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English *then* and Norwegian *da/så* compared: a Relevance-theoretic account

Thorstein Fretheim

An analysis of the English adverb *then* is suggested, which treats it as ambiguous, encoding two distinct meanings, one of which is anaphoric and corresponds to the meaning of the Norwegian temporal adverb *da*, and the other is non-anaphoric and corresponds to the meaning of the Norwegian temporal adverb *så*. The paper challenges the commonly made assumption that cases of supposed ambiguity which exist cross-linguistically might be better reanalyzed in terms of a univocal semantics and a range of pragmatic inferences, either as implicated meanings along Gricean lines or as the outcome of context-dependent inference at the explicit level of content, in keeping with the practice of adherents of Relevance Theory. Data from some other European languages and four African languages are examined and compared to the polar situations represented by English on the one hand and Norwegian on the other.

Keywords ambiguity, contrastive analysis, coordination, English, Norwegian, pragmatic processing, procedural meaning, Relevance Theory, sense-generality, temporal anaphora

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1. INTRODUCTION

The English word *then* can be paraphrased as 'at that time' or as 'after that'. One might assume that this is a case of lexical ambiguity, or that a single lexical item *then* includes both meanings because it has an underspecified, univocal (sense-general) meaning, to be complemented by context-dependent inference at the pragmatic level of utterance interpretation.

As English uses *then* to cover the meaning of Norwegian *da* as well as *så*, it is pertinent to raise the question whether what looks like a single temporal adverb *then* is in fact two lexical items, one that exhibits the semantic properties of *da* and one that corresponds to non-truth-conditional *så*. This is the major theoretical issue to be examined in the present paper. My main claim is that an analysis in terms of ambiguity gives a more adequate account of the syntactic and semantic properties of *then* than a univocal semantic analysis.

Let us take a look at some data that display the central facts to be accounted for.

(1) Then he started to work as an accountant.

Sentence-initial *then* in English could be a truth-conditional anaphor, an indexical (Kaplan 1989) which functions as a temporal, conditional or causal constraint on the proposition expressed by a token of (1). One can assign a strictly temporal interpretation to *then* in a given context, but the anaphor *then* may also be understood to represent a condition, a premise whose truth leads the speaker to the conclusion that the man must have started to work as an accountant (a conditional in the epistemic domain; cf. Sweetser 1990). Alternatively, *then* in (1) could be a non-truth-conditional connective with no referential properties, a word that might be paraphrased by *after that*, *when that period was over*, *next*, or even *later* or *afterwards*, but which lacks the conceptual meaning encoded by any of these English expressions.

While the preverbal *then* in (2) is ambiguous in the same way as the clause-initial *then* in (1), the clause-final *then* in (3) cannot be paraphrased by *after that*. The syntactic position of *then* in (3) tells us that the speaker intends the word to be processed as an anaphor whose resolution depends upon identification of an antecedent proposition that places a temporal constraint on the proposition expressed by a token of (3).

(2) He then started to work as an accountant.
(3) He started to work as an accountant then.

Relevance Theory (henceforth RT) makes a distinction between two kinds of semantic encoding. Most linguistic items encode a concept, but certain syntactic constructions, adverbs, subordinating and coordinating connectives, affixes and intonation structures found in the grammars of natural languages are believed not to encode a concept but rather a procedure for the addressee to follow in the extra-linguistic process of recognizing the speaker's communicative intention. A linguistic item whose grammatically encoded meaning is procedural will direct the addressee to a specific inferential path which putatively facilitates the addressee's pragmatic search for those cognitive effects that will make the utterance relevant to him (see Blakemore 1987, 1992, 2002; Blass 1990; Wilson & Sperber 1993; several papers in Andersen & Fretheim 2000; Fretheim 2001a, b; Bezuidenhout 2004).

What I refer to as the anaphor *then* and as the segmentally identical non-truth-conditional marker of temporal succession both encode a procedure in the sense of RT. The anaphor instructs the addressee to identify an antecedent with which to match it in the inferential part of the utterance comprehension process. This pragmatic process of filling the anaphor with conceptual meaning whose linguistic source is a discourse antecedent will enable the addressee to identify the proposition expressed by the utterance, and possibly certain implicatures as a consequence of that pragmatic process. Likewise, the succession marker encodes an instruction for the addressee to observe in the pragmatic phase of utterance comprehension, but this item instructs the addressee to place the event described later in time than the event referred to in the preceding utterance, and there is no antecedent–anaphor relation.

One may legitimately ask what would prevent us from postulating a univocal lexical semantics for the anaphor and the non-anaphor and letting the choice between the two uses be left to context-dependent inference. The distributional restriction that rules out a temporal succession interpretation of a sentence like (3), where *then* is clause-final, could even be argued to support a univocal analysis. Optional differences in word order will typically carry procedural information for the addressee to exploit in the comprehension process, so it is conceivable that the syntactic position of *then* in (3) simply adds a constraint on the inferential processing, a constraint which is absent when its position is initial or between the subject and the finite verb, as in (1) and (2).

I do not object to a view of the syntactic position of *then* in (3) as a procedural clue that the addressee may exploit to his benefit. However, the observation that a token of *then* in clause-final position rules out a certain pragmatic processing of the word is unrevealing if this syntactic constraint is viewed as an isolated phenomenon, unrelated to other facts of English grammar. I am going to demonstrate that the difference in meaning potential between (1)/(2) and (3) follows from a more general recognition of what syntactic positions are accessible to what kinds of linguistic items in English.

There are three syntactic positions that an English non-truth-conditional item may occupy. Two of them are exemplified in (1) and (2). The third possibility is to let an unstressed *then* occupy a parenthetical position, either in mid-utterance or at the end, as illustrated by (4)–(6).

(4) There are signs, then, that the global warming cannot be ignored any longer.
(5) (So) there are signs that the global warming cannot be ignored any longer, then (would you say)?
(6) He started to work as an accountant, then.

The communicative role of *then* in (4)–(6) is not to contribute to the proposition expressed but to indicate that the speaker's act is an interpretation of someone's thought (see Sperber & Wilson 1986, Blass 1990, Noh 2000). A parenthetical unstressed *then* does not represent a single proposition but the full set of contextual assumptions that prompts the speaker's utterance, a set of background premises which has normally been made mutually manifest by verbal means in the preceding discourse (see Fretheim, Boateng & Vaskó 2002). Parenthetical *then* is not an anaphor, nor is it a marker of temporally successive events. It is a lexical item different from the adverb, no matter whether the adverb is itself treated as one or as two lexical items; it will be largely ignored in the present paper.

In contradistinction to the syntactic positions of *then* in (1)–(2) and (4)–(6), the position illustrated in (3) is reserved for truth-conditional grammatical constituents, whether the constituent is an anaphor or a lexical phrase with a rich conceptual meaning. A nominal anaphor like a personal pronoun can occupy all and only the

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syntactic positions of nominal phrases; by the same token, an adverbial anaphor like *then* can occupy all and only the syntactic positions in which a regular adverbial adjunct with conceptual content may appear, including the final position, as in (3), the post-nominal position, as in (7), and even the pre-nominal ('adjectival') position, as in (8).

(7) This is a film about [life **then**]$_{NP}$.
(8) I was introduced to [the **then** Mayor of London]$_{DP}$.

No non-truth-conditional encoder of a strictly procedural meaning can ever combine with other syntactic elements to form a grammatical constituent and it is therefore impossible to understand (7) as saying that the film is about life after a certain contextually determinable period, or (8) as saying that the speaker was introduced to the next Mayor of London, to the one who was in office subsequent to a period mentioned previously.

The fact that English is by no means the only language that unites an anaphoric and a non-anaphoric meaning in what looks like a single word would normally be considered a point in favor of lexical univocality (sense-generality), which is generally favored over polysemy or homonymy in much work on the semantics–pragmatics interface, and which may be considered one of the trademarks of RT. This preference is a natural consequence of the dominant view in pragmatic research after Grice (1975, 1989): sentence meaning underdetermines utterance meaning, and, in keeping with Grice's 'Modified Occam's Razor' principle (MOR), there is no need to postulate cases of semantic ambiguity which, upon closer scrutiny, turn out to be pragmatically derived meaning differences dependent upon differences in the sets of contextual premises that a hearer will rely on in processes of utterance interpretation.

This paper is, by and large, faithful to the spirit of RT. Nevertheless the conclusion that I arrive at is that there is substantial evidence against a univocal, sense-general analysis of the lexical meaning of *then* and fairly strong evidence for the existence of one anaphor *then* and one non-truth-conditional connective, which one should not attempt to reduce to a single lexical meaning.

The paper is organized as follows: in section 2, I look at the meaning and use of *then* in older stages of the English language and find that the situation was not very different from that of the present; in section 3, I return to the distinction between conceptual and procedural semantic encoding, and spell out the significance of this distinction for an understanding of the type of argumentation appearing later in the paper; section 4 examines possible arguments for, and a number of arguments against, a univocal lexical analysis of *then* and concludes that the latter outweigh the former in terms of quality as well as quantity; section 5 considers the meanings and distributional patterns of the two Norwegian adverbs *da* and *så* and concludes that *da* has lexical properties that make it a near-equivalent to the anaphor *then*, while *så* has lexical properties matching those of the non-anaphor *then*; section 6 examines

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the lexical properties of words that may be glossed as 'then' in some other European languages as well as four African languages and assesses to what extent the data sheds light on my main theoretical issue; section 7 is the conclusion of the paper, in which I suggest that one should not exclude the possibility that there may be some cognitive support for a polysemy analysis of the adverb *then*, as opposed to an analysis in terms of two distinct words.

2. PAST USES OF *THEN*

The English adverb *then* appeared in the Middle English form *thenne*, meaning 'at that time', 'then' around 1200 (*Chambers Dictionary of Etymology*, Barnhart 2003). Its Old English predecessor was *thanne*, *thænne*, *thonne* (in *Beowulf* 725), and it is cognate with Modern Dutch *dan* and Modern German *dann* and *denn*, Old English *þa*, Old Icelandic (Old Norse) *þá*, Modern Danish and Norwegian (Bokmål) *da*, and Swedish and Norwegian (Nynorsk) *då*, where the rounding of the vowel indicated by the diacritic ° of Scandinavian spelling was something that affected an earlier long but unrounded vowel *á*.[1] These adverbs all derive from the same Indo-European demonstrative root as Old English *þæt* 'that'.

The discourse functions of Old English *þa* have received considerable attention from scholars in the field and may be said to be fairly well understood (Enkvist 1972; Enkvist & Wårvik 1987; Wårvik 1995; Breivik 2002). *Þa* is most frequently found as a clause-initial 'discourse marker' in Old English narratives, where it appears to be a compulsory element as long as there is no deviation from the main story line. It is a marker of consecutive events and is therefore more likely to preface a predication with an activity verb than one with a stative verb. Typically, sentence-initial *þa* points ahead to what happens next, as described in the sentence it introduces, and this use of *þa* to indicate a temporal sequence is also found in the position after the finite verb, or after the verb plus an enclitic subject pronoun (Bosworth & Toller 1898).

Old English *þa* was also used with the meaning of 'at that time', as an anaphor that points backwards to an antecedent structure to be retrieved in the immediately preceding discourse. There are numerous attested tokens of a non-initial *þa* where the function is anaphoric. Wårvik (1995:348, quoted from Breivik 2002:42) says, '[i]n addition to its text-structuring role, *þa* can also function as a time adverbial similarly to its Modern English counterpart *then* "at that time"'. Bosworth & Toller's (1898)[2] Anglo-Saxon dictionary lists three distinct uses of *þa*: **I** *then* with the meaning of *at that time*, **II** marking sequence: *after that*, *thereupon*, and **III** as a temporal subordinating connective, *when*, or as a connective of cause or reason, *when*, *since*, *as*. The anaphoric function (**I**) is not restricted to any particular positions in an Old English sentence. In an excerpt from a text cited by Enkvist, and also by Breivik (2002:42f.), Old English (9) corresponds to the sentence highlighted in the translated

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sequence of sentences presented in (10). *Þa* is the source text counterpart of *then* throughout.[3]

(9) Þa wæs he swa feor norþ swa þa hwælhuntan firrest faraþ
then was he so far north as the whalehunter furthest go

(10) Then he travelled northwards along the coast, keeping all the way the waste land on the starboard and the open sea on the port side for three days. **Then he was as far north as the whalehunters go furthest**.
Then he travelled still northwards as far as he could sail in another three days. Then the land turned east, or the sea into land, he did not know which, but he knew that he waited there for a wind from the west and a little from the north and sailed then east along the coast as far as he could sail in four days. Then he had to wait for a due north wind.

There is a real, though maybe not so conspicuous, difference between the function of *then* in the highlighted sentence in (10) and *then* in the other sentences. Even speakers of Old English must have operated with a tacit distinction between *þa* as a non-truth-conditional discourse connective and *þa* as an adverbial anaphor whose coreferential antecedent must be retrieved by a search in the immediately preceding discourse. The fact that the latter, but not the former, could occupy any position that a regular lexical adverbial phrase could fill is evidence of this intuitive recognition.

With the exception of *then* in the highlighted sentence, all the tokens of *then* in (10) are seen to appear in sentences that relate what the protagonist was doing, or what befell him as his voyage proceeded further and further to the north. The highlighted sentence whose source text counterpart is shown in (9) is different, in that it describes the result of his having travelled along the coast for three days. The Old English verb is neither an activity verb nor an inchoative verb, but is stative *wæs* 'was'. This is the only instance of *then* in (10) that would seem to require the understanding 'at that time' rather than 'after that/thereupon'.

As in Modern English, Old English *þa* is subject to certain syntactic constraints, because only the anaphoric truth-conditional *þa* meaning 'at that time' can occupy the final position that *then* had in (3) above. Its position is clause-initial in (9) even though it has an anaphoric function there; as in Modern English, that position can be occupied indiscriminately by *þa* as an anaphoric marker of temporal coreference with an antecedent and as a marker of consecutive events.

3. PROCEDURAL AND CONCEPTUAL MEANING

RT, as developed by Dan Sperber and Deirdre Wilson (Sperber & Wilson 1986, 1995; Blakemore 1987, 1992, 2002; Wilson & Sperber 1993, 2004; Carston 2002), proffers a very promising but as yet not fully-developed dichotomous distinction in natural language semantics between linguistic items with a conceptual meaning and

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linguistic items with a procedural meaning (see Bezuidenhout 2004, for a critical appraisal and a new conception of procedural encoding). Conceptual and procedural meaning components may co-occur in a single 'function word' and they typically do so in anaphoric pronouns and other indexicals. Thus, anaphors which are not totally devoid of conceptual content may be said to have a predominantly, rather than purely, procedural meaning. For example, personal pronouns may encode the conceptual opposition between singular and plural, animate and inanimate, masculine and feminine gender, but a truth-evaluable proposition emerges only if that sort of sparse conceptual content is enriched with the help of contextually derived conceptual material.

In RT, the encoded logical form of a sentence or a sub-sentential syntactic form is said to be the output of a modular linguistic code and the input to a pragmatic processor which fleshes it out in context, by adjusting and adding to the encoded semantic template/logical form in a bid to obtain a truth-evaluable proposition as output. This pragmatic output is typically a much richer conceptual representation than what is provided by the linguistic semantics of the grammatical form employed. While any such derived representation is obviously constrained by the conceptual structure of the linguistic input, it is also crucially constrained and guided by what relevance theorists refer to as the relevance-theoretic comprehension strategy, or comprehension procedure, which reads as follows:

Relevance-theoretic comprehension procedure (Wilson & Sperber 2004:613)

a. Follow a path of least effort in computing cognitive effects. Test interpretive hypotheses (disambiguations, reference resolutions, implicatures, etc.) in order of accessibility.
b. Stop when your expectations of relevance are satisfied (or abandoned).

In addition, since Blakemore's seminal work on semantic constraints on relevance (Blakemore 1987), there is believed to be a category of linguistic items in all languages – whether they are independent words, affixes or lexicalized phrases – whose role is to direct the addressee's attention towards one or more contextual assumptions that should be brought to bear in the process of inferential comprehension. These items contribute to relevance by facilitating activation in the hearer's mind of certain extra-linguistic assumptions that are conducive to the derivation of the intended cognitive (or contextual) effects of the utterance produced, those effects, relative to the hearer's present cognitive system, which are supposed to make the utterance optimally relevant to him. Some of these procedural clues to utterance interpretation make themselves felt at the implicit level of communication (Blakemore 1987); others, in particular different sorts of indexicals with little inherent conceptual content, instruct the addressee to carry out an obligatory enrichment process, called saturation by Recanati 1993, 2004), in order to identify the intended explicature of the utterance in a cost-effective way (Wilson & Sperber 1993, 2004).

Thus, procedural semantics covers the study of linguistic items whose main, and sometimes even sole, function is to offer clues to the context-dependent derivation of those cognitive effects that would make the utterance relevant to the hearer, including direction as to how to set up a context that is likely to secure inferential derivation of cognitive effects as intended. Discourse anaphora like Norwegian temporal (and conditional) *da*, and English *then* in one of its uses, are indexicals, which indicate how an addressee is supposed to flesh out the logical form of the utterance in which they appear. The linguistic output of the grammar used by the communicator at most offers addressees a semantic template that delimits their search space in the process of retrieving the truth-conditional content of the utterance and possibly deriving further cognitive effects as implicated conclusions (see Carston 2002 on semantic underdeterminacy).

In addition to the resolution of context-sensitive indexicals and other mandatory processes of pragmatic enrichment of encoded meaning, there are also 'free' pragmatic enrichment processes. They are free in the sense that they are unnecessary for mental representation of some 'minimal' proposition that deviates in a very modest way from the linguistically encoded sentence meaning, but such free enrichment processes are constantly required in communication in order to satisfy our expectation that the linguistic stimulus is relevant enough to deserve our attention (cf. Sperber & Wilson's (1995) communicative principle of relevance and presumption of optimal relevance). For example, if we hear someone saying *He went up to the table and filled his plate*, it is possible to construe a minimal proposition 'He went up to the table in front of him and filled his plate with something or other', but the hearer will hardly stop his inferential processing at that juncture. He will normally enrich the conjunct *filled his plate* as 'filled his plate with food from the table that he went up to', adding concepts that are not linguistically encoded. Similarly, when we hear *It was a warm and sunny Sunday and the park was more crowded than usual*, we tend to enrich the logical form and obtain a mental representation of a causal relation between the nice weather and the attractiveness of the park. Both conjoined segments express individual propositions, though, and we are free to suppress representation of a causal link between the two states of affairs, if there is sufficient contextual evidence against it; for example, there could be some delightful, free entertainment in the park on that particular Sunday, which would be sure to fill the park with people even on a rainy day.

How do we recognize an encoder of procedural meaning when we see one? Concepts combine with other concepts to build well-formed syntactic structures whose meaning can be described in terms of a compositional semantics. Thus, the combinability of *then* with the prepositions *until* and *since* in (11) is strong evidence that the word encodes a concept, but it is an extremely underspecified concept, because it needs to be saturated by being connected mentally to an antecedent structure with a

more specific conceptual meaning, specific enough to enable the addressee to resolve its reference and develop a proposition.

(11) Until then I had no idea what a budget is. Since then I have never referred to it as a 'budgie'.

Anaphoric *then* can also be an adnominal modifier, as demonstrated in (7) and (8) above, repeated here.

(7) This is a film about [life **then**]$_{NP}$.
(8) I was introduced to [the **then** Mayor of London]$_{DP}$.

The phrases with *then* could be replaced by *life in those days* in (7) and *the one who was the Mayor of London at that time* in (8), but even these syntactically more complex and semantically more specific phrases contain an anaphor, the demonstratives *those* and *that*, respectively, which must be pragmatically enriched just like *then*.

Unlike discourse anaphora, pure procedural encoders do not contribute to the building up of multi-word grammatical constituents, and they do not contribute anything to the proposition expressed. Consider the difference between the two alternative responses, B_1 and B_2, to A's statement in (12).

(12) A: There will be no strike.
B_1: Then we don't have to cancel our flights.
B_2: So we don't have to cancel our flights.

So encodes a procedure in the sense of Blakemore (1987, 1988), and has strictly no conceptual meaning. According to Blakemore (1988:188), *so* can be used to indicate that the relevance of the proposition it introduces lies in the fact that it is a contextual implication of a previously expressed proposition, like interlocutor A's proposition in our example (12) B_2. *Then* in B_1 has very little conceptual meaning but it does contribute to the proposition expressed by that utterance. We understand B_1 to express a causal implication of the information offered by the first speaker A. The proposition expressed includes an enriched mental representation of *then*. This word by itself tells us no more than that its presence places a (temporal, conditional or causal) constraint on the propositional content. The anaphor *then* in (12) B_1 embeds the condition 'There will be no strike' in speaker B's conclusion that there is no need to cancel the flights.

I shall refer to anaphora like *then* in (12) B_1 as conceptual embryos. We may not have reliable conscious knowledge of the grammar-dependent semantic meaning of such words, but in the case of *then* we at least know that its grammatical function is that of an adverbial phrase, that it does not refer to a place (as opposed to anaphoric *there*), that it is antonymically opposed to the temporal adverb *now*, and that it can always be paraphrased by an adverbial adjunct which encodes a certain conceptual meaning. In (12) the right inferential enrichment of the conceptual embryo was made possible

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through association with the explicature of A's utterance, which also contains inferred conceptual elements, including an assumption about who the potential strikers are (pilots or air traffic controllers?) and the time when the strike would have started, if it was for real.

More interesting than the difference between (12) B_1 and B_2 is, for the present paper, the difference between *then* in (12) B_1 and *then* in (13).

(13) First they announced that the strike was called off and then they cancelled all press conferences.

The people referred to here did two things, in the communicated order, but while person A in (12) must flesh out person B's utterance B_1 by means of conceptual material made accessible in A's own utterance, *then* in (13) contrasts with the temporal adverb *first* in the preceding declarative and is not an anaphor with a referential value. The procedural meaning of *then* in (12) is an instruction to find an antecedent, but the procedural meaning of *then* in (13) is an instruction to order the described events sequentially. *Then* is not a conceptual embryo in (13) but a pure encoder of a procedure, just like *so* in (12) B_2.

One defining feature of antecedent–anaphor relations is the coreference condition. If we process *then* as an anaphor with temporal reference, there must be coreference between the period of time that *then* refers to and the time at which its presumed antecedent proposition is understood to be true. Similarly, when *then* is inferred to represent a condition, as in (12), there must be referential identity between the abstract entity represented by *then* and the abstract entity referred to in the antecedent structure whose content will be used to saturate *then*. It is apparent that the token of *then* that follows *and* in (13) does not satisfy these criteria. We understand *then* to have temporal implications in (13) but its meaning cannot be 'at that time', it can only be paraphrased as 'after that (time)', 'later' or 'next'. Hence, it appears that the coreference condition is not met.

In fact, strict simultaneity (temporal coreference) may be relatively rare in this sort of antecedent–anaphor relation. We find it in *There was a terrible thunderstorm. Then I was scared* (inferred cause) but probably not in *They told me that the tickets were sold out. Then I went home* (another causal relation), where the explicature of *Then I went home* could be true even if the speaker did a couple of errands in town before going home but after being told that there were no more tickets.[4]

In the next section, I am going to look more closely at the arguments for and against an analysis of *then* that splits this word lexically into a truth-conditional anaphor on the one hand and a non-truth-conditional 'discourse connective' on the other, bearing in mind that there is a very strong RT tradition for giving function words a univocal lexical semantics and to derive observed meaning variants as a result of different handling in the inferential phase of comprehension. That seems to work very nicely for the temporal, conditional and causal uses of the anaphor *then*,

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which can certainly be united within a single lexical item.[5] Subsuming those functions under the same lexical item as the non-anaphoric *then* exemplified in (13) may be less tractable. Still, there is a single phonological form *then*, but more importantly, there is also a fairly easily recognizable resemblance in meaning between the token of *then* in (12) B_1 and the token of *then* in (13), which helps the hearer to order the events temporally. Thus, the univocal analysis should not be dismissed offhand.

4. ONE OR TWO LEXICAL ITEMS *THEN*?

4.1 Preliminaries

I would like to emphasize once more that I am not going to discuss arguments for or against counting the different context-dependent uses of the ANAPHOR *then* as lexically distinct uses. Questions such as whether *then* should be saturated as a temporal constraint, or as a condition, or maybe as the cause in a cause–effect relation must ultimately be inferred on the basis of contextual clues of various sorts (cf. note 5).

Section 4.2 looks at two proposals for a univocal lexical semantics, a solution adopted in spite of the fact that tokens of the lexical items considered are seen to affect explicit truth-conditional content in some but not all contexts.

4.2 Can a truth-conditional and a non-truth-conditional use of a form be accommodated in a single lexical item?

The answer to the question posed in the title of the present section is 'yes'. If a given function word encodes a procedure, it may direct an addressee to one inferential path in one type of context and to a different inferential path in a different type of context. More specifically, the instruction encoded may have truth-conditional consequences in some but not all possible contexts. One would not want to say that the inherent lexical meaning of the word changes in accordance with the kind of cognitive behavior that the word triggers in a human processor.

Let us now take a look at two linguistic expressions that have received a univocal lexical analysis in relevance-theoretic literature, despite the fact that some occurrences seem to affect the addressee's determination of the explicature of the utterance, while others seem to have an impact only at the implicit level of content. Having done that, we are going to raise the question whether the meaning of *then* lends itself naturally to a similar type of pragmatic analysis, or whether *then* represents something different.

Rouchota (1998) notes that English inferential *so* (cf. (12) B_2 above) which encodes a procedure (*pace* Blakemore 1987, 1988), places a constraint on truth-conditional content in (14) but not in (15).

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(14) If the mushrooms served at the restaurant were poisonous and so Bill died, then his family should be compensated.
(15) Jane has a year off. So she is going to finish her book too.

Rouchota (1998: 39) concludes that '*so* affects the truth-conditions of the utterance in which it occurs at least occasionally. In other words, *so* is a constraint on relevance which sometimes operates on the proposition expressed by the utterance and sometimes on the utterance's implicatures'. She does not say explicitly that there is a single univocal meaning for *so* in (14) and *so* in (15), but her argumentation directs a reader of her paper to that conclusion.

Fretheim (2001b) discusses certain linguistic items in English and Norwegian, whose truth-conditional impact is obvious in some contexts and much less obvious, or even entirely non-existent, in other contexts. Nevertheless, the argument goes, there is no reason to fear that the lexical unity of the items examined cannot be retained because of this context-dependent difference in how the word may affect the inferential processing of the utterance. The scalar particle *at least* is one of the lexical items analyzed. *At least* was viewed by Kay (1997) as an expression with three different uses, which he called Scalar, Evaluative and Rhetorical (the use of caps is Kay's). Scalar *at least* occurs canonically with terms relating to numerical scales and other quantitative scalar terms, Evaluative *at least* is found in utterances expressing a low degree of favorable evaluation, and Rhetorical *at least* is used in epistemically weakening afterthought phrases, as in *Mary is at home, at least that's what Sue said*. It emerges from the way that Kay describes these three uses, that he actually regards *at least* as a three-way ambiguous lexical item, because he says that '[t]he notional observations we can make relating the various usages of *at least* to each other belong to the ad hoc, non-productive family of polysemy relations' (Kay 1997:121). There is, however, nothing ad hoc about a sense-general (monosemy) analysis of *at least*. The so-called Evaluative use of *at least* in (16) is as clearly scalar as its so-called Scalar use in (17).

(16) a. At least he is forty-two years old.
b. He is forty-two years OLD, at least.
(17) a. He is at least forty-two years old.
b. He is forty-two years old – at LEAST.

An utterance of (16a–b) asserts that the age of the male person referred to is forty-two, while an utterance of (17a) and (17b) asserts that his age is forty-two or more, the elimination of the upper age limit being due to the truth-conditional effect of *at least* there. One should not overlook the fact that the syntactic position of *at least* is a procedural clue that a competent language user knows how to exploit. *At least* has a univocal lexical meaning and occasionally, for instance when the sentence contains a numeral, the scope of *at least* can be narrowed down to the phrase that refers to the cardinal scale, provided the speaker places the scalar particle immediately to

the left of the cardinal phrase, as in (17a), or adds a strongly stressed *at least* as an afterthought, as shown in (17b). Otherwise, if *at least* is in the initial position illustrated in (16a), or if it is utterance-final and parenthetical as in (16b), it takes scope over the entire proposition expressed by the utterance, placing that proposition on some scale that has to be determined contextually. The proposition expressed by (16) represents the lower bound on a scale, which could be defined in terms of (increased) desirability, just as the age of forty-two represents the lower bound on the age scale activated by the utterance of (17). We infer different things from the position of the particle in (16) and (17), but the difference in truth-conditional content is not due to a lexical ambiguity in *at least*; it arises at the level of pragmatic interpretation, where procedural information which is due to the syntactic position of *at least* as well as the contrast between prosodically different tokens of *at least* contribute to the relevance of the utterance. The tokens of *at least* in (16) direct the hearer's attention to a higher-level explicature (Blakemore 1992; Wilson & Sperber 1993), it reveals the speaker's positive attitude to the fact that the man referred to is forty-two years old.

Our claim about *so* and *at least* is that these lexical items encode a procedural meaning that can direct the addressee to a specific pragmatic enrichment of the proposition expressed, but they do not always affect the truth-conditional content of the utterance in which they appear. Does the variable use of *then* resemble the cases described above sufficiently to make a univocal lexical analysis of *then* work? Is it possible to find an adequate formulation of the lexical meaning of *then*, which is analogous to the univocal treatment of *so* and *at least* discussed in the present section? This may not be an easy task. A univocal lexical account of *then* would have to allow for the fact that the word is an anaphor in some contexts but not in other contexts. In my opinion that problem is overcome in the case of *at least* or *so* but can the seemingly disjunctive anaphoric and non-anaphoric functions of *then* be reconciled with the postulation of a single lexical definition of that word?

4.3 Does then *permit a univocal analysis?*

Let us first take a look at the sequence of sentences in (18), where an anaphoric interpretation and a succession-of-events interpretation appear to merge, making it very hard to distinguish the two. Doesn't that give us a rather strong argument in favor of a univocal analysis?

(18) He returned to his small room where he read until he heard his aunt or uncle wake. Then he would leave his room and tend to their needs.
(Chaim Potok, *The Book of Lights*, 1983)

One could possibly refer to the token of *then* in (18) as a marker of temporal succession, because obviously, the reference of *he* is to a person who leaves his

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room to cater for his aunt and uncle subsequent to his recognition that the old couple were no longer asleep in their beds. But one could also view *then* as primarily a marker that tells us how the sounds that convinced him that his aunt and uncle were awake prompted him to leave what he was doing and join them. Does that causal understanding of the relationship between the way the man is described before and after the occurrence of *then* depend upon a (near) simultaneity of events or a succession of events reading of the connective? Or maybe that question is spurious because any such temporal distinction would emerge through pragmatic inference rather than through an ambiguity in the linguistic code?

However we choose to construe the relationship between the propositions linked verbally by means of *then* in (18), there is no denying the fact that we automatically infer that the behavior described in the last period is triggered by the man's noticing that his aunt and uncle were awake. To be sure, *then* in (18) communicates more than just a succession of events, but the question is how much of it resides in the lexical meaning of *then* and how much is due to context-driven enrichment of the logical form. How many lexical items *then* are there? And if there is a single one, does it have a complex polysemous semantic structure, or does it have a sparse lexical semantics, so that the way in which we understand it to connect two linguistically represented events depends less on what the word encodes and more on what we infer from its presence in a given utterance processed in an accessible context?

If the question whether a given token of *then* is anaphoric or non-anaphoric is not determined lexically but depends on pragmatic inference in a specific context, it should in principle be possible to use the succession marker *then* and a phrase like *after that* interchangeably, just as it is indeed possible to use the anaphor *then* and the phrase *at that time* interchangeably. A comparison of sequences like (19) and (20) shows that sequential *then* is not always substitutable for the prepositional phrase *after that* made up of a concept-encoding preposition and a pronominal demonstrative.

(19) Remember the tsunami? I wouldn't want to go to Thailand after that.
(20) Remember the tsunami? #I wouldn't want to go to Thailand then.

Supposing that there is a single lexical item *then* and that its sentence-final location offers the hearer the information that it is used anaphorically, one could conceivably explain the fact that *then* cannot mean 'after that' in (20) with reference to the restricted syntactic distribution of the succession marker. This hypothesis is refuted, however, by the structure of (22) where *then* is sentence-initial but no more capable of being interpreted as 'after that' than the sentence-final occurrence of *then* in (20).

(21) Remember the tsunami? After that I wouldn't want to go to Thailand.
(22) Remember the tsunami? #Then I wouldn't want to go to Thailand.

Then functioning as a truth-conditional connective can only link the linguistic expressions of two events that can happen in the temporal order reflected by the

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linguistic order. Even though the phrase *after that* makes perfect sense in (19) and (21), *then* cannot be read as 'after that' in (20) or (22), because the meaning of the non-truth-conditional connective *then* is not equivalent to the conceptual meaning of the expression *after that*, a phrase which can occupy even the clause-final position.

The non-anaphoric succession connective *then* is not a conceptual embryo whose encoded meaning corresponds to that of a prepositional phrase. It cannot be enriched at all. That is why we never find that connective in sub-sentential fragments like the one in (23) B_2.

(23) A: I cannot enlighten you on the topic of the French Revolution before dinner.
B_1: Afterwards maybe?/Later maybe?
B_2: #Then maybe?

Afterwards and *later* are adverbs with a conceptual meaning. These words can constitute the information focus of an utterance, and they do in B_1, where the propositional elements expressed in A's utterance are linguistically suppressed in B's ensuing question. B's point is simply to contrast the focused adverb (*afterwards/later*) with the prepositional phrase *before dinner* in the interlocutor's utterance. A non-truth-conditional connective cannot be the focus of an utterance; only the anaphoric *then* can. My claim, remember, is that *then* is non-truth-conditional and conceptually empty when it can be pragmatically interpreted as 'afterwards', even though the actual English word *afterwards* has a conceptual meaning with truth-conditional implications. There is no paradox here. B_1 with *afterwards* or *later* are relevant reactions to A's speech act because those words can be used as utterance foci, and B_2 is not relevant, even if the succession marker *then* in B_2 may sometimes be paraphrased as *afterwards* or *later*. I conclude that (23) B_2 is an unacceptable utterance, because the anaphor reading of it is impossible for pragmatic reasons and the succession marker *then* cannot appear in an elliptical utterance like B_2.

While the anaphor *then* may combine syntactically with other words in different ways, the succession marker may not. Recall the fact that *until then* and *since then* in (11) in section 3 mean 'until that time' and 'since that time', and that the anaphor *then* can also occur in the pre-nominal determiner position (cf. example (8)). It is impossible, however, to understand the odd-looking subject phrase of the second sentence in (24) to refer to the next chapter of the book, to chapter four.

(24) The third chapter of the book confused me. ??The then chapter/??The chapter then confused me even more.

The then chapter and *The chapter then* are not legitimate ways of expressing 'the next chapter'. Notice, however, that it is possible to use the non-truth-conditional connective *then* in (25) where the word is preverbal and where it does not form a constituent with another linguistic item.[6]

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(25) The third chapter of the book confused me, and what I then read, in the fourth chapter, confused me even more.

Whenever *then* is modified by an adverb, its meaning is 'at that time', never 'after that'. We find *approximately then*, *exactly then*, *just then*, *especially then*, but there is no **shortly then*, **immediately then*, **three hours then*, etc., meaning 'then, shortly after', 'then, immediately after' and 'then, three hours later'. Again, this grammatical constraint falls out of my generalization that the succession marker *then* is not a conceptual embryo, unlike the segmentally identical anaphor.

While *then* in the contrastive pair of markers *first . . . then* is not truth-conditional (cf. (13) above), the pair ***now*** *. . . then* is truth-conditional, because *now* is an indexical that forces us to read its contrastive partner *then* as one as well. In the Bible, Paul said (according to his English translators), 'Now we see through a glass, darkly; but then face to face' (Corinthians I, 13:12). The reference is to an unfulfilled situation at a future time, a variable, yet purportedly quite specific time determinable *de dicto*, for those who decide to put their lives in the hands of the Saviour.

As the succession-marking connective cannot combine with any other word, it follows that it cannot be modified by a focus particle like *only*, as illustrated in (26) where *then* is an anaphor that can be enriched as 'when the meat had landed in front of the bird' and we furthermore understand that the narrator had unsuccessfully been trying to get rid of the bird for a while and that the meat trick may have been her last resort.

(26) I hoped that the huge bird would get tired of sitting there staring at me, and so I decided to throw a large piece of meat in its direction. The meat landed close to where the bird was sitting, and only then did it take off and flap away.

Just as the non-truth-conditional interpretation of *then* in (23) B_2 did not work because the word was the information focus there, a non-truth-conditional interpretation of *then* in the phrase *only then* in (26) is impossible, because *only* singles its anaphoric scope *then* out as the focus of the utterance.[7]

Deleting *only* from (26) we see, in (27), that *then* permits two different interpretations; it is either an anaphor or a marker of two successive events: 'P and thereupon Q'.

(27) I hoped that the huge bird would get tired of sitting there staring at me, and so I decided to throw a large piece of meat in its direction. The meat landed close to where the bird was sitting, and then it took off and flapped away.

It is possible to read *then* in (27) either as a marker of succession or as an anaphor even if we assume that the set of contextual assumptions brought to bear in the inferential processing is held constant. The relevance of the final conjunction in

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(27) will not be quite the same, though, because selection of the backward-looking anaphoric alternative makes the assumption 'That was what made the bird take off' more manifest to the hearer, while selection of the non-truth-conditional *then* in the pragmatic processing stresses the temporal sequence more than the cause-consequence relation.

In (28), where *the bird* is a subject nominal shared by the two verb phrases in the final period, the sequential, forward-pointing reading of *then* is much more accessible than the anaphoric reading with which it competes. Also, it is harder to imagine that the speaker of (28) intends to say that the bird's grabbing the piece of meat caused it to fly away. It was, rather, the narrator's landing the meat in front of its claws that caused the bird to grab it and then fly away. Use of VP coordination, as in (28), suggests topic continuity, which is not conducive to a cause-effect interpretation of the relation between the first and the second conjunct.

(28) I hoped that the huge bird would get tired of sitting there staring at me, and so I decided to throw a large piece of meat in its direction. The bird grabbed the meat and then took off and flapped away.

What happens pragmatically in 'and'-conjunction has been of vital interest to pragmatists ever since Grice's thoughts on logic and conversation became available to the public (Grice 1975). Coordination with 'and' offers the most classical illustration of the impact of a so-called generalized conversational implicature (GCI; cf. Levinson 2000) on what the hearer will believe the speaker to have meant by her utterance. Grice argued that his sub-maxim of Manner known through the slogan 'Be orderly' is responsible for the fact that we stereotypically process a sequence of conjuncts in such a way that their linear order in the conjunction matches what we take to be the temporal order of the events described by the communicator. And due to a 'logical fallacy', the pragmatic principle often cited as 'post hoc, ergo propter hoc', we typically infer that if event *b* follows event *a* in time, then *b* is furthermore a consequence of *a*. According to Grice and most neo-Griceans, no implicature is allowed to interfere with the truth conditions of the proposition expressed by an utterance, with the consequence that the order of conjuncts cannot contribute to our understanding of the explicature, or the set of explicatures, communicated. This is unfortunate, because it means, for example, that the conclusion in Carston's (2002) conditional *If someone leaves a manhole uncovered and you break a leg, then you can sue them* would not follow from the premises of the conjunct clauses embedded under *if*, and it implies that it ought to be tautological to produce an utterance of (29), an example originally attributed to Deirdre Wilson.

(29) It's always the same at parties: either you get drunk and no one will talk to you, or no one will talk to you and you get drunk.

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(P & Q) ∨ (Q & P); (P & Q) = (Q & P),
hence the tautology (P & Q) ∨ (P & Q)

Clearly the communicated temporal and causal relations between getting drunk and being ignored at the party depend on what the speaker asserts to be true, and not just on certain implicatures generated by the differences in the linear order of segments within each conjunction. Linguists and language philosophers of different theoretical persuasions (Carston 1988, 2002; Recanati 1993, 2004; Bach 2004) have contended that the syntactic difference between presenting P before Q and presenting Q before P in 'and'-conjunction can affect what is said, depending on fairly automatic (sub-personal) pragmatic processes brought to bear in the process of identifying the proposition expressed. Hence the presence of *and* alone directs the hearer to a temporal-sequence-of-events interpretation, which in turn opens for a pragmatic interpretation in terms of cause and consequence.

One might think that, when a causal interpretation is not flatly contradicted by pragmatic evidence, the combination *and then* makes that interpretation even more manifest than *and* alone does. However, the coordination in (28) shows that this is not necessarily what happens when *and* and *then* are placed together in the second of two conjuncts. Phrasal or clausal coordination with identical grammatical subjects can sometimes be felt to stress the temporal succession of events and possibly repress a cause-consequence or premise-conclusion interpretation.

Now consider the formal features that make (30) and (31) semantically and pragmatically different, semantically because only the latter contains a token of *then*, pragmatically because we tend to understand (30) to be a description of a single non-verbal act on the part of the policeman, while (31) seems to describe the stopping of the car as a second, independent action rather than as a direct consequence of the man's raising his hand.

(30) The policeman raised his hand and stopped the car.
(31) The policeman raised his hand and then stopped the car.

Rather than facilitating a cause-effect interpretation, the presence of *then* in (31) makes that interpretation harder to access than when it is left out as in (30). *Then* in (31) directs us to a sequential interpretation of the two events but removes us from the causal interpretation that is so strongly communicated in (30). When the syntactic configuration is as in (31), we do not access the interpretation that the policeman raised his hand, thereby causing some car driver to use the brakes and bring the vehicle to a standstill. We are most likely to understand the policeman to be doing two things, in the temporal order indicated by *and* and *then*, and the linear order of the conjunct VPs.

As the anaphor *then* can occupy any position in which an adverbial adjunct may occur, we should ask ourselves why it is so hard for us to read the occurrence of *then* in (31) as anaphoric and obtain a cause-consequence interpretation. The reason

may be that a VP conjunction like the one in (30) is very often strengthened as an expression of cause and consequence, so the addition of *then* in (31) may in fact counteract the interpretation stereotypically assigned to a coordinative structure like (30).

There is a similar, though not equally pronounced, difference between (32) and (33), where the conjoined segments are clauses rather than verb phrases with a common subject nominal.

(32) The policeman raised his hand and he stopped the car.
(33) The policeman raised his hand and then he stopped the car.

Though the clausal conjunction in (32) does not tell us as clearly as (30) that the policeman performed a single act that had consequences for the driver of the car, (33) would be a much less relevant choice of linguistic form than (32), if the speaker intended to say that the policeman performed a single non-verbal act. Adding *then* makes a causal reading of the relationship between the propositions of the two conjuncts relatively less accessible both in (31) and in (33). Intuitively *then* has no backward-looking, anaphoric function in those utterance types. It looks as if the inserted item *then* blocks the inference from cause (in the first conjunct) to effect (in the second conjunct), an inference that the clausal conjunction in (32), and even more so the phrasal conjunction in (30), encourage.

In contrast, a causal reading of *then* is made more accessible when the subject of the second conjunct clause is not the policeman, which implies subject (and topic) discontinuity from the first to the second conjunct. Consider (34)–(35).

(34) The policeman raised his hand and the car stopped.
(35) The policeman raised his hand and then the car stopped.

While one can presumably not tell for sure whether *then* is the anaphor or the non-truth-conditional connective here, the meaning of the second conjunct with its intransitive verb *stop* makes a cause-consequence interpretation much more likely than it was in (33) or (31). One will not interpret (35) as statements about two actions performed by the same agent; the interpretation according to which the first event led automatically to the second event is made accessible by (35) as well as by (34), no matter how the addressee happens to handle the word *then* in the inferential processing of a token of (35). Either processing, anaphoric or non-anaphoric, seems to work well in this particular case, as it did in (18) and (27).

The succession marker *then* typically appears with an activity verb or an accomplishment verb, while the anaphor may also appear in a clause whose predicate is stative. As a matter of fact, the non-truth-conditional succession marker is also quite acceptable with a stative verb, which shows that my earlier characterization of that item as a 'marker of successive events' is too restrictive. It is possible to use the non-anaphoric connective *then* when you list a number of things that are ordered

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sequentially only in the sense that you happen to mention them in the order in which they are presented, as when you tell a tourist (36).

(36) There is a very nice old church in this neighborhood, and then there is a wonderful museum just one block away.

The token of *then* in (36) cannot be an anaphor to be enriched through association with antecedent information presented in the first conjunct. Nor does it order events in a temporal sequence. This is nevertheless the non-truth-conditional connective, but here the temporality is of a metalinguistic sort, reflecting the order in which the speaker lists local places of interest.

Then does not look like an anaphor in (37) either.

(37) There are some pizzas here and then nothing more.

Here the predicate of the second conjunct must be retrieved through a search in the first conjunct. Again there is no communicated sequence of events; rather, *then* is used for listing items as you observe them, and when the speaker has found the pizzas it turns out that the list of items stored in the refrigerator is already exhaustive. On the other hand, only a conditional interpretation of *then* and its complement can make an utterance of (38) relevant, so we identify the instance in (38) as the anaphoric *then* to be enriched in the context of the first conjunct, making it functionally similar to a conditional clause.

(38) There are some pizzas here, and then nothing more is needed.

Now consider (39), which looks like another way of saying (37) but which admits of a different pragmatic processing as well.

(39) There are some pizzas here, and then there is nothing more.

In addition to the rather obvious interpretation of (39) as another way of saying (37), there is also a not-so-immediately-accessible inferential processing that involves developing *then* into a conditional protasis, similar to the way that *then* is processed in (38). Looking into a refrigerator to find out what it contains, the speaker of (39) may recall the information she already received from someone, that if there are pizzas inside the refrigerator, then it contains nothing more. These are two vastly different ways in which an utterance of (39) could be processed for relevance, and it is rather unlikely, in my opinion, that both the non-anaphoric and the anaphoric import could be derived from a univocal lexical semantics for *then* that is neutral with respect to the two functions.

It may be easy to appreciate the difference between an anaphoric and a non-anaphoric processing of *then* in an example like (39) and in some of my earlier examples, but this does not mean that native speakers of English are normally able to tell the two functions apart in on-line utterance comprehension processes. In spite of certain major differences that I have tried to highlight in the present section,

there is after all a close functional resemblance between the two uses of *then*. Their pragmatic functions can occasionally blend, as in (18), (27) and (35) above, which is far from surprising, given the existence of a single historical source and, even more importantly, the very strong tendency of human beings to infer from temporal precedence and posteriority to conditional and causal relations.

Let us now turn to an examination of the linguistic expression of 'then' in Norwegian, which uses two distinct linguistic forms corresponding to what I have identified as the anaphoric and the non-anaphoric use of *then*.

5. THE NORWEGIAN SITUATION

5.1 'Then' in Old Norse

Þá in Old Norse texts was used as an anaphor with the meaning of 'then' = 'at that time', and also as a conditional and causal anaphor, but it is apparently also found in discourse environments where a more suitable gloss would be 'then' = 'after that', so the semantics of *þá* appears to have been rather similar to that of its Old English counterpart *þa* whose lexical properties were outlined in section 2. Furthermore it occurred in set phrases like *þá ok þá*, meaning 'now and then', 'from time to time' (cf. Swedish *då och då*). Old Norse *svá*, on the other hand, was primarily used with the meaning of 'after that', 'later', 'thereupon', though it also appeared in the position immediately after a left-dislocated clause, where it was apparently interchangeable with *þá*, at least after a temporal clause as in (40) (from Heggstad 1963).

(40) En er þeir kvámu, svá (= þá) vaknaði hann.
'But when they came, then he woke up.'

5.2 'Then' in Norwegian left dislocation constructions

Modern Norwegian *da* ('Nynorsk' *då*) is a descendant of Old Norse *þá* and Modern Norwegian *så* is a descendant of Old Norse *svá*. *Da* and *så* would be interchangeable in the Modern Norwegian sentence structure corresponding to Old Norse (40), but Fretheim (2000) points out that Modern Norwegian *da* has a more restricted distribution in left dislocation constructions of the type illustrated by (40) than Modern Norwegian *så*. *Så* may be used after any left-dislocated adverbial phrase, truth-conditional or not, while *da* is a resumptive form after a left-dislocated adjunct that adds to the set of truth conditions pertaining to the proposition of the main clause. For example, while the dislocated embedded clause in (41) below can be understood either as a temporal clause or as a 'while'/'whereas' clause like the one you are reading just now, the formally identical clause in (42) can only be construed as temporal, because the presence of *da* forces an interpretation where the embedded

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clause proposition constrains the truth of the following main clause proposition (Fretheim 2000:89).

(41) Mens Lisa var i Madrid, så var Linn i Sevilla.
while Lisa was in Madrid — was Linn in Sevilla
'While Lisa was in Madrid, Linn was in Sevilla.'

(42) Mens Lisa var i Madrid, da var Linn i Sevilla.
while Lisa was in Madrid then was Linn in Sevilla
'While Lisa was in Madrid, then Linn was in Sevilla.'

The added adverbial adjunct in the main clause of (41′) forces the non-temporal, contrastive reading, which is why (42′), with *da*, is ill-formed.

(41′) Mens Lisa var i Madrid i august,
while Lisa was in Madrid in August
så var Linn i Sevilla for bare to uker siden.
— was Linn in Sevilla for only two weeks ago
'While Lisa was in Madrid in August, Linn was in Sevilla just two weeks ago.'

(42′) *Mens Lisa var i Madrid i august,
while Lisa was in Madrid in August
da var Linn i Sevilla for bare to uker siden.
then was Linn in Sevilla for only two weeks ago
*'While Lisa was in Madrid in August, then Linn was in Sevilla just two weeks ago.'

While (43a) could be a relevant input given an appropriate context, (43b) with *da* is bad, and many seem to judge it to be grammatically ill-formed as well. It is certainly completely illogical and totally irrelevant, because it gives us the impression that the embedded clause proposition is meant to constrain the truth of the main clause proposition.[8]

(43) a. Når jeg tenker meg om, så var det vel i august presidenten
when I think REFL *about — was it* MPART *in August president-*DEF
døde.
died
'When I think of it, it was probably in August that the President died.'

b. #Når jeg tenker meg om, da var det vel i august presidenten
when I think REFL *about then was it* MPART *in August president-*DEF
døde.
died
#'When I think of it, it was probably in August that the President died.'

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The Norwegian temporal clause in (43a) does not constrain the truth conditions defining the proposition of the following main clause. Its communicative function is to convey the implicature that the speaker used to believe that the President passed away in some other month than August and the concomitant higher-level explicature (Wilson & Sperber 1993) that the proposition expressed in the main clause represents the speaker's present opinion, which can be deduced from the implicature in conjunction with the proposition expressed by the utterance of (43a). *Da* in (43b) is not a legitimate link between the dislocated temporal clause and the main clause, because *da* is an anaphor which is coreferential with its temporal clause antecedent. Norwegian *så* in (43a), however, lacks the anaphoric property of *da* and is a non-truth-conditional place-holder at the beginning of the main clause no matter what kind of adverbial phrase precedes it.

The same temporal clause as in (43) can actually co-occur with *da* in (44) below, because in (44b) there is a communicated causal link between the speaker engaging in the mental activity described in the temporal clause and the reported consequence, namely that anyone noticing the speaker's facial expression can tell she is profoundly occupied in her own world of thoughts. (44a) permits the same interpretation as (44b) but in addition one which implies that the speaker reaches the conclusion formulated in the main clause after some serious reconsideration.[9]

(44) a. Når jeg tenker meg om, så er det synlig for alle og enhver.
when I think REFL *about — is it visible for all and everyone*
(i) 'When I stop to think about something, it is visible to everyone.'
(ii) 'On second thoughts, it/that is visible to everyone.'

b. Når jeg tenker meg om, da er det synlig for alle og enhver.
when I think REFL *about then is it visible for all and everyone*
'When I stop to think about something, then it is visible to everyone.'

The temporal clause proposition in (44b) binds the reference of both *da* and the subject pronoun *det* in the main clause, but *så* in (44a) does not belong to a chain of coreferential items. *Så* has no truth-conditional import, and that is why it works even in (43a).

5.3 *The difference between* da *and temporal* så

Nothing in English grammar corresponds to the connective *så* illustrated in section 5.2. *Så* can occur unrestrictedly after a left-dislocated phrase or clause, so it is not equivalent to *then* in English left dislocation constructions, an anaphor whose reference is bound by its left-dislocated antecedent. Norwegian *da*, on the other hand, is an exact equivalent of *then* in such grammatical environments.

The Norwegian succession marker corresponding to English *then* is the same segmental form *så* that appeared in section 5.2, and the present section deals with the

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partly complementary and partly overlapping distributions of *da* and temporal *så*. It will be demonstrated that *da* behaves in every respect like the anaphor *then* and that *så* shares all its distributional and functional properties with the non-truth-conditional succession marker *then*.

Temporal *så* is incapable of forming a syntactic constituent by combining with other words, which is strong evidence that it does not belong to the set of function words that encode a concept. Furthermore, while *så* can occur sentence-initially or in the syntactic position after the finite verb, this connective never appears in the 'end field', or 'content field' (Diderichsen 1946), that is, in the position after an *in situ* object argument or after a non-finite verb form, which is an unmarked position for Norwegian 'content' adverbial phrases, including phrases with a temporal reference, though a prohibited position for non-truth-conditional connectives:

(45) *De solgte huset sitt så.
they sold house-DEF POSS then-SUCC
≠'They sold their house then.'

(46) *Jeg hadde sovnet så.
I had sleep-INCHO-PST then-SUCC
≠'I had fallen asleep then.'

The anaphor *da*, on the other hand, occurs freely in any syntactic position where a lexically full adverbial phrase may be found:

(47) De solgte huset sitt da.
they sold house-DEF POSS then-SIM
'They sold their house then.'

(48) Jeg hadde sovnet da.
I had sleep-INCHO-PST then-SIM
'I had fallen asleep then.'

The adverb *så* indicates that what precedes it and what follows it in a Norwegian sentence describe events that form a temporal sequence. *Så* not only lacks the capability of *da* and the anaphor *then* to occur clause-finally (Diderichsen's 'content field'), it also lacks the compositional capacity of *da*. While it is not possible to use *da* in the pre-nominal determiner position that *then* occupies in English phrases like *the then Foreign Secretary*, there are certain words that are morphologically composed of *da* plus a verb stem and a present participle morpheme whose function is to make an adjective out of the composite form, like *daværende* (literally: 'then-being'), as in *den daværende styreformannen* ('the then chairman of the board'), which is the antonym of *nåværende*, meaning 'present'. There is also a lexical item *dalevende* (literally: then-living, 'alive at that time in the past'), contrasting with *nålevende* (literally: now-living, 'alive at the present time'). A nominal phrase like *datidens redskaper* (literally: 'the then-time's tools', i.e. 'the tools of that time') shows the ability of *da* to

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build up more complex concepts through nominal compound formation. In addition the anaphor *da* is found post-nominally as an independent word, in phrases like *det meste da* ('most things then'), contrasting with the ill-formed phrase **det meste så*, and in what must be enriched as a conditional in B's utterance in (49).

(49) A: Jeg tror jeg får det stipendiet selv om jeg sender inn en søknad etter fristen.
'I believe I'm going to get that scholarship even if I submit an application after the deadline.'
B: Nei. Sjansene da vil være lik null./
*Sjansene så vil være lik null.
'No. The chances then will be like zero.'

Observe that a Norwegian phrase like *sjansene etterpå* ('the chances afterwards') and *sjansene seinere* ('the chances later') are well-formed and meaningful but *etterpå* and *later* are temporal adverbs with a conceptual meaning, unlike *så* which can be glossed variably as 'after that', 'next', 'thereupon'. Like the succession marker *then*, the temporal adverb *så* lacks the conceptual meaning of any of those English expressions (see my account of the data in (23), section 4.3 above).

A cleft constituent in an 'it'-cleft construction must have a conceptual meaning, like any other focus constituent, inherently or by association with an antecedent. Therefore *så* cannot be the complement of the copula in a cleft sentence, but *da* can occur in that position.

While English (50) is more coherent than (51), without the adversative connective *but*, Norwegian (52), which is a literal translation of (51), is a fully coherent sequence of sentences.

(50) I took a photo of Igor a couple of minutes ago. Then he was standing over there by the fountain. But then he apparently disappeared.

(51) I took a photo of Igor a couple of minutes ago. Then he was standing over there by the fountain. (#)Then he apparently disappeared.

(52) Jeg tok et bilde av Igor for et par minutter siden.
I took a picture of Igor for a couple minutes ago
Da sto han der borte ved fontenen.
then-SIM stood he there away at fountain-DEF
Så (#Da) forsvant han tydeligvis.
then-SUCC disappeared he apparently

(51) gives us the impression that the man disappeared as he was standing by the fountain, whatever that is supposed to mean. The formal identity, a sentence-initial *then* used twice, makes it very hard for us to process the first token as the temporal anaphor and the second as the succession marker. Due to the formal distinction between *da* and *så*, there is no analogous problem in Norwegian. On the other hand,

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Norwegian also allows us to substitute *så* for *da* in the second sentence in (52), with the implication that we envisage a temporal sequence of three events: 'I took a picture of Igor, and then he moved over to the fountain, and then he seems to have disappeared'.

Recall that English *then* in (31) and (33) was observed to support an interpretation in terms of a temporal ordering of the events described but that *then* in those sentence structures also makes a cause–consequence interpretation of the relation between the conjoined propositions less accessible than it would be if *then* is omitted. Norwegian (53) corresponds to English (30), (54) to (31), (55) to (32), and (56) to (33).

(30) The policeman raised his hand and stopped the car. =
(53) Politimannen løftet hånden og stoppet bilen.
policeman-DEF lifted hand-DEF and stopped.TR car-DEF

(31) The policeman raised his hand and then stopped the car. =
(54) Politimannen løftet hånden og stoppet så/?da bilen.
policeman-DEF lifted hand-DEF and stopped.TR then *car-DEF*

(32) The policeman raised his hand and he stopped the car. =
(55) Politimannen løftet hånden og han stoppet bilen.
policeman-DEF lifted hand-DEF and he *stopped.TR car-DEF*

(33) The policeman raised his hand and then he stopped the car. =
(56) Politimannen løftet hånden og så/?da stoppet han bilen.
policeman-DEF lifted hand-DEF and then *stopped.TR* he *car-DEF*

Non-truth-conditional *så* is the better gloss for *then* in (54) and (56). However, when *bilen* 'the car' is the subject of an intransitive *stoppe* 'to stop', a speaker of Norwegian has a free choice between *så* and *da*, and the assumption that the policeman's raising his hand caused the car to stop is strongly manifest in (57), as in (35). S*å* and *da* are interchangeable in (57).

(35) The policeman raised his hand and then the car stopped
(57) Politimannen løftet hånden og så/da stoppet bilen.
policeman-DEF lifted hand-DEF and then *stopped.INTR car-DEF*

According to Fretheim & Vaskó (1996), the non-truth-conditional connective *så* is a topic continuity marker. In the unmarked case the subject of a clause introduced with *så* refers to what is currently the most salient entity in the discourse, the topic. In the terminology of Centering Theory, *så* indicates that the subject referent is the Backward-looking Center of the utterance (Walker & Prince 1996). The anaphor *da*, on the other hand, can be used to indicate a change of topic. This is what you saw in (27), repeated here with an added Norwegian gloss *da*, where the subject pronoun *it* in the final clause does not refer to the meat but to the bird.

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(27) I hoped that the huge bird would get tired of sitting there staring at me, and so I decided to throw a large piece of meat in its direction. The meat landed close to where the bird was sitting, and then (= *da*) it took off and flapped away.

The change of topic from the first to the second conjunct arguably makes *da* a more suitable gloss for *then* than *så*, because *så* in the position of *then* in (27) would stress the succession of events at the expense of the causal relation between the narrator's behavior and the bird's reaction, whether the narrator intended to say that the bird grabbed the meat and set off, clutching the meat in its claws, or that the narrator's action scared the bird away.

Fretheim & Vaskó (1996) found that Norwegian informants had a very strong tendency to fill the position of the missing connective before the verb *fortalte* 'told' in (58) by *så*, indicating topic continuity, and the corresponding position in (59) by *da*, indicating topic change, from *hun* 'she' (i.e. Liv) to *han* 'he' (i.e. Tom). The judgements were quite consistent.

(58) 'Jeg har tenkt meg til Oppdal i helga,' sa Liv.
I have thought REFL *to Oppdal in weekend-*DEF *said Liv*
"'I have plans to spend the weekend at Oppdal", said Liv.'
'Og du, Tom, hva er planene dine?'
*and you Tom what are plans-*DEF *yours*
"'And you, Tom, what are your plans?"'
— sa hun at han var velkommen til å bli med henne til Oppdal.
— said she that he was welcome to INF *get with her to Oppdal*
'Then she told him that he was welcome to stay with her at Oppdal.'

(59) 'Jeg har tenkt meg til Oppdal i helga,' sa Liv.
I have thought REFL *to Oppdal in weekend-*DEF *said Liv*
"'I have plans to spend the weekend at Oppdal", said Liv.'
'Og du, Tom, hva er planene dine?'
*and you Tom what are plans-*DEF *yours*
"'And you, Tom, what are your plans?"'
— sa han at hun var velkommen til å bli med henne til hytta hans
— said he that she was welcome to INF *get with him to cabin his*
på *Røros*.
at Røros.
'Then hé told hér that she was welcome to come and stay with him in his cabin at Røros.'

We understand Tom's inviting Liv to join him and forget about Oppdal in (59) to have been prompted by Liv's previous information and her question 'What are your

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plans?' We cannot possibly think that Liv's inviting Tom in (58) was prompted by what she herself had said immediately before. She had apparently made up her mind to invite Tom to spend the weekend with her at Oppdal and had to find out first whether he had a program for the weekend that would hamper her own plans. There is a sequence of speech acts but no cause/action and consequence/reaction as in (59).

There is a risk that someone translating from English into Norwegian is led astray by the fact that English *then* corresponds to no single lexical item in the receptor language. A translator's decision to render a given token of *then* in a text as *da* or as *så* sometimes requires quite serious deliberation before a context is recognized which may lead to a principled choice and hopefully to an optimal match between source text and target text. The text fragments presented in (60) below are from the Oslo Multilingual Corpus (OMC);[10] my claim is that the translator would actually have done well to select *da* instead of *så* in translating *then*, but *da* is in fact rendered impossible by an unfortunate Norwegian translation of the preceding period – unfortunate inasmuch as it creates problems for the later translation of *then*. (The critical elements are highlighted in source and target text. Notice also the italicized *da* in the Norwegian translation, for which there is no correspondent conditional *then* in the English original.)[11]

(60) It was her father who laid down the rules in her family and there was never any appeal, any second chance. After protracted discussion and her repeated pleas she had been allowed this weekly visit on Friday evenings to the disco run by the church youth club, provided she caught the nine-forty bus without fail. It put her down at the Crown and Anchor at Cobb's Marsh, only fifty yards from her cottage. From ten fifteen her father would **begin watching for the bus to pass the front room where he and her mother would sit half watching the television**, the curtains drawn back. Whatever the programme or weather, he would **then** put on his coat and come out to walk the fifty yards to meet her, keeping her always in sight. (PDJ3)

→

Hjemme var det faren som stilte opp reglene, og det var ikke noe som het å mukke eller å få en ny sjanse. Etter mye diskusjon og gjentatte bønner hadde hun fått lov å gå hver fredag kveld på diskoteket som menighetens ungdomsklubb drev, men *da* hadde hun værsågod å ta 21.40-bussen hjem [= but then she had better take the nine-forty bus home]. Den satte henne av utenfor Crown and Anchor på Cobb's Marsh, bare femti meter fra huset de bodde i. Kvart over ti **begynte hennes far å kikke etter bussen** [= her father began to watch for the bus]; han og moren satt i stuen mot veien med gardinene trukket fra, og så på fjernsyn med et halvt øye. Uansett hva slags program eller vær det var, **tok han så på seg jakken** [= he then put on his coat] og gikk de femti meterne for å møte henne, uten å slippe henne av syne.

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The English source text informs the reader that the father in this story put on his coat and left home to meet his daughter at the time when the bus passed the cottage. We understand that the bus stop was just fifty yards further down the road. Clearly, the adverbial propositional anaphor *then* highlighted in (60) refers to that moment when the bus passed the room where the parents were sitting. In other words, the highlighted non-finite *for . . . to* clause *for the bus to pass the front room*, etc. is a perfect antecedent structure from which to derive the intended referent of the anaphor *then* appearing later. In the Norwegian translation there is no analogous accessible antecedent, because the translator described the father's keeping an eye on the road but decided not to translate the passage referring to the bus passing by and stopping shortly after, which would have provided an antecedent for the anaphor *da*. Given that decision, the translator missed the opportunity to anchor an anaphor corresponding to *then* to a discourse segment that could be identified as its antecedent, and that is why the translator was forced to opt for the alternative translation *så*, the correspondent of *then* which is not anaphoric and lacks conceptual content. Is that so bad? Well, what *så* suggests is that putting on his coat was the second of two things that the man did. What, then, was the first thing he did? Getting up from his chair in front of the TV set? Or maybe waiting for the bus that would pass right in front of their cottage? *Så* will unfortunately not satisfy our expectations of stimulus relevance unless it is manifest to the reader what events the succession connective is meant to connect, and that will not be obvious to the reader of the Norwegian translation in (60). That the father got up from his chair is part of the context that the reader must activate by way of pragmatic inference in order to get a relevant interpretation, but use of *så* would be warranted only if his getting up (before putting on his coat) were mentioned explicitly. Watching for the bus is not an event that a reader can interpret as a cue to the father to leave the cottage to accompany his daughter home from the bus stop. Only reference to the time when the bus actually passed the cottage would have provided an antecedent, but reference to that point in time was lost with the translator's omission mentioned above.

Due to the way that the translator formed the immediately preceding discourse, it would have been better to leave out *så* in (60) and say simply *Uansett hva slags program eller vær det var, tok han på seg jakken og gikk . . .* 'Whatever the program or weather, he put on his coat and went out . . .'. The occurrence of *så* in the main clause following the preposed universalized concessive clause starting with *uansett* 'whatever' potentially reduces the relevance of that sentence, because it may cause the alert reader to engage in gratuitous inferential processing, in a search for a mentioned activity that would justify the appearance of *så* (a less sentient but inadvertently smarter reader may just automatically ignore its presence).

In comparison, the italicized occurrence of *da* in the Norwegian translation . . . *men da hadde hun værsågod å ta 21.40-bussen hjem* '. . . but then she'd better take the nine-forty bus home' of the source text's conditional (or provisional) clause

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provided she caught the nine-forty bus without fail must be enriched as the protasis of a conditional, 'if she went to the disco on Friday night', which is the only candidate antecedent here.

In the present section, on the distribution and use of *så* and *da* in Norwegian, I have tried to demonstrate that the former connective matches quite accurately the distribution and use of the non-truth-conditional connective *then* in English and that the latter corresponds very nicely to the segmentally identical truth-conditional anaphor *then*. However, I deliberately structured my paper in such a way that I first presented my arguments for a lexical differentiation between an anaphor *then* and a non-truth-conditional connective *then* without recourse to Norwegian facts. The arguments for English were presented without reference to, and absolutely independently of, the lexical differentiation in Norwegian between the two adverbial connectives *da* and *så*.

The next section looks at how the two uses of *then* focussed on in this paper are captured in some other European languages (Hungarian, Spanish, French, Danish, Macedonian and Russian), and I have added subsections on four African languages: Akan, a Kwa language of the Niger-Congo family, Hausa, a Chadic language of the Afro-Asiatic family, and two Bantu languages, Luganda and Rutooro. If one takes a global perspective on things, it appears that temporal connectives which may be interpreted as anaphoric in one context and as non-truth-conditional markers of succession in other contexts are fairly widespread; on the other hand, among the languages examined in section 6, those that distinguish lexically between the anaphoric and the non-anaphoric meaning of what is just a single form *then* in English, are more numerous than the non-discriminating group. The data from Akan, Hausa, Luganda and Rutooro are translations of English (38)–(43); the Macedonian examples are adaptations of the Hungarian data (59) and (60).[12]

None of the data presented in section 6 tells us conclusively that the English adverb *then* is lexically ambiguous. Still, it is interesting to notice to what extent natural languages do keep the anaphoric and non-anaphoric functions consistently apart by letting formally distinct expressions encode them, and to find that there are 'then' look-alikes in some of these languages which do not lend themselves to a neat, dichotomous classification.

6. THE SITUATION IN SOME OTHER LANGUAGES

6.1 Hungarian

Hungarian exhibits a neat lexical division between an anaphoric counterpart of *then* – *akkor* – and a non-anaphoric succession marker *then* – *aztán* (see Fretheim & Vaskó

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1996; Vaskó 1999). In other words, *akkor* works like Norwegian *da* and *aztán* works like Norwegian *så*.

Typologically Hungarian differs crucially from Norwegian in being a pro-drop language, which implies that Norwegian unstressed personal pronouns correspond to zero pronouns in Hungarian rather than to overt pronouns. There is a zero-pronominal 3rd person subject in the final sentence of (61) and (62). Of a total of fifteen Hungarian informants, Fretheim & Vaskó (1996) found that eleven judged the subject referent in (61) to be the person who did not respond, namely Anna, while one informant felt it was the other woman, Agnes (Ági), and three said either reference resolution was plausible and natural. For (62), the figures were eleven in favor of reference to Agnes in the final sentence, and four said the person who stood up and left could be either Agnes or Anna.

(61) Ági megkérdezte Annát, hogy tudja-e, hogy ő a soros
Agnes asked-3PERS Anna-ACC that knew-3PERS that s/he the next
a lakástakarításban.
the apartment-cleaning-IN
De Anna nem felelt. Aztán felállt és
but Anna not answered-3PERS then-SUCC up-stood-3PERS and
elment
away-went-3PERS
'Agnes$_i$ asked Anna$_j$ if she$_j$ knew that it was her$_j$ turn to clean the apartment. But Anna$_j$ didn't answer. Then she$_j$ stood up and left.'

(62) Ági megkérdezte Annát, hogy tudja-e, hogy ő a soros
Agnes asked-3PERS Anna-acc that knew-3PERS that s/he the next
a lakástakarításban.
the apartment-cleaning-in
De Anna nem felelt. Akkor felállt és
but Anna not answered-3PERS then-SIM up-stood-3PERS and
elment
away-went-3PERS
'Agnes$_i$ asked Anna$_j$ if she$_j$ knew that it was her$_j$ turn to clean the apartment. But Anna$_j$ didn't answer. Then she$_i$ stood up and left.'

The Hungarian informants' response pattern indicates that *aztán* serves a function similar to that of Norwegian *så*, while *akkor* corresponds to Norwegian *da*. *Akkor* is the truth-functional anaphor that places a temporal, or conditional (or temporal/conditional/causal) constraint on the proposition expressed.

Similarly, when asked to judge whether Agnes or Anna was the more natural agent in the final sentence of (63), all informants picked Agnes.

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(63) Ági megkérdezte Annát, hogy tudja-e, hogy ő a soros
Ági asked-3PERS Anna-ACC that knew-3PERS that s/he the next
a lakástakarításban.
the apartment-cleaning-IN
De Anna néma maradt. Ági/# Anna Akkor felállt és
but Anna remained silent Ági/Anna then up-stood-3PERS and
elment.
away-went-3PERS
'Agnes$_i$ asked Anna$_j$ if she$_j$knew that it was her$_j$ turn to clean the apartment. But Anna$_j$ remained silent. Agnes$_i$/#Anna$_i$ then stood up and left.'

Unlike *aztán*, which is a felicitous marker of consecutive events when there is a chain of coreferential subjects, *akkor* must be linked anaphorically to an antecedent proposition in the previous sentence, which results in a cause-consequence interpretation of the relation between the propositions of the next-to-final and the final clause. Agnes decided to leave when she realized that Anna refused to pay attention to what she told her, so she left because of that. As Anna is the only one of the two women who is referred to in the middle sentence, she may be less likely than Agnes to be referred to once more by means of her name, as opposed to a zero pronoun, in the final sentence, but comparing (63) with the pair of (61)–(62), we can see that the most important reason why Agnes is the right choice in the final sentence in (63) is the communicator's use of *akkor* as adverbial connective.

The lexical distinction between *aztán* and *akkor*, then, is cognitively motivated in exactly the same way as the equivalent Norwegian distinction between two types of 'then': *da* and *så*.[13]

6.2 Spanish

Entonces is the Spanish anaphor that takes care of the temporal, conditional and causal uses of 'then'. Leo Hickey (personal communication) tells me that *entonces* can also be used with reference to an event that is temporally later than the event described in the immediately preceding utterance of the same discourse, so that the appropriate gloss would be something like 'some time later'; Scott Schwenter (personal communication) tells me that *entonces* covers both simultaneity and succession, and that both *entonces* (or the colloquial abbreviation *tons*) and *pues* appear as resumptive forms in the main clause of conditionals whose conditional clause is dislocated. He has also informed me that in the Spanish version of consecutive utterances with topic continuity in narratives, the connectives *luego* 'later' or *después* 'afterwards' seem to be the most frequent choices, but *entonces* cannot be ruled out even in those environments.

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There are very few, if any, examples of *entonces* with the approximate meaning 'later', 'next' in a Spanish translation of a Norwegian novel by the author Jostein Gaarder, *Sophie's World* (*Sofies Verden*, *El Mundo de Sofía*), a book about a Norwegian schoolgirl's introduction to philosophical thinking through the ages. Reference to what happens later is typically done in the book's Spanish translation with the temporal adverb *luego*, as in (64), where the word is used to translate Norwegian *så*, and with *después*.

(64) Norwegian: Så ble hun eldre, og en dag var hun helt borte.
then grew she older and one day was she quite away
→
Spanish: Luego envejeció y un día dejó de existir.
then grew-older-she and one day ceased-she to exist
'Then she grew older, and one day she existed no more.'

The two Spanish adverbs *luego* and *después* are never used anaphorically in *El Mundo de Sofía*. *Luego* is by far the most frequent translation of temporal *så*.

Unlike Norwegian *så*, *luego* and *después* do display combinative properties, as they combine with prepositions the same way that *entonces* does, for example in *hasta luego* 'until later' and *hasta después* 'until afterwards', compared to *hasta entonces* 'until then' = 'up to that specified time' (either in the past or in the future). However, *entonces* is the only one of the three temporal markers that can even be qualified by a demonstrative like *aquel*, as in *en aquel entonces* (literally: 'at that then', i.e. 'at that time') where *entonces* is anaphoric and also the head of a nominal phrase.[14]

Entonces is used as a conditional-cum-causal constraint in the epistemic domain (see Sweetser 1990) in (65).

(65) Norwegian: Da tok han feil.
then took he error
→
Spanish: Entonces se equivocó.
then REFL *erred*
'Then he was wrong.'

An unequivocally conditional use of *entonces* as correspondent of *da* is found in a number of places in *El Mundo de Sofía*. (66) is one example; Sophie's attitude was in fact given an even less mitigated verbal expression in her reformulation following this dyadic exchange.

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(66) Norwegian
Sophie's Mom: Nei, sånn får du ikke lov å snakke til meg, Sofie.
no such get you not law to talk to me Sofie
Sophie: Da skal jeg si det på en annen måte.
then shall I say it in a different way
→
Spanish
Sophie's Mom: Sofía, no te permito que me hables así.
Sofia not you permit-I that me speak-you such
Sophie: Entonces, lo diré de otra manera.
then it say-FUT-I in another manner
Sophie's Mom: 'No, you are not allowed to speak to me in that way, Sophie.'
Sophie: 'Then I shall say it in a different way.'

Although *entonces* is the overwhelmingly most popular translation of *da* in *El Mundo de Sofía*, the prepositional phrase *en ese caso* 'in that case', with an undeniable conceptual content and an anaphoric demonstrative determiner, was almost as frequent when a conditional, rather than temporal, processing was intended.

Entonces is also seen to translate the Norwegian non-truth-conditional inferential particle *da* (parenthetical 'then'; Fretheim et al. 2002) in interrogative requests for confirmation of a thought that the speaker attributes to the hearer, and it is found in permissive acts, as when a speaker grants the interlocutor permission not to involve himself in something, for instance in *Déjalo entonces* 'Leave it, then.'.

To sum up, one gets the impression, at least from an examination of how Norwegian *da* and *så* are handled in the Spanish translation of *Sophie's World*, that there is a fairly neat division of labor between adverbs like *luego* and *después* that are used with reference to posteriority, and *entonces* that enters into antecedent–anaphor relations and exhibits syntactic privileges that makes it rather similar to Norwegian *da*.

6.3 French

6.3.1 Alors

French *alors* corresponds fairly well to Norwegian *da*, including the non-truth-conditional uses of *da* discussed in Fretheim, Boateng & Vaskó (2002).[15] Its ability to function as a conceptual embryo is seen in the fact that it can be a prepositional object, as in *jusqu'alors* 'up to that point' (in time), and it can be the scope of a focus marker like *seulement* 'only, solely'), as in (67), from the Oslo Multilingual Corpus (OMC).

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(67) French

Alors seulement il conçoit d'invoquer à son tour les grands principes.
then only he conceives to invoke in his turn the grand principles
(AMA2)

→

Norwegian

Først da kan også han ta de store ordene i sin munn.
first then can even he take the grand words in his mouth
'Only then can even he take the grand words in his mouth.'

The French translation of the Norwegian sentence in (68) below is not absolutely faithful to the original; nevertheless, *alors* may actually be a wise choice in the context of the information given in the preceding sentence: even though the male referent of possessive *son* in (68) does not usually submit to the desires of other people, on one particular occasion he did surrender to the convulsive sobs by which his daughter was overtaken.

(68) Norwegian: Så ble det han som måtte krype til korset, . . .
then-SUCC was it he who must crawl to cross-DEF
(HW2)

→

French: C'était alors à son tour de se soumettre, . . .
it was then-SIM in his turn to REFL submit
'It was then his turn to bring himself to heel. . . '

Anaphoric *da* would have been just as faithful to the Norwegian author's thoughts as the forward-pointing connective *så* in the cleft sentence of (68).

Alors can also be the focus of a French 'it'-cleft. That is what we find in the translation of a sentence in the Norwegian author Sigurd Hoel's novel *En dag i oktober* (1930, *Un jour en Octobre*) where the author's choice of *så* instead of *da* is grammatically speaking not quite *comme il faut*.

(69) Norwegian: Så var det hun hørte ropene.
then was it she heard cries-DEF

→

French: C'est alors qu'elle avait entendu les cris.
it is then that she had heard the cries
'That's when she heard the cries.'

What we see in the Norwegian source text is an 'it'-cleft with a preposed cleft constituent, and it may well be that the initial position makes it somewhat easier for Norwegians to condone the use of *så* as cleft constituent. However, the focus of a cleft sentence must be a linguistic item with a truth-conditional meaning. It

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should always be possible to shift the cleft phrase to its post-copular position in an 'it'-cleft with straight word order, but (70) below would be ungrammatical even in 1930. It is a potentially interesting fact that the contrast in acceptability is much less between (69) and (72)[16] than between (70) and (71) but I am not going to explore that psychological phenomenon any further in this paper.

(70) *Det var så hun hørte ropene.
it was then-SUCC she heard cries-DEF

(71) Det var da hun hørte ropene.
it was then-SIM she heard cries-DEF

(72) Da var det hun hørte ropene.
then-SIM was it she heard cries-DEF

In contrast with the translational correspondences of *alors* and *da*, *alors* and *så* are matched only rarely in the OMC.

Alors as a causal constraint in OMC translations from Norwegian into French was sometimes matched by the Norwegian source text counterpart *derfor* 'therefore', which encodes a causal relation. The writer could just as well have used the anaphor *da*, which, like *alors*, does not encode the information that it represents a cause but which, unlike *så*, permits the reader to establish a representation of a cause-consequence relation through an antecedent-based conceptual saturation of *da* in the pragmatic phase of the utterance interpretation process.

6.3.2 Puis

Puis basically means (sequential) 'then'. It is a regular time-adverbial marker of what comes next when it is sentence-initial. However, the syntactic privileges of *puis* are such that this marker can be said to cover even the meaning of 'and then', its grammatical function being that of a coordinating connective when it links two phrases, typically two verb phrases, or simply two finite verbs.[17] *Puis* can actually conjoin two transitive verbs in what was traditionally referred to as a Right Node Raising configuration in early generative grammar (Ross 1967). In (73), the two present tense verb forms *arrache* 'pull out, tear off' and *piétine* 'stamp on, trample on' share a single direct object phrase located immediately after the conjunction with *puis* as coordinator.

(73) French
Tantôt, petite comme une naine, je suis au coin d'une rue où,
soon tiny as a dwarf I am at-the corner of a street where
jetant autour de moi des regards épouvantés,
casting around of me INDEF glances frightened

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j'arrache puis piétine des affiches nazies.
I tear-down then stamp-on INDEF *posters nazi* (BHH1)
←
Norwegian
Snart står jeg liten og dvergaktig på et gatehjørne
soon stand I small and dwarf-like on a street-corner
og river ned en av nazistenes plakater,
*and tear down one of Nazis-*DEF-POSS *posters*
tramper på den og ser forskremt rundt til alle kanter.
trample on it and look frightened around to all edges
'Soon I stand small and dwarf-like on a street-corner and tear down one of the Nazi posters, trample on it and look frightened around in all directions.'

It is even possible for *puis* to conjoin two NPs, as illustrated in (74).

(74) French
Ensuite, conversations dilettantes puis ennui . . .
afterwards conversations dilettante then boredom (BHH1)
←
Norwegian
Siden halvdannet konversasjon og kjedsomhet . . .
later half-educated conversation and boredom
'Later half-educated conversation and boredom . . . '

The ability of *puis* to conjoin phrases demonstrates the close relationship between conjunction and pragmatic interpretations involving a temporal ordering of two states of affairs. The syntactic behavior of *puis* in (73) and (74) shows that the temporal aspect of the interpretation of phrasal conjunction can become automatic to the extent that purely temporal markers acquire certain syntactic properties of the coordinating connective. What is happening in (73)–(74) is not that a coordinating connective adds temporal succession as a lexical component, rather a discourse connective with a lexical meaning similar to Norwegian *så* has acquired grammatical properties that make it syntactically indistinguishable from a coordinator. In (74), the idea is that the conversations lead to a state of boredom, hence the use of *puis* rather than the unmarked French coordinator *et*.

The syntactic distributions of *alors* and *puis* do not overlap. Nor do the distributions of *alors* and the utterance-initial temporal adverb *ensuite* appearing in (74). *Alors* is basically a backward-looking anaphor, while *puis* and *ensuite* look ahead. Although a number of tokens of *alors* in the OMC did not correspond to any overt item in the parallel Norwegian, English or German texts, we can conclude that French differentiates in a fairly consistent manner between the two meanings of *then* explored in this paper.

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6.4 Danish

The Danish language uses *da* to refer to temporal simultaneity between two states of affairs and *så* to order described events sequentially. In this respect Danish is no different than Norwegian. There are, however, some major differences in how the two adverbs are distributed in utterances where they are intended to represent a condition, premise or cause. In Danish it is *så*, not *da*, which is used for this purpose. While *da* could indicate cause or condition in older written Danish, its use as a conditional constraint or marker of a causal relation is felt to be archaic today and it is totally obsolete in spoken Danish. Curiously, the situation is exactly the opposite in current spoken and written Norwegian, in which the old Dano-Norwegian adverb *så* as conditional or causal marker has been ousted.

How can Danish deviate so markedly from its close neighbors Norwegian and Swedish in its use of *da* and *så*? I am not going to try to answer that question but one point worth mentioning is that the English inferential connective *so* derives historically from a word whose usage was rather similar to that of Scandinavian *så*, and the Scandinavian languages use *så* both as a coordinating and a subordinating connective that introduces the consequence of something. It is only in its function as adverb that Danish *så* parts company with Norwegian and Swedish *så* and assumes a role that is largely reserved for *da* in Norwegian and *då* in Swedish.

6.5 Macedonian and Russian

Slavic languages tend to differentiate systematically between 'then' as discourse anaphor and as succession marker. Macedonian uses the basically temporal anaphor *togaš* 'then' where Norwegian uses *da*, and the succession marker *potoa* 'then' where Norwegian uses *så*. Macedonian (75)–(76) echo the Hungarian data of (62) compared to (61).

(75) Ana$_i$ ja praša Marija$_j$ dali znae deka nejze i e redot da go čisti
Ana CL *asked Marija if knows that for-her* CL *is turn to* CL *cleans*
stanot.
apartment
No Marija ne odgovori. Togaš taa$_i$ stana i si zamina.
but Marija not answer then she$_i$ *got-up and* REFL *left*
'Anna$_i$ asked Maria$_j$ if she$_j$ knew that it was her$_j$ turn to clean the apartment. But Maria$_j$ didn't answer. Then SHE$_i$ (Anna) got up and left.'

(76) Ana$_i$ ja praša Marija$_j$ dali znae deka nejze i e redot da go čisti
Ana CL *asked Marija if knows that for-her* CL *is turn to* CL *cleans*
stanot.
apartment

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No Marija ne odgovori. (potoa taa$_j$) Stana i si zamina.
but Marija not answer then she$_j$ got-up and REFL *left*
'Anna$_i$ asked Maria$_j$ if she$_j$ knew that it was her$_j$ turn to clean the apartment. But Maria$_j$ didn't answer. (Then) she$_j$ (Maria) got up and left.'

Togaš 'then' in (75) is most likely to be pragmatically interpreted as 'When/Because Maria did not answer Anna'. Although Macedonian is a pro-drop language, the pronominal form *taa* 'she' is preferable to a zero-pronoun subject in (75). The reason is that the discourse anaphor *togaš* here suggests that the subject referent should be understood to refer to Anna rather than to the more accessible discourse entity Maria, the topic of the immediately preceding utterance. In (76) the connective *potoa* 'then' is a marker of topic continuity, and so the subject of the verb *stana* 'got up' in (76) will be assigned the same reference as the subject of the preceding sentence where *Marija* is the grammatical subject. Alternatively, the communicator can convey the same message by leaving out both *potoa* and the pronoun *taa*, saying *Stana i si zamina* '[Maria] got up and left'.

Interestingly, Macedonian differs from Norwegian and Hungarian in its ability to use anaphoric *togaš* even in a sentence sequence such as (77), where the subject pronoun *taa* will not normally be understood to refer to Anna but to Maria, and where *taa* may also be omitted.

(77) Ana$_i$ ja praša Marija$_j$ dali znae deka nejze i e redot da go čisti stanot.
Ana CL *asked Marija if knows that for-her* CL *is turn to* CL *cleans apartment*
Marija$_j$ reče deka ke go isčisti utre. Togaš (taa$_j$) stana i si zamina.
Marija said that will CL *cleans-up tomorrow then she got-up and* REFL *left*
'Anna$_i$ asked Maria$_j$ if she$_j$ knew that it was her$_j$ turn to clean the apartment. Maria$_j$ said that she$_j$ would clean up tomorrow. Then (i.e. having said that) she$_j$ got up and left.'

Although the sentence-initial connective in (77) is not *potoa* but *togaš*, the other female referent, Anna, does not have a cognitive status (Gundel, Hedberg & Zacharski 1993) high enough for a zero pronoun to be used to refer to her, and for pragmatic reasons even the reference of the pronoun *taa* is easier to resolve in favor of Maria. Also, there is no particularly good reason for Anna to react to Maria's previous speech act by leaving the room, so the referential resolution of *togaš* in (77) will be 'When she (= Maria) had said that she wold clean up tomorrow'. *Togaš* and *potoa* are interchangeable in (77).

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Russian distributes the adverbial connectives *togda* and *potom* in much the same way as Macedonian *togaš* and *potoa*. *Potom* indicates that the event represented by the utterance in which it occurs is, or will be, temporally later than some other contextually salient event. Occasionally this other thing that is given temporal priority will not necessarily be determinate for the hearer, as a Russian may answer the question 'When are you going to do it?' by the one-word utterance *Potom* 'later, afterwards', meaning 'after one thing that I have to take care of first' (Tore Nesset, personal communication). The ability of *potom* to form a one-word utterance suggests that this word does have a truth-conditional meaning, unlike Norwegian *så*. It is not an anaphor, however. Russian *togda* is the right choice when the speaker intends the proposition expressed in the sentence modified by that adverb to be temporally or conditionally linked to an antecedent proposition.

6.6 Akan

The Akan coordinating connective corresponding to English *and* is *na*, which is realized with a Low tone, *nà*, when its function is that of a coordinating connective proper but with a High tone, *ná*, when it functions as a temporal anaphor with the meaning 'at that time'. There is also a succession marker *ɛna* (presumably a truncated form of *ɛno na*, i.e. demonstrative plus coordinating connective; Nana Amfo, personal communication), which is used to convey 'then' in a report on a sequence of events. If you are going to use Akan to communicate *We spent a week in Ghana. Then it was very hot/It was very hot then*, you should opt for the High-tone *ná*, meaning 'at that time', and if you want to say *We spent a week in Ghana and then we went on to Togo*, you can use the coordinator *ɛna* to mark the contrast between what happened first and what happened next, though a Low-tone *nà* is usually sufficient.

VP conjunction with a subject shared between conjoined predicates does not exist in Akan. The language uses multi-verb constructions (serial verb constructions) as an alternative. Saying that the policeman familiar from earlier examples raised his hand thereby causing the car to stop normally implies using a multi-verb sentence like (78).

(78) Polisini no ma-a ne nsa so gyina-a kaa no.
police DEF *give*-PST POSS *hand up stop*-PST *car* DEF
'The policeman raised his hand and stopped the car.'

The multi-verb construction responsible for the single-act interpretation is characterized by the fact that there is no coordinating connective and there is no pronominal subject marking in the past (PST) verb form *gyinaa*, the definite nominal *polisini no* being the subject of both predications. If you wish to convey that the policeman did two things – first he raised his hand and then he stopped the car – you may use emphatic *ɛna* 'and then' to express that the two actions happened in

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the temporal order reflected by the ordering of the conjuncts, as shown in (79), a conjunction of clauses.

(79) Polisini no ma-a ne nsa so ɛna o-gyina-a kaa no.
police DEF *give-PST POSS hand up* DEM *he-stop-PST car* DEF
'The policeman raised his hand and then he stopped the car.'

A subject shift from the agent in the first conjunct to the car in the second conjunct favors a causal interpretation no matter whether the connective is *ɛna* or *nà*, which is reminiscent of the Norwegian example (57), repeated here, where either way of expressing 'then' – with *så* or with *da* – supports a causal interpretation.

(80) Polisini no ma-a ne nsa so *ɛna*/*nà* kaa no gyina-*ɛ*.
police DEF *give-PST POSS hand up car* DEF *stop-PST*
'The policeman raised his hand and then the car stopped.'
(57) Politimannen løftet hånden og så/da stoppet bilen.

Again we see that topic shift, from the agent to the affected inanimate entity, supports an interpretation involving cause and consequence, even when the connective is not a temporal anaphor.

6.7 Hausa

While Akan uses a coordinating connective that is intuitively a coordinator even when its meaning is most adequately glossed as 'then' or 'and then', Ghanaian Hausa uses a multifunctional particle, *shei* (Standard Hausa *sai*) as a link between two independent clauses. Its function in the examples below resembles that of the coordinating French *puis* illustrated in section 6.3.2. Hausa uses a causative suffix *-d* for the causative meaning 'cause to stop' in our policeman data, and drops that suffix when the verb is used non-causatively (intransitively). The same form *shei* may occur both when the policeman stops the car by raising his hand and when he first raises his hand and then causes the car to stop by doing something else. *Shei* is indeterminate with respect to the difference between overlapping events and successive events.

(81) Dan-sanda-n ya[18] daga hanu-n shi, shei ya saya-d da
police-DEF he-PST raised hand-DEF POSS then he-PST stop-CAUS PREP
mota-n
car-DEF
'The policeman raised his hand and stopped the car.'

In order to bring out clearly the fact that the policeman performed two acts, you may add *kuma* 'also' between *shei* and *ya* in (81).

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In Hausa the same cause-consequence pattern as in (81) emerges when the discourse topic shifts from the policeman to the car and the verb meaning 'stop' is no longer causative. The Hausa construction in (82) translates English 'The policeman raised his hand and the car stopped' as well as 'The policeman raised his hand and then the car stopped'.

(82) Dan-sanda-n ya daga hanu-n shi, shei mota-n ya saya.
police-DEF he-PST raise hand-DEF POSS then car-DEF he-PST stop
'The policeman raised his hand and (then) the car stopped.'

6.8 Luganda and Rutooro

The Bantu language Luganda exhibits a pattern that is very close to the Norwegian way of distinguishing lexically between a non-truth-conditional connective 'then' and an anaphor 'then' that can be pragmatically strengthened to a conditional or causal adjunct. (83) is a Luganda report on what is conceived as the performance of a single act: the policeman stopped the car by raising his hand. There is no temporal connective here; the coordinating connective is *ne*, appearing in its truncated form *n'* because the next phonological segment is a vowel.

(83) Omuserikale yayimusizza omukono gwe n'ayimiriza emmotoka.[19]
IV-CL.1-police he-raised IV-CL.2-hand his and-he-stopped CL.5-car
'The policeman raised his hand and stopped the car.'

When the English sentence with verb phrase conjunction includes *then*, the preferred translation is as shown in (84), with the temporal succession connective *oluvannyuma*, whose final part means 'after'.

(84) Omuserikale yayimusizza omukono gwe
IV-CL.1-police he-raised IV-CL.2-hand his
oluvannyuma n'ayimiriza emmotoka.[20]
then-SUCC and-he-stopped CL.5-car
'The policeman raised his hand and then stopped the car.'

Adding *oluvannyuma* in (84) makes a causal interpretation less, rather than more, accessible, which is the same effect that the added *then* has in the English translation of (84), compared to the translation of (83) in which there is no temporal connective. We may conclude from this that *oluvannyuma* has the same lexical properties as Norwegian *så*: it is a non-truth-conditional connective that facilitates access to a temporal succession interpretation and it turns the addressee's attention away from the causal, single-act reading normally assigned to (83).

When there is a topic shift so that the subject of the second conjunct refers to the car rather than to the policeman, the Luganda item corresponding to English *then* promotes the causal interpretation. In (86) below, the equivalent of *then* in the same

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construction is not *oluvannyuma* but *olwo*, an anaphor that frequently shows up in Luganda discourse as a temporal, conditional or causal constraint on the proposition expressed (Bayiga 2005). Thus, *olwo* has the lexical properties of Norwegian *da*. It is a conceptual embryo to be enriched through association with an antecedent.

(85) Omuserikale yayimusizza omukono gwe emmotoka neyimirira.
IV-CL.1-police he-raised IV-CL.2-hand his CL.5car and-it-stopped
'The policeman raised his hand and the car stopped.'

(86) Omuserikale yayimusizza omukono gwe olwo emmotoka neyimirira.
IV-CL.1-police he-raised IV-CL.2-hand his then CL.5-car and-it-stopped
'The policeman raised his hand and then the car stopped.'

Both (85) and (86) support a causal interpretation at the pragmatic level of utterance comprehension, the former through free enrichment of the coordinative structure and the latter through saturation of anaphoric *olwo*.

Rutooro, a Bantu language spoken in parts of Uganda, the Democratic Republic of Congo and Tanzania, also differentiates systematically between an anaphoric 'then' and a succession-marking 'then', but notice my Rutooro informant Bebwa Isingoma's decision to encode the causal interpretation in (90) by means of the morphologically complex word *nahabweki* '(and) because of that', where *-eki* corresponds to demonstrative *that*.

(87) Omupoliisi akaimukya omukonogwe kandi yayemeereza
IV-CL.1-police IV-CL.1-PST-raise-IND IV-CL2-hand-his and PRO-PRES-stop-CAUS
emotoka.
CL.5-car
'The policeman raised his hand and stopped the car.'

(88) Omupoliisi akaimukya omukonogwe kandi
IV-CL.1-police CL1-PST-raise-IND IV-CL.2-hand-his and
hainyuma yayemeereza emotoka.
afterwards PRO-PRES-stop-CAUS CL.5-car
'The policeman raised his hand and then stopped the car.'

(89) Omupoliisi akaimukya omukonogwe kandi emotoka
IV-CL.1-police CL1-PST-raise-IND IV-CL.2-hand-his and CL.5car
yayemeera.
IV-CL.5-PRES-stop
'The policeman raised his hand and the car stopped.'

(90) Omupoliisi akaimukya omukonogwe kandi
IV-CL.1-police CL.1-PST-raise-IND IV-CL.2-hand-his and
nahabweki emotoka yayemeera.
and-because-of-that CL.5-car CL.5-PRES-stop
'The policeman raised his hand and then the car stopped.'

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Both Rutooro adverbs *hainyuma* in (88) (where *-inyuma* means 'after') and *nahabweki* in (90) encode a fairly rich conceptual meaning compared to English *then* and its Norwegian counterparts, something very close to the respective meanings of *afterwards* and *because of that/therefore* which are legitimate paraphrases of the succession marker *then* and the anaphor *then* pragmatically strengthened to a causal connective.

7. CONCLUSION

In many languages there is a systematic cognitively-motivated relation between 'sequence' and 'consequence', as reflected in the formal similarity of these two abstract nouns. The former derives historically from a Latin verb meaning 'to follow', the latter was originally the same verb stem with the prefix *con* 'with' in front of it, so that the meaning is 'to accompany'. We associate 'consequence' with a causal relation between two states of affairs and 'sequence' with a temporal one, a testimony to human beings' pristine intuitive feeling that there is an intimate relation between cause-and-effect and temporal succession of events.

This paper has demonstrated that there is a typological difference in the way languages express 'then'. On the one hand there are languages which are like English, and presumably also Old English, in that they use a single linguistic form to refer anaphorically to some contextually determinate point or period in time and to indicate what happens next in a sequence of events; on the other hand there are languages that differentiate lexically between the anaphoric and the non-anaphoric function.

I have addressed the question whether a univocal (sense-general) lexical semantics for both anaphoric and non-anaphoric uses of English *then* is a viable solution and have pointed to a number of linguistic phenomena that rather seem to support an ambiguity analysis of the word. That lexical division corresponds neatly to the meanings of the Norwegian adverbs *da* and *så*, the former an anaphor which imposes a temporal, conditional or causal constraint on the truth of the proposition expressed, the latter a non-anaphoric discourse connective that points ahead to what comes next in a course of narrated events, not backwards toward an antecedent.

I believe the same cognitive mechanisms to account for the lexical differentiation between *da* and *så* in Norwegian, *akkor* and *aztán* in Hungarian, *togaš* and *potoa* in Macedonian, *olwo* and *oluvannyuma* in Luganda, etc., all of which may be said to correspond to the English word *then*. The anaphor and non-anaphor functions are kept lexically apart in these languages, with implications for the inferential part of the comprehension process. Although humans have a strong tendency to reason from 'post hoc' to 'propter hoc', from temporal succession to causal relation, the lexical differentiation between two distinct words for *then* shows that there may also be a

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psychological pressure against formal conflation of the anaphoric function and the temporal sequencing function.

Gazdar (1979) notes that lexical ambiguity is a language-specific phenomenon and such phenomena cannot be expected to be retained when a putatively ambiguous word is translated into another language. If apparent ambiguities like the one focussed on in this paper show up again and again in languages, including genetically unrelated ones, we seem to have a good reason to believe that the word in question has a univocal lexical meaning in those languages. It is hardly an accident that the same phonological form is used with both meanings in languages which have never been in cultural contact, so that borrowing of a lexical pattern is out of the question. However, one major problem with the one-to-one translatability test applied to *then* is, as I have pointed out in this paper, that the noted systematic lexical differentiation in three as different language codes as Norwegian, Hungarian and Luganda gives us a reason to suspect that *then* may after all be better analyzed as a linguistically ambiguous word.

The tendencies across languages for a single phonological form to be used for the anaphor 'then' and the non-truth-conditional succession marker 'then' could admittedly be due to polysemy, to a kind of lexical polysemy that recurs in languages simply because the two lexical meanings have overlapping jobs to do in the inferential (i.e. pragmatic) phase of utterance interpretation. As the choice between anaphor and non-anaphoric discourse connective sometimes leads to much the same pragmatic output, as in my Norwegian example (57), it is predictable that the psychological mechanisms behind a tendency to group them together are operative cross-linguistically, even though it may prove futile to attempt to derive the one function from the other.

On this cautious note I leave it to future research to assess the theoretical consequences of a polysemy analysis.

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NOTES

1. Proto-Scandinavian contained a word-final nasal, **þan*. A trace of that ancient nasal consonant is found in the Swedish Dalarna dialect, where the time adverb *då* was traditionally pronounced with a nasal vowel (Falk & Torp 1992/1903–06).
2. I am grateful to Leiv Egil Breivik for making me aware of the internet facsimile edition of Bosworth & Toller (1898) and for providing me with a copy of his 2002 paper.
3. The text is Othere's narrative interpolated in King Alfred's translation of Orosius' *Historia adversus paganos*.
4. As one anonymous referee put it, 'Causal/consequential relations imply temporal abutment, not simultaneity'.
5. A demonstration of the adequacy of a univocal analysis of the anaphor *then* falls outside the scope of this paper (see Fretheim, Boateng & Vaskó 2002).
6. The word *then* in *what I then read* in (25) cannot be omitted, but since the function of the non-truth-conditional connective *then* is to order events temporally, the interpretation of *then* in (25) must be consistent with the encoded meaning of the phrase *the fourth chapter*.
7. Then is 'referentially given' in (26) but 'relationally new' (Gundel & Fretheim 2004).
8. I hesitate to call (43b) ungrammatical. Although it is strange to hold the belief that my pondering today affects the right answer to the question whether it was in the month of August that the President died, no rule of grammar appears to have been violated.
9. On the latter interpretation of (44a), the temporal clause does not belong to the explicature (the proposition communicated by the utterance) and is not the antecedent of *det* ('it/that') in the following main clause.
10. The OMC is a bi-directional translation corpus covering translations from and into Norwegian, English, German and French. (See <http://www.hf.uio.no/german/sprik/english/corpus.shtml/>.)
11. The symbol → is placed between a preceding source text and a following target text, while ← is placed between a preceding target text and a following source text. The letter code, here PDJ, contains the initials of the author.
12. My African informants are my students Nana Aba Appiah Amfo for Akan, Fauziatu Tijani for Hausa, Florence Tendo Bayiga for Luganda and Bebwa Isingoma for Rutooro. I am grateful to Liljana Mitkovska for the data from Macedonian and to Anastasia Lobanova and Tore Nesset for their views on 'then' in Russian.
13. The element *az* in *aztán* is actually a demonstrative pronoun, i.e. an anaphor, but the process of lexicalization of *az* + *tán* resulted in a non-truth-conditional connective in which the original anaphoric function of the first syllable *az* was lost.
14. I owe this information to Leo Hickey.
15. However, about half of the tokens of *alors* in OMC translations from Norwegian have no direct correspondent in the Norwegian source text. These are generally non-truth-conditional occurrences which indicate that the set of contextual constraints that will make the utterance relevant to the reader are believed to be in the reader's short-term memory because they can be derived from the immediately preceding discourse.
16. Some of my Norwegian informants did not react negatively to (69) at all.
17. Lefebvre (2004:153–157) reports that conjunction of clauses in Haitian Creole is done by means of one of the two coordinating connectives *pi* or *epi*, derived from French *puis* and *et puis*, respectively. The fact that the two forms are interchangeable could be interpreted as another sign of the close relationship between coordination and the signalling of successive events.

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18. Observe that finiteness is a grammatical property of the subject pronominal rather than of the verb in this language, and notice also that the phrase referring to the policeman in the first clause of (81)–(82) is a definite descriptive nominal which is followed by a subject pronominal, as in a European type left-dislocation structure.
19. 'IV' is the Initial Vowel, also called the Augment, which precedes class prefixes in words belonging to a variety of lexical categories. 'cl.1', 'cl.2' and 'cl.5' mean that the nominal prefixes glossed in this way belong to class 1, class 2 and class 5, respectively.
20. Observe the unexpected position of *oluvannyuma* to the left of the coordinating connective *ne* (*n*'). The point is that the coordinator is a verbal prefix, it is bound to attach to the verb even if the verb is not clause-initial. In (86)–(87) the hiatus resulting from **ne eyimirira* leads automatically to vowel elision: *neyimirira*, and the coordinator *n*' appears to the right of the subject nominal *emmotoka*.

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