmerling 1975).

Bar Lev and Palacas (1980) demonstrated that coordination and clause sequences are not interpretively identical, however. We have already seen that asymmetric coordination requires a 'forward' relationship between its conjuncts. This is not the case for sequences of clauses:

- (26) a. The singer stepped onto the stage; the lights came on.  
b. The valley flooded; the dam broke.  
c. I couldn't see; the lights were off.

The contrast between clause sequences and coordination argues decisively against the simplest pragmatic account of asymmetric *and*. Bar Lev and Palacas (1980) used the contrast to argue for an entirely asymmetric semantics for *and*, they proposed that *and* requires its second conjunct to *not temporally precede* its first conjunct.

Examples in which the second conjunct does temporally precede the first, such as those discussed at the end of section 2, pose a problem for a purely asymmetric semantics for *and* (Carston 1993, Blakemore and Carston 1999). In response to Bar Lev and Palacas' proposals, more sophisticated pragmatic analyses of asymmetric *and* have been developed by Carston (1993), Txurruka (2003), Blakemore and Carston (2005), and Zeevat and Jasinskaja (2007), among others. What unifies these proposals is the idea that *and* has properties not possessed by clause sequences (whether these properties are *and*-specific varies between these approaches). These properties result in specific instructions to the pragmatic or discourse component of the grammar, instructions that require certain kinds of interpretations or ban others. Thus, for Txurruka (2003), *and* requires that the second clause be connected to the first by a *coordinating discourse relation*, which is inconsistent with the clauses being connected by a *subordinating* discourse relation (Asher 1993, Asher and Lascarides 1993). Juxtaposed clauses, by contrast, are consistent with any contextually appropriate discourse relation. The way this accounts for the limitations on the interpreta-

tions of clausal coordination is by an independently-motivated limitation on what count as coordinating discourse relations: the work of Asher and Lascarides defines a set of coordinating relationships that are only ever compatible with a temporal or causal sequence in which the first clause is antecedent to the second.

To whatever degree a pragmatic approach can predict the attested interpretations of asymmetric *and*, however, it will face difficulty in accounting for the *syntactic* differences between asymmetric and logical *and* that have been the empirical focus of this paper. Structural correlates of any interpretive contrast are problematic for any pragmatic approach to that contrast, because theories of discourse and pragmatics are not ‘built’, generally speaking, to be sensitive to syntactic constituency. By contrast, theories of compositional semantics *predict* meaning differences depending on the size (and consequently the semantic type) of the constituents involved.

The semantic analysis advanced here moreover has the advantage of potentially unifying clause-connecting *and* with other instances of coordination, in the nominal and sub-clausal domains. This is an advantage shared neither by a semantic analysis such as Bar Lev and Palacas’, nor by pragmatic accounts, which generally assume a semantic denotation for *and* ( $\wedge$ ) that is able to combine only with full clauses (propositions). Moreover, as we will see in the next section, this particular approach to the semantics of coordination may extend to another use of *and* that has heretofore resisted unification.

## 5. Extension to Left-Subordinating *and*

The discussion so far has suggested that asymmetric *and* is an interpretation that arises based on the syntactic properties of the constituents being coordinated. This section proposes that the asymmetric uses of *and* that have been discussed so far share a great deal in common with another asymmetric use of *and*, though the two have always been discussed separately in the literature. This is a use of *and* that has an interpretation very similar to an *if-then* conditional, illustrated by the examples in (27).

- (27)
- a. Alice shows up late one more time and she’ll be fired.
  - b. Our parents find out about this and we’ll be disowned.
  - c. The lights come on and you’ll know the singer is about to step onto the stage.
  - d. The sniper shoots him and he’s dead.
  - e. The dam breaks and the valley will be flooded.

Because of its similarity to *if-then* conditionals, Culicover and Jackendoff (1997) refer to this as *left-subordinating and*. This left-subordinating *and* has been discussed primarily in the context of *imperatives*, due to the striking fact that its first conjunct can be an imperative clause, as in (28):<sup>7</sup>

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<sup>7</sup>Cases of left-subordinating *and* in which the first conjunct is an imperative are discussed in Bolinger (1967), Han (2000), Schwager (2005), Russell (2007), and forthcoming work by Sabine Iatridou and Kai von Stechow. Left-subordinating *and*’s first conjunct can also be a DP, though the type of the DP is fairly restricted

- (28) a. Sit down and I'll tell you a story.  
b. Move and I'll shoot.  
c. Open the newspaper and you'll find several typos on each page.

Beside these significant differences, however, there are important parallels between so-called left-subordinating *and* and the asymmetric uses of *and* discussed throughout this paper. Firstly, note that the examples in (c-e) of (27) are directly parallel to the examples of asymmetric *and* discussed in section 2. All that is necessary to switch from asymmetric to logical *and* is to replace the tense in the first conjunct with a generically interpretable tense. Furthermore, Culicover and Jackendoff observe that left-subordinating *and*, when embedded, requires TP rather than CP coordination:

- (29) Culicover and Jackendoff (1997), p. 198  
a. You know, of course, that you drink one more beer and you get kicked out.  
(= that if you drink one more beer you get kicked out.)  
b. You know, of course, that you drink one more beer and that you get kicked out.  
( $\neq$  ... that if you drink one more beer you get kicked out.)

The fact that left-subordinating *and* shows the same syntactic restriction as more general cases of asymmetric *and*, together with the fact that the examples of left-subordinating *and* in (27) seem closely parallel in interpretation to asymmetric *and*, suggests that a unified analysis of the two might be possible. Particularly, the fact that declarative uses of left-subordinating *and* require a generically interpretable tense in the first conjunct suggests that left-subordinating *and* may be analyzable as a *generically interpreted* instance of asymmetric *and*. Thus, instead of asserting a relationship between two specific temporally-located situations, left-subordinating *and* generically asserts a relationship between all situations of a particular type.

This is related to analyses of left-subordinating *and* that propose that it involves the restriction of a generic modal by the clause in the first conjunct (Schwager 2005, for example). Such analyses have assumed a traditionally vacuous interpretation for *and*, however. What would be novel about the proposed account is that it would *unify* left-subordinating *and* with other asymmetric uses of *and*, reducing its status as an exception.

## 6. Conclusion

This paper has presented evidence that the interpretation of *and* – specifically the contrast between asymmetric and logical *and* – correlates with the size of the constituents coordinated. Specifically, it was shown that asymmetric interpretations are available only to TP coordination, while logical interpretations are available only to CP coordination, at least in

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(Culicover 1970). Finally, a sufficiency modal can occur in the first conjunct, as in: *You only have to go to the North End to find good cheese* (von Stechow and Iatridou 2007), though no other modals can occur in these sentences.

embedded contexts. I argued that this correlation also exists in matrix coordination, where the lack of visible differences between TPs and CPs creates a case of structural ambiguity. This makes possible a unified semantic analysis of *and*, while avoiding overgeneralizing either asymmetric or logical properties of coordination.

Space constraints permitted only a sketch of a semantics for *and* that capitalizes on this structural ambiguity to derive both asymmetric and logical *and*, and precluded any fuller discussion of competing pragmatic accounts of asymmetric *and*. One clear advantage of this type of semantic approach, however, is the clear possibility of a further unification of the semantics of coordination, not merely with coordination of categories such as VP, NP, and DP, but also with the yet-different conditional interpretations for conjoined clauses found with left-subordinating *and*.

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