

*A unitary approach to the interpretation of definites**

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Abstract

This paper proposes a unitary approach to the interpretation of definites which accounts for the fact that all forms of such expressions can get weak and strong readings in all types of constructions. The analysis proposed is an underdetermination account, where the universal force of definites is understood not to be determined by the grammar, but is routinely inferred at the pragmatic level. The analysis assumes that the basic mechanism for interpreting definites is the same as that for indefinites, but that the behaviour of definites is to be explained by reference to certain non-truth-conditional properties of definites in combination with pragmatic principles.

1 Introduction

In this paper, I will explore one possibility for maintaining a unitary quantificational treatment of definite expressions to account for their existential as well as universal readings. A very commonly discussed example of the existential/universal contrast in the interpretation of definites is the case of the donkey anaphora in (1) and (2). The pronoun in (2) is generally taken to mean "one of the credit cards she had"; whereas that in (1) is generally taken to mean "all of the donkeys he owns".

*This is an abridged, summary version of a longer paper, "A unitary approach to the weak and strong interpretations of definites". The latter paper includes a longer discussion of the motivation behind the semantic analysis as well as an account of the interpretation of indefinites and the contrast between definites and indefinites. Both versions are available on *UCLWPL*'s website. I am very much indebted to Deirdre Wilson for many helpful discussions on the topic of this paper and for some very useful input to earlier drafts. Thanks as well to Annabel Cormack for drawing my attention drawing my attention to some of the important issues which this paper raises.

- (1) Every farmer who owns a donkey beats it.
- (2) Every customer who had a credit card payed her bill with it.

The analysis proposed here could be called an underdetermination account. The basic idea is that the universal force of definites is not determined by the grammar, but it is routinely inferred at the pragmatic level. This type of inference, it is proposed, is triggered by certain non-truth-conditional properties of definites, which mark them off from indefinites. A proposal of this kind is only acceptable if one can provide a reasonable account of how particular interpretations of definite expressions are derived by pragmatic principles. I provide an account of the distribution of readings for definites using a relevance-theoretic approach to communication.

The paper is structured as follows. In section 2, I will show that both existential and universal readings are possible for all forms of definites in all types of constructions. This factual part of the paper is, I think, important as very little attention has been paid in the recent semantic literature to the systematic ambivalence in the interpretation of definites. In section 3, I outline what a unitary account of definites would involve. The basic idea is simple enough: Modulo a difference in non-truth-conditional properties, the grammar treats the interpretation of definites and indefinites via the same mechanisms. What gives rise to the universal reading is an enrichment of the predicate restrictor. Among the proposals in this section, is the separation of semantic and grammatical number. All descriptions are given a minimal 'numberless' analysis, any differences in interpretation are taken to be on the basis of routine inferences based on the grammatical number. Section 4 takes up the pragmatic part of the story. This is essential to the unitary analysis, which relies heavily on pragmatic determination of meaning. The main task is to account for the distribution of interpretations of definites. I argue here that, contrary to other accounts, there is no default to the strongest meaning. The distribution of readings is shown to result from an independently motivated strategy which applies to other context dependent expressions. This strategy follows directly from a relevance theoretic account of the interpretation of context sensitive expressions.

2 Existential and universal readings of definite expressions

By definite expressions I mean expressions in English of the form *the N'* (singular and plural), *this/that N'*, *these/those N'*, *(s)he*, *they*, *this/that*, *these/those*, possessives such as

John's etc; this paper will concentrate mainly on definite descriptions and pronouns. The idea that at least some definite expressions can have existential and universal readings is discussed mostly in the literature on donkey anaphora. In (1) and (2), the donkey pronoun, *it*, is given different types of readings. In (1) it is interpreted as "every donkey he owns", while in (2), it is interpreted as "one of the credit cards she had".

There is an alternative terminology used to classify the types of reading which is worth mentioning here. In upward entailing contexts, the universal interpretation is classified as *strong*, the existential, *weak*. In downward entailing contexts, the existential reading is classified as strong, the universal, weak. Examples of strong (existential) readings are given in (3). I will use this terminology in addition to the existential/universal labels¹:

- (3) No farmer who owns a donkey beats it.
 No farmer who owns donkeys beat them.

Up till now, we have looked at definites which are grammatically (or morphologically) singular but which receive semantically plural interpretations. In general, morphologically singular definites generally do not give rise to plural interpretations:

- (4) John owns a donkey. He beats it.
 (5) John took a credit card. He paid his hotel bills with it.
 (6) John owns a donkey and a horse. He beats the donkey.
 (7) John took a credit card and some cash. He paid his hotel bills with the credit card.

However, judgements about the interpretation of singular pronominal anaphora have been widely discussed in the literature on definites. For instance, many have claimed that in (8), there is no uniqueness entailment/presupposition:

- (8) A man walked in Hyde Park. He whistled.

¹There is another other common usage of the terms "strong/weak". This used to classify types of noun phrase (or, at least, their interpretations) according to their acceptability in certain types of construction, most notably, *there*-sentences in English. The two senses are unrelated.

This amounts to saying that the pronoun in (8) has only the weak, existential, reading. Others claim that singular pronouns always carry information about uniqueness. In this paper, I will assume that examples such as (8) do not have a strong reading, and that examples such as (4) do have a strong reading. The proposals I will eventually set out below can account for possibilities of these sorts: i.e. the uniqueness reading is an instance of the universal reading of singular definites, while examples such as (8) exemplify the existential alternative. When we move to plurals, the strong/weak distinction re-emerges clearly:

(9) John owns donkeys. He beats them.

(10) John took credit cards. He paid most of the hotel bills with them.

(11) John owns donkeys and horses. He beats the donkeys.

(12) John took credit cards and cash. He paid most of the hotel bills with the credit cards.

Here, the pattern is as in (1) and (2). The donkey examples get universal readings and the credit card examples get existential readings. We can repeat this pattern with plural demonstratives used anaphorically:

(13) Unlike most farmers, John does not own any donkeys but he does have some pretty ornery pigs; so he beats those.

(14) Of course, John took his own credit cards on the business trip, but he also took company credit cards. He paid most of his bills with those (credit cards).

(15) John, of course, owns some donkeys but he also tends other farmers' donkeys. He beats those donkeys.

It is often said that possessive constructions are definite (see *inter alia* Neale 1990), and indeed these pattern the same way:

(16) John tends Bill's donkeys as well as his own; but he treats Bill's donkeys very poorly.

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- (17) John took company credit cards as well as his own. He used the company's cards to pay most of his bills.

In downward entailing/negative contexts, the pattern repeats itself for any of the plural definites considered so far. Recall that the "any"-reading of the definite is here being classified as strong. So in (18) below, the plural description is classified as having a strong reading. Note that the bound variable in the object noun phrase ensures that the reading is obtained with the object inside the scope of the negative quantifier. We can get the same reading inside the restrictor of a \downarrow Mon determiner such as *every* or *no*² as in (19):

- (18) No farmer beats the donkeys he owns.

- (19) Every/No farmer who abused the donkeys in his care was prosecuted.

(20) and (21) are examples of a universal (weak) reading in the restrictor of a \downarrow Mon determiner:

- (20) Every farmer who vaccinated the donkeys he owns received a certificate from the government animal health inspector.

- (21) No farmer who vaccinated the donkeys he owns has the need for a vet this spring.

(22) is an example of a universal reading of a description in the scope of a $\text{Mon}\downarrow$ quantifier, while in (23), the universal reading of the pronoun is favoured:

- (22) [Speaking about beach huts in a remote holiday resort]
 Mary: Shouldn't you make sure that the windows of your hut are locked before we go out?
 John: No one around here bothers to make sure that the windows of their hut are locked before they go out.

²A \downarrow Mon determiner, D, is such that for any A, B \subseteq E, where A \subseteq B, DB \subseteq DA. A \uparrow Mon determiner is such that for any A, B \subseteq E, where A \subseteq B, DA \subseteq DB.

- (23) No farmer (around here) who owns a million sheep has the resources to vaccinate them.

With a little imagination, the reader should be able to see how examples with other plural definites would go.

So, it is clear that plural expressions of definiteness of all forms can give rise to both universal and existential readings in both upward and downward entailing contexts. Taken together with the data concerning singular pronominal definites, it seems that we have a systematic variance in interpretation in expressions of definites between the universal and existential readings. This fact about the interpretation of definites, though perhaps mundane, should be among the core data which theories of definites need to explain. However, it is a fact which has rarely been considered. In this paper, I will set out an analysis of such expressions in a way which accounts for this variance in interpretation as being due to the same processes or mechanisms. In the next sections, I sketch a semantic and a pragmatic analysis of this phenomenon.

3 Semantics

3.1 Quantificational approaches to definites

In order to set out a unitary treatment of the weak/strong alternation, I will pursue a quantificational approach to definites in the spirit of Neale (1990), and more recently, van der Does (1994, 1996a).³ That is, I will treat both pronouns and descriptions as expressions of quantification.⁴

The quantificational approach to definites treats definites as quantified noun phrases, or as denoting quantifiers (sets of sets). Neale (1990) aimed to extend Russell's analysis of descriptions to plural definites, possessives and pronouns. According to Neale, there

³Due to constraints of space, I will simply set out an analysis for the semantics of definites here without much motivation for the choices made. A longer version of this paper contains some more lengthy discussion of my choice of a quantificational, E-type analysis over alternative approaches to the semantics of definites currently available.

⁴Strictly speaking, I will be concerned with anaphoric pronouns. I leave aside the analysis of pronouns which are interpreted as bound variables of quantification, as well as those which are taken to be singular terms.

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are three types of definites: singular, plural and numberless. It is instructive to look at these as we can see immediately the problem which a Russellian semantics faces with respect to the data above:

- (24) a. $\text{the}_s AB \Leftrightarrow |A - B| = 0 \wedge |A| = 1$ (i.e. $\Leftrightarrow A \cap B \neq \emptyset \wedge |A| = 1$)
 b. $\text{the}_{pl} AB \Leftrightarrow |A - B| = 0 \wedge |A| > 1$
 c. $\text{the}_{whe} AB \Leftrightarrow |A - B| = 0 \wedge |A| \geq 1$

The numberless description was introduced to account for cases such as (1) where a grammatically singular definite applies to cases where there is no cardinality restriction⁵. The equivalences in (24) reflect the three conditions of Russell's semantics for definite descriptions: There is an A; There is a cardinality restriction on the number of A's; Nothing with A is not B. The problem here is with the last condition.

Lappin (1989), Neale (1990) van der Does(1996), among others have proposed an E-type (quantificational) treatment of pronominal anaphora along the lines of (24). For example, Neale's treatments of (25) and (1) are given in (26) and (27) respectively:

- (25) Few congressmen admire Kennedy and they are junior.
 (26) [few x: congressmen (x)] (x admires K.) and [the_{pl} x: congressmen who admire K. (x)] (x are junior).
 (27) [every x: farmer (x) & [a y: donkey(y)](x owns y)] [the_{whe} z: donkey(z) & x owns z](x beats z).

One major objection to the E-type approach is the apparent contextual flexibility in filling out the content of the restrictor of the pronoun. However, contextual determination of the restrictor is an ineliminable fact about the interpretation of quantifiers. In examples such as (28), the literal interpretation is in most cases implausible. We tend to take an utterance of such sentences to be talking about some contextually determined group of students:

- (28) Most students passed.

⁵Basically the same treatment is proposed in Lappin (1989).

(29) Every farmer who owns horses and donkeys beats the donkeys.

From (29) we see that contextual determination of the restrictor of the description, entirely parallel to that given in the E-type analysis (27) of (1), is required.

Westerstahl (1985) gets at this property of language by introducing a restriction operation on determiners. Using Barwise & Cooper's LGQ, we can see Westerstahl's proposal. According to Barwise & Cooper (1981), a sentence of the form in (34) gets the translation in (35), with the truth conditions given in (36):

(34) $[_S[_{DP}[_{Det}D] [_{NP}[A]]] [_{VP}B]]$

(35) (DA)B

(36) (DA)B $\Leftrightarrow B \in D_M A$

Westerstahl gets at the context dependency of restrictors by giving (34) the translation in (37) which has the truth conditions in (38), where X is some fixed set determined by the context:

(37) (D^XA)B

(38) (D^XA)B $\Leftrightarrow B \in D_M A \cap X$

Using the idea of context sets, van der Does (1994) has developed a domain dynamics in which potential context sets for E-type anaphora are stored in files and where interpretation of anaphoric material is made relative to an assignment and such files. I will not go into details of this but simply remark that a more formally respectable development of the basic E-type idea may be in sight.

I will outline a semantics for all forms of definites in the spirit of Neale. That is, I will treat them quantificationally, taking on the fact that such noun phrases are subject to contextual restriction. However, the outstanding problem with Neale's treatment as summarised in (30 a-c) is that the existential readings are not accounted for. Lappin & Francez (1994) and van der Does (1994, 1996a) do have proposals for the existential readings in examples such as (2), i.e. for E-type pronouns. However Lappin & Francez (1994) treat such pronouns as terms while van der Does's treatment only considers the possibility of existential readings for singular pronouns. Krifka (1995) is the only

discussion of which I am aware that acknowledges the strong/weak readings of definites other than pronouns. He sketches an underdetermination proposal similar to my own. This will be discussed below, along with his treatment of the pragmatics. Rather than review these, I will outline a proposal for capturing the weak and strong readings of all definites.

3.2 Proposal

The first part of the analysis takes up another aspect of Westerstahl (1985) which draws a distinction between definite articles and determiners of quantification. Westerstahl proposes that items such as *the*, *this*, etc are not analysed as being of the category Det, but of Def, which he calls context set indicators. Thus, *the A* denotes $A \cap X$. A sentence such as (40) gets the translation (41):

(40) $[[_{DP} D \text{ of the } A] [_{VP} B]]$

(41) $(D \text{ of the } A)B \Leftrightarrow B \in D_M A \cap X$

In a sentence such as $[[[the A]] B]$, D in (41) defaults to all_c (i.e. the generalised quantifier *all* with a cardinality restriction on its first argument). So Westerstahl treats (42) as in (43):

(42) $[[_{DP}[_{NP} \text{the } A]] [B]]$

(43) $(all_c \text{ of the } A)B \Leftrightarrow B \in \mathbf{all}_c A \cap X$

At this point we could simply stipulate that the grammar provides another option for dealing with sentences such as (42), along the lines of (44):

(44) $(some \text{ of the } A)B \Leftrightarrow B \in \mathbf{some} A \cap X$

This proposal would be consistent with a quantificational treatment of definites, but would nevertheless be an ambiguity analysis. Instead I will treat definite DPs as expressions of existence and locate the apparent universal/existential variance in the

interpretation of the the predicate $[_{NP} \textit{the } A]$. The details of this will be set out in the next section.

Before moving on to the next section, I might briefly propose another modification to Westerstahl's treatment of definites. By treating definites as context set indicators, Westerstahl makes the restriction of the N' set of the definite mandatory. This seems to be too strong as there are plenty of cases where there is seemingly no contextual restriction of the content of description. Examples such as "the prime numbers less than 10", "the tallest mountain in Britain", and so-called novel definites, "the woman John dated last night", do not seem to require the kind of restriction operation indicated above. There is of course a way around this problem which is to fix the context set in such cases to be the universe of discourse itself. However, in doing this, we do not seem to mark definites off from other quantified noun phrases which are, almost as often as definites, subject to the same contextual restriction operation, exemplified in (37). So let us say that the property of definiteness is a non-truth-conditional property of NPs, indicating that a determinate set of individuals is being talked about. Let us further assume that, at least in the case of definite descriptions and pronouns, this non-truth-conditional information is grammatically encoded. So the regular contextual restriction of descriptions is a by-product of their non-truth-conditional properties and not a grammatically determined aspect of their interpretation.

3.3 A semantics for definites

First, for ease of exposition, I will revert to the following notation. One way of representing the logical form of a DP containing an indefinite description is given in (45):

$$(45) \quad [DP[NPa \textit{woman}]] := \lambda P. \exists x [\textit{woman}'(x) \wedge P(x)]$$

I will adopt this type of notation in what follows. However, as we need to deal with plurals, some adjustments need to be made. Again, for the purposes of exposition, let us take on the following simple treatment of plural predicates:

- Let the domain E be of plural individuals.
- The set $A \subseteq E$ is the set of atomic individuals = $\{x \in E: |\{z: \Pi(z,x)\}| = 1\}$
- The part-of relation, $\Pi \subseteq E \times E$, holds of a pair a, b iff a is a part of b .

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- The predicate *woman'* is the normal predicate, denoting a set of atomic individuals.

We will take plural predicates to denote sets of plural individuals whose atomic parts are singular (atomic) individuals in the corresponding set of singular individuals:

$$(46) \quad \mathbf{women}'_{(e,t)} := \lambda x_e. \forall y_e \in \mathbf{A} [\Pi(y,x) \rightarrow \mathit{woman}'(y)] \wedge |\{z \in \mathbf{A} : \Pi(z,x)\}| \geq 1$$

(46) might normally be taken to represent the meaning of a plural phrase, such as $[_{NP}[_N \mathit{women}]]$. In what follows, I will take all predicates, regardless of the grammatical number of the corresponding phrase, to be defined as in (46). In cases where grammatically singular descriptions are taken to have a cardinality restriction of exactly one (i.e. they are taken as the regular singular predicate), or where a plural description is understood to have a minimum cardinality bound of two, this will be treated as a matter of further enrichment of the predicate on the basis of the grammatical number. That is, grammatical number is taken to be a reliable clue as to the semantic number of the expression. It does not encode semantic number. The result of such enrichment is shown in (47) and (48):

$$(47) \quad \mathbf{women}'_{\text{sing}} := \lambda x_e. \forall y_e \in \mathbf{A} [\Pi(y,x) \rightarrow \mathit{woman}'(y)] \wedge |\{z \in \mathbf{A} : \Pi(z,x)\}| = 1$$

$$(48) \quad \mathbf{women}'_{\text{pl}} := \lambda x_e. \forall y_e \in \mathbf{A} [\Pi(y,x) \rightarrow \mathit{woman}'(y)] \wedge |\{z \in \mathbf{A} : \Pi(z,x)\}| \geq 2$$

Given the non-truth-conditional properties of definites, they usually determine a contextually restricted plural predicate which will be indicated by the superscript \mathbf{K} , as indicated in (49). This predicate applies to individuals whose parts belong to the contextually determined set of women:

$$(49) \quad \mathbf{women}^{\mathbf{K}}_{(e,t)} := \lambda x_e. \forall y_e \in \mathbf{A} [\Pi(y,x) \rightarrow \mathit{woman}'(y) \wedge \mathbf{K}'(y)] \wedge |\{z \in \mathbf{A} : \Pi(z,x)\}| \geq 1$$

We are treating DPs involving definite NPs as existentials, so a phrase such as $[_{DP}[_{NP} \mathit{the women}]]$ is analysed as in (50):

$$(50) \quad [_{DP}[_{NP} \mathit{the women}]] := \lambda P_{(e,t)}. \exists x [\mathbf{women}^{\mathbf{K}}(x) \ \& \ P(x)]$$

This particular construal of the definite NP results in an existential reading. In order to get the universal force of definites, we assume that the predicate is enriched to apply only to the sum individual (i.e. the maximal collection of women in the context) as defined in (51). The interpretation of the DP involving this predicate has the numberless universal reading:

$$(51) \quad \mathbf{\sigma women}^K_{(e,t)} := \lambda x_e. \forall y_e \in A [\Pi(y,x) \leftrightarrow \text{woman}'(y) \wedge K'(y)] \wedge |\{z \in A: \Pi(z,x)\}| \geq 1 \\ \text{[DP[NPthe women]]} := \lambda P_{(e,t)}. \exists x [\mathbf{\sigma women}^K(x) \ \& \ P(x)]$$

When the cardinality restriction in this predicate is enriched to 'exactly one', it picks out the unique woman in the context:

$$(52) \quad \mathbf{\sigma women}^K_{\text{sing}} := \lambda x_e. \forall y_e \in A [\Pi(y,x) \leftrightarrow \text{woman}'(y) \wedge K'(y)] \wedge |\{z \in A: \Pi(z,x)\}| = 1 \\ \text{[[the woman]]} := \lambda P_{(e,t)}. \exists x [\mathbf{\sigma women}^K_{\text{sing}}(x) \ \& \ P(x)]$$

The distributive version of, for example, the universal numberless reading is given in (53):

$$(53) \quad \lambda P_{(e,t)}. \exists x [\mathbf{\sigma women}^K(x) \ \& \ \forall y \in A [\Pi(y,x) \rightarrow P(y)]]$$

Finally, partitive "of" can be rendered as in (54):

$$(54) \quad \text{of} := \lambda P. \lambda x. x \in A \ \& \ P(x)$$

3.4 Pronouns

Pronominal definites, on the E-type analysis, are just definites whose content is determined purely by the context. So, the NP, $[_{NP} \text{they}]$, determines the predicate in (55a), with the enriched version in (55b). The form of the DP is given in (56):

$$(55) \quad \text{a. } \mathbf{they}^K_{(e,t)} := \lambda x_e. \forall y_e \in A [\Pi(y,x) \rightarrow K'(y)] \wedge |\{z \in A: \Pi(z,x)\}| \geq 1 \\ \text{b. } \mathbf{\sigma they}^K_{(e,t)} := \lambda x_e. \forall y_e \in A [\Pi(y,x) \leftrightarrow K'(y)] \wedge |\{z \in A: \Pi(z,x)\}| \geq 1$$

$$(56) \quad \text{[DP[NPthey]]} := \lambda P_{(e,t)}. \exists x [\mathbf{they}^K(x) \ \& \ P(x)]$$

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Before closing this section, I will touch briefly on the issue of grammatical number of pronominal anaphora and its role in interpretation. According to the proposal, all definites, including pronouns, get a semantically numberless interpretation assigned initially. This would include singular pronouns, as in (57). However, I have allowed for enrichment of this predicate to the stronger predicate, which I will call **!she^K**, given in (58):

$$(57) \quad \mathbf{she}_{(e,t)}^K := \lambda x_e. \forall y_e \in \mathbf{A} [\Pi(y,x) \rightarrow K'(y)] \wedge |\{z \in \mathbf{A} : \Pi(z,x)\}| \geq 1$$

$$(58) \quad \mathbf{!she}_{(e,t)}^K := \lambda x_e. \forall y_e \in \mathbf{A} [\Pi(y,x) \rightarrow K'(y)] \wedge |\{z \in \mathbf{A} : \Pi(z,x)\}| = 1$$

In addition to this enrichment, we also have enrichment to a predicate which applies only to the sum individual.

$$(59) \quad \mathbf{\sigma!she}_{(e,t)}^K := \lambda x_e. \forall y_e \in \mathbf{A} [\Pi(y,x) \leftrightarrow K'(y)] \wedge |\{z \in \mathbf{A} : \Pi(z,x)\}| = 1$$

So, there are four possibilities: **!she^K**, **σ!she^K**, **she^K** and **σshe^K**. **σ!she^K** will give us the standard Russellian singular description as seems to be required in (60):

(60) John owns one donkey. It is in the barn.

σshe^K - with distributivity - will give us the numberless universal reading, as in the classic donkey sentences such as (1). **!she^K** and **she^K** - with distributivity - both give us the existential reading as in credit-card donkey constructions (such as (2)) and as in (61):

(61) A man walked in the park. He whistled.

This paradigm predicts the possibility that there could be collective readings for singular pronouns as well. Such readings, though available for plurals, have yet to be attested for singulars. However (62) might serve as one example:

(62) Everyone who had a guest arriving on the nine o'clock bus met her on the bus when it arrives.

The collective numberless reading of the pronoun in this example is somewhat marginal,

though possibly available. In any case, the absence of certain readings of singular pronouns - and pronouns and descriptions in general - which this system allows for, is not as severe a problem as one might think. I have given a uniform semantics for definites regarding number, with the possibility of enriching the cardinality properties of such expressions at the level of the proposition expressed. This system will hopefully cover all possible construals of definites. The ability of certain definites with certain phenomenal (morpho-syntactic) properties to get certain readings in certain constructions as well as their general felicity in certain contexts, can, I think, be accounted for in terms of various *unencoded*, non-truth conditional properties of these expressions. It has been assumed above that one of these properties has to do with the relation between grammatical number and semantic number. These properties have a bearing on how one processes/takes utterances containing them. Consequently they affect one's judgement as to the intended meaning of the expressions as well as to the felicity of their use. I leave discussion of such issues to another time⁶. We now turn to the second phase of this unitary analysis of definites. This will involve showing how pragmatic principles can account for the general distribution of weak and strong readings.

⁶In Breheeny (1996) I discuss briefly another property of definites: their ability to function as accessibility indicators. I agree with Neale that other properties of definites (pronouns, in particular) affect the way we take them. For instance, the grammatical number of pronouns presumably raises expectations about the grammatical number of their antecedent, as well as about the cardinality of their interpretation. These two heuristics may come into conflict in certain cases, leading to judgements of reduced acceptability. The classic case is in (i) and (ii):

- (i) Every boy was given an ice-cream. He was happy.
- (ii) Every boy was given an ice-cream. They were happy.

I agree with Neale that both these examples are awkward, though the singular case is ok, in certain situations, if it is known there was only one boy. Classical DRT makes a strong prediction that (i) is bad (while saying nothing about (ii)). However, as many have pointed out, the mechanism which rules (i) out is too strong. As van der Does (1996a) argues, (iii) should be bad according to DRT, but it is not:

- (iii) If a farmer gives every donkey a stroke it isn't painful.

4 The pragmatics of weak and strong readings

4.0 I am pursuing, in this paper, a unitary account of the interpretation of definites.⁷ In particular, I am accommodating the data concerning the weak and strong readings of definites into a quantificational analysis. For the unitary proposal to work, one must be able to say exactly which interpretation it entails and show how the two types of interpretation in question are derived, on the basis of independently motivated mechanisms. This, of course, is just a version of Grice's Modified Occam's Razor: One shows that a pragmatic account, if it were available, would be preferable to one which multiplies senses; but then one must also give the pragmatic account - otherwise the unitary analysis carries little weight.

I have located the variance in interpretation of definites in the restrictor of the DPs. The semantics sets out the basic meaning of definite DPs as existential. The universal reading is seen as resulting from a particular construal of the NP predicate, [_{NP}*the N*], such that it applies to the totality of N's in the context. The general context dependency of this predicate follows from what I am assuming to be non-truth-conditional properties encoded by definites, indicating that some determinate collection of individuals is being talked about.

In this section, I will give an account of the pragmatics of the interpretation of definites. The issue here is the distribution of readings: Can we account for this distribution given the semantic analysis and independently motivated pragmatic principles? I will show that a pragmatic interpretation strategy which applies to all context sensitive expressions also explains the distribution of readings in the case of definites. This strategy is shown to follow from a relevance theoretic approach to the interpretation of such expressions.

4.1 Distribution of readings

In the literature on definites there has been a tendency to describe the distribution of readings of definites in terms of default strategies. To give the flavour of what I mean, consider (63):

⁷The pragmatic analysis of definites in this section is an extension of that presented in Breheny (1995) to the case of all definites.

- (63) Every farmer vaccinated the donkeys he owns.
 No farmer vaccinated the donkeys he owns.

It has been widely observed that in upward entailing contexts the universal reading is preferred, while in downward entailing contexts, the existential reading is preferred. Of course, this preference is not absolute, nor is it over-ridden simply on the grounds of plausibility as in the case of the credit card examples discussed in section 2. Examples (20) and (21), in section 2 above, are cases where the choice of the weak reading is not made on the grounds of plausibility, as the alternative is equally plausible, but seemingly for other reasons.

Lappin & Francez (1994) assume a default-to-the-strongest-reading strategy for donkey anaphora. Krifka (1995) in his discussion of the weak/strong readings of descriptions makes a similar assumption. Indeed, Krifka assumes that the semantics of descriptions is vague: the grammar does not determine whether they get the universal or existential reading. This is taken to be a matter for interpretation strategies, the default one being given in (64):

- (64) Interpretation strategy for predications on sum individuals:
If the grammar allows for a universal or an existential interpretation, choose the interpretation which results in the strongest proposition!

Krifka acknowledges that this strategy can be over-ridden. He gives (65) as an example:

- (65) I returned to the house because I thought I had left the windows open.

Here the preference seems to be for the weak, existential reading. Krifka entertains the idea that the reading here is due to the lexical meaning of "open", i.e. that it is a partial predicate. But this cannot be the case, as his own example in (66) suggests:

- (66) I could reach the safe because the doors were open. (i.e. every door was open.)

Exactly what causes the over-ride of the general strategy, Krifka does not say. In the absence of such an account, the strategy mentioned above amounts to a restatement of the facts. However, Krifka does cite evidence that this strategy of choosing the strongest alternative does seem to be at work in other constructions, such as reflexives:

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- (67) The five players know each other.
- (68) The five players sat alongside each other.

In the absence of world knowledge which would make the strongest reading implausible, we seem to choose the strongest interpretation of the reflexive.

In what follows, I will suggest an account of the derivation of strong readings of definites which will explain the appearance of a strategy which defaults to the strongest reading.

In fact, a strategy of choosing the strongest possible interpretation is somewhat unusual and surprising in other aspects of utterance interpretation. To get an idea of what is at stake here, consider an example involving a scalar adjective, such as *fast*, as discussed in Wilson & Sperber (1993):

- (69) Mary: We have to travel 300km before lunch!
John: Don't worry, I have a fast car.

John's utterance includes an expression whose meaning has to be determined in the context. In the situation of (69), we take John to mean that his car is fast enough to travel 300km before lunch. That is, we fix the denotation of the predicate *fast* to be the set { x : x is at least fast enough to travel 300km before lunch}. Note that were we to take John to mean that his car is fast enough to travel 400km before lunch, Mary's concerns would equally be assuaged, but that is not what we do. W&S provide many more examples of this type, such as :

- (70) I've been here all day.

If (70) is uttered by Mary in the college library, then the reference of *here* could be taken to be *in this room*, *in the library*, *on campus*, *in London* and so on. Each of these possible interpretations is stronger than its successor. The point being that one does not simply default to the strongest possible interpretation. W&S use their relevance-theoretic account of the pattern of inference in these cases to solve problems with the pragmatics of temporal reference, as in (71a-b):

- (71) a. I've had breakfast.
b. I've been to Tibet.

The generalisation, which they account for in relevance terms, is that, given a choice of possible interpretations arrayed along some scale of strength, one opts for the weakest interpretation which is consistent with the assumed pragmatic criterion. In (71a), the utterance would not satisfy one's expectations of relevance unless it was taken to mean "in the past few hours", whereas in (71b) it is sufficient that the time period in question be narrowed down to the weaker, "in the utterer's lifetime".

Now the generalisation here seems to go in a different direction from the one involving definites. But, from a relevance perspective, this difference is more apparent than real. Consider again the case where a definite gets a weak reading, such as (65). Given general worldly concerns for household security, it would be sufficient cause for the speaker to return home if she thought that at least one of the windows was open. Contrast this with (66) where world knowledge dictates that all the doors would have to have been open in order to reach the safe. So, in these types of example, an account of the readings could given be along the lines that W&S discuss. The same goes for some examples of weak and strong readings discussed earlier:

- (72) a. Every/No farmer who abused the donkeys in his care was prosecuted.
b. Every farmer who vaccinated the donkeys he owns received a certificate from the government animal health inspector.

With (72a), it is sufficient to abuse one donkey to break the law, while, for (72b), one would expect to have to vaccinate all donkeys to receive such a certificate. In these cases, there is no question of a default to the strongest reading playing a role, and the relevance theoretic strategy of choosing a reading that is at least relevant enough might play a role. The apparent default seems to come into play when there is no strong worldly reason why we should choose either reading:

- (73) John bought some sheep and donkeys. He sold the donkeys a week later.

However, I will argue in what follows that the same strategy which assigns the interpretations in the "open" examples ((65) and (66)) also chooses the strong reading in cases such as these.

4.2 Contexts for contextually dependent expressions

The notion of relevance developed in S&W (1986/1995) involves cognitive effort and cognitive effect. The types of cognitive effect that a stimulus can give rise to are varied. For our purposes, we can think of cognitive effects as modifications to the context involving strengthenings or contradiction and elimination of existing assumptions, or the addition of contextual implications; that is, implications which follow from processing an assumption drawn from new information in the context of assumptions drawn from old information one has to hand.

The more cognitive effects that a stimulus gives rise to, the more relevant it is. The more effort involved in deriving cognitive these effects, the less relevant it is. The communicative principle of relevance is intended to play the kind of role which Grice's Co-operative principle and maxims do in accounting for facts of utterance interpretation. It makes reference to a presumption of optimal relevance. This was formulated as follows in S&W (1995):

The presumption of optimal relevance:

- (a) The ostensive stimulus is relevant enough for it to be worth the addressee's effort to process it.
- (b) The ostensive stimulus is the most relevant one compatible with the communicator's abilities and preferences.

According to this, the addressee is entitled to expect a level of relevance which is high enough to justify his attending to the stimulus, and which is, moreover, the highest level of relevance the communicator was capable of achieving given her means and goals. The communicative principle of relevance states that an act of communication communicates a presumption of its own optimal relevance. The hearer should look for an interpretation which satisfies this presumption (or which the speaker might reasonably expected to do so)⁸.

The communicative principle of relevance suggests the following strategy for figuring out a speaker's communicative intentions: to formulate and test hypotheses as to the speaker's intentions in order of accessibility (the more accessible a hypothesis, the

⁸This is a very cursory summary of S&W's proposals. The reader is referred to their (1995) text for a more thorough exposition.

cheaper it is to construct), and to stop when the expected level of relevance is achieved. This least effort strategy plays an important role in a relevance account of the resolution of indeterminacies at the level of the proposition expressed. On the effect side, the claim is that the hearer is entitled to expect at least adequate effects, and more on the assumption that the speaker is willing and able to provide them.

In order to see how this is put into practice for examples such as (69), the relevance theoretic notion of context needs to be set out. A stimulus achieves cognitive effects in a context of assumptions. One type of cognitive effect that a stimulus can achieve is contextual implication. For example, the proposition that John's car is fast enough to travel 300km before lunch would give rise to an implication when processed in a context of assumptions which includes (74):

- (74) If John's car is fast enough to travel 300km before lunch then we will make our appointment on time.

In different contexts, this proposition would give rise to different effects. Now, part of the hypothesis formation stage of the interpretation process involves accessing a context of assumptions in which the speaker might have intended the utterance to achieve its contextual effects. This is where the least-effort strategy plays an important role. The more accessible information is, the cheaper it is to construct contexts based on that information. Therefore, the first context in which the utterance satisfies the presumption of optimal relevance (or could reasonably be expected to do so) is taken to be the intended context.

The hypothesis formation stage is also crucial to the resolution of indeterminacies at the level of the proposition expressed. We can see this by varying the example in (69) along the lines of (75):

- (75) Mary: I think it would be great fun to compete in the amateur rally next weekend.
John: Well, I have a fast car.

Here we take the expression *fast car* to denote a different (presumably smaller) set from that in (69). So in different hypothesised contexts, expressions whose meaning is defined in use have their meaning fixed relative to that context. In general, this meaning clearly

has to be compatible with that context⁹. However, saying that a pragmatically determined aspect of the proposition expressed generally has to be compatible with a hypothesised context is not enough. Attributing to the speaker the intention that a certain expression have a certain content also has to be evidenced. It is this consideration which sets an upper limit on the strength of the meaning of *fast* in examples such as (69). This is the source of Wilson & Sperber's generalisation discussed above. Let us see how this works in the case of (69).

We account for the interpretation of John's utterance, in (69), in the following way: In this situation, given Mary's clear and present concerns, we assume that a very accessible context in which John's utterance would achieve cognitive effects is one which would include assumptions such as (74) above. The presumption of optimal relevance tells us that we can expect a level of relevance which is high enough to justify attending to the stimulus (as per clause (a)), and which is, moreover, the highest level of relevance the communicator was capable of achieving given her means and goals (as per clause (b)). By assuming that John meant that his car is at least fast enough to travel 300km before lunch, Mary can derive cognitive effects in the context of an assumption such as (74) and any other effects to do with her concerns, based on that implicature. This would satisfy clause (a) of the presumption of optimal relevance and would moreover, satisfy clause (b). As this is the most accessible such context, it is taken to be the intended one and the overall interpretation is taken to the intended one. In particular, the denotation of *fast* is fixed at the lower limit: "at least fast enough to travel 300km before lunch". This is so since, in the context drawn from the clump of highly accessible concerns we attribute to Mary, a stronger interpretation of *fast* would be no more relevant (it would give rise to no more effects). So we have very good evidence that it was John's intention that his utterance express the proposition that his car is at least fast enough to travel 300km before lunch, and no evidence that he meant something stronger by his use of the expression.

A variation on example (69), which will be relevant to the discussion of definites, involves a scenario in which one understanding of the underdetermined expression would satisfy clause (a) of the presumption, but not clause (b); while a different, stronger construal of the expression would lead to an interpretation which satisfies both clause (a)

⁹Examples such as (69) are relatively 'clean' examples of fixing the meaning of such adjectives. At other times a 'dirty but cheap' method of using prototypes or stereotypes to fix the meanings of such expressions may be employed; as in *John is tall*.

and (b). The theory predicts that we should choose the stronger interpretation. This seems to be the case:

- (76) Mary: It turns out we have to be in Manchester by 12:00! And I'd really hoped to stop for a bite to eat along the way.
John: Don't worry. I have a fast car.

Taking John to mean that his car is at least fast enough to reach Manchester by 12:00 would give rise to the kind of effects discussed for (69). But there are more effects to be had (for comparatively little more effort) depending on whether or not John's car is at least fast enough to make it to Manchester by 12:00 allowing time to stop for something to eat. Let us say that among the more accessible contextual assumptions is something like (77):

- (77) If John's car is at least fast enough to get to Manchester by noon allowing time for something to eat, then we will make our meeting on time and I won't have to wait until this evening before I get a chance to eat.

In a context based on this assumption, John's utterance - on a certain understanding of *fast* - would have more effects than in a context based on (74). As both contexts are roughly equally accessible, the latter context is the one we take to be intended, as this one manifestly gives rise to more effects for little more effort in a way the speaker could have foreseen. I.e. in this context, John's utterance would satisfy both clause (a) and (b) of the presumption of optimal relevance. Consequently, we fix the meaning of *fast* accordingly.

So returning to the generalisation of W&S (1993) about expressions such as *fast*, it is not just that we choose an interpretation which gives enough effects to offset the required effort, it's that we choose the strongest justifiable interpretation - where justification involves appeal to the fact that there is a manifestly more relevant interpretation which the speaker would have been willing and able to convey.

Regarding examples such as (65), the most accessible information we have to draw on is stereotypical information, say, about household security. In a context containing such information, it is enough that there be one window open for the house's security to be threatened. Consequently, we are not justified in fixing the meaning of the predicate as going beyond the weaker, numberless predicate which applies to any collection of windows in the context. This is shown in (78):

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$$(78) \quad \mathbf{windows}^K := \lambda x_e. \forall y_e \in A [\Pi(y, x) \rightarrow \mathit{window}'(y) \wedge K'(y)] \wedge |\{z \in A : \Pi(z, x)\}| \geq 1$$

It is important at this point to pause and consider what advance these proposals about the pragmatics of definites makes over Krifka's proposal that there is a strategy of choosing the strongest interpretation. Though it was mentioned above that Krifka does not offer a full account of what actually causes the strategy to be abandoned, he does set his discussion of the exceptions to the rule in terms of *predication*. The basic idea is that certain types of predicates do not need to apply to the maximal collection of individuals denoted by the contextually restricted predicate of the definite in order to be satisfied. So, in example (65), the predicate *open* is what Krifka classifies as a partial predicate (cf *closed*)¹⁰. However, as we have seen, in (66), this predicate is not always 'partial' in that it gives rise to the weak reading. So Krifka is forced to say that partial predicates give rise to weak readings only in certain situations. Though this fact may somewhat weaken any claims of Krifka's actual proposal to explanatory adequacy, it would not really force him to abandon this approach. The reason is that we seem to be concerned here with the rather large issue of predication¹¹. In the example at hand, the issue could be construed as follows: whether a situation counts as satisfying the concept OPEN is a matter of world knowledge (or "conceptual semantics"). As Krifka puts it, "it seems that *closed* and *open* are used in a way that refers to the state of the space that has potential openings: In [(65)], the space of the house is 'open' if at least one window is open; in [(66)] the room with the safe is 'open' only if every door is open." (p225). So we can

¹⁰Krifka discusses another type of predicate, *episodic*, which tends to give rise to weak readings on a regular basis, cf (i) where the weak reading seems to be favoured:

- (i) These dishes were used for special guests.

I will take up a discussion of similar examples to do with generalisations in the case of donkey sentences below.

¹¹I should at this point remark that, in this paper, I am taking the interpretation of definites to be quantificational, i.e. as things which apply to predicates. Whereas Krifka, in common with many other discussions of plural definites (including Lappin & Francez) take definites to be interpreted as (plural) terms, to which predicates apply. The substance of the following discussion is not really affected by this difference, but it should be noted that definites really should be interpreted quantificationally as they can scope over other quantificational expressions. For example, in (i), the donkey pronoun is interpreted as taking scope over the indefinite in the matrix:

- (i) Every farmer who bought a donkey from an authorised dealer received a vaccination certificate along with it.

understand Krifka's account as follows: If the predicate which applies to the collection denoted by the definite would be satisfied if only some part(s) of the collection have the property in question, then we get the weak reading. If the predicate (eg *closed*) demands that all parts of the collection be involved, then we get the strong reading. If the world knowledge we have about satisfaction instances of the predicate does not determine whether all or part of the collection is involved (eg *sell* in (73)), then Krifka's strategy kicks in, and we get the strong reading. I do not think that this is a misrepresentation of Krifka's position. He does refer to "other interpretation principles" which supplement his strategy, but these seem to have to do with other types of predications - such as episodic predicates mentioned in a previous footnote.

When comparing this version of Krifka's account of (65) and my own, there seems to be little difference: the explanation in both cases makes reference to facts about when the concept OPEN applies. However there are important differences both in style and content. Recall that I have proposed the generalisation, concerning expressions whose meaning have to be fixed in the context (including definites), that one chooses the strongest justifiable interpretation. *Justification* here is in terms of over-arching principles of communication which, it is assumed, are applied to determine the speaker's intentions. That is to say, they are pragmatic principles in the Gricean tradition and apply to all aspects of utterance interpretation. Of course, world knowledge is an ineliminable factor in any pragmatic account. However, in the relevance-theoretic account of examples such as (65), world knowledge plays a role in determining an interpretation only in so far as it bears on the computation of speaker's intentions, which is conditioned by considerations of effort, and consequently, by the accessibility of such information.

In order to demonstrate the differences between the two accounts, I'd like to consider some examples which suggest that it is not sufficient to consider the problem simply in terms of predication, but that an account which relates speakers' intentions to the interpretation of definites is required. Consider the following pair of examples:

- (79) John bought some really nice plum tomatoes yesterday. I used them to make a gazpacho last night. It was delicious.
- (80) John: What happened to the nice plum tomatoes I bought yesterday?
Mary: I used them to make a gazpacho last night. It was delicious.

The judgements one gets about the interpretation of the definite *them* in the target sentences is that it is weak in (79) and strong in (80). Now, there is clearly nothing in

these examples which suggests that satisfaction instances of the property *using X to make a gazpacho* should differ. That is, it is not information that we have about this property which gives rise to the difference in interpretation of the definite.

The difference turns on what we take to be the point of the utterance. In (79), the second and third sentences are taken to provide justification for the claim that all the tomatoes were nice. Fixing the meaning of the definite as strong would be no more relevant in the intended context than the weak construal, so we are not justified in going beyond the latter meaning. This example, like (65), is a case where clause (a) and (b) of the presumption of optimal relevance are satisfied on the weaker construal. (80) is interesting as it is a case where we get an interpretation in line with the generalisation that we choose the strongest justifiable interpretation. In this situation, we take the utterance to be a response to an inquiry about all the tomatoes. We have the option of fixing the meaning of the definite as applying to the sum of the tomatoes or some collection taken from that set. In the context of the most accessible concerns of the speaker, the stronger meaning would give rise to any effects that the weaker meaning would, and more. Consequently, the stronger meaning satisfies clause (b) and so is the one we choose.

So the question of when definites get a strong or weak reading involves more than just the problem of predication. Taking definites as expressions whose meaning has to be fixed in context, I have shown that a generalisation which follows from a relevance approach to all such expressions can account for examples which an account based on predication alone fails to explain. I would now like to argue that the appearance of a default strategy of choosing the strongest reading can be explained in terms of the general relevance-theoretic strategy of utterance interpretation combined with the non-truth-conditional information that definites carry.

4.3 How many strategies?

We have seen with examples such as (79) and (80) that the strategy of choosing the strongest justifiable interpretation of definites gives the right results. However, considering examples such as (73), there appears to be a residue of cases which, it might be claimed, an account based on a default strategy of choosing the strongest possible interpretation will have to pick up. I would like to argue that, even for these cases, the relevance oriented strategy is the only one required. To see what needs to be done here, we can reformulate this problem as follows: what justifies our choosing the strongest

possible interpretation, in cases such as (73), where there seems to be little contextual evidence either way? The answer to this question turns on the fact that there is always a little bit of evidence, and that one is forced to use any available evidence to arrive at a determinate interpretation.

One constant piece of evidence one has is the non-truth-conditional information conveyed by definites that the speaker is talking about a determinate set of individuals. The other constant piece of evidence is that the utterance is the most relevant one compatible with the speaker's means and goals. Generally speaking, the effects we can draw from an utterance containing a definite will increase depending on whether or not the totality of individuals denoted by the predicate is involved.

Taking (73), a basic implication which we can draw from the second sentence concerns what we know about selling. If A sells B, A is (usually) no longer in possession of B after the event. So an accessible, stereotypical context for interpreting this utterance would deliver implicatures about the fate of the donkeys which John bought. In such contexts, the strong construal of the definite would make the stimulus manifestly more relevant as it would settle the question as to whether or not any of the donkeys remain in John's possession. As such, it is the interpretation we choose.

Some comments about this account are in order. The first concerns appeal to stereotypical information and its role in relevance-theoretic explanations. It is a commonplace in the pragmatic and psycholinguistic literature that the hearer draws on all kinds of stereotypical information in arriving at interpretations. To adapt an example from W&S (1993), suppose that in the middle of a story, you read the text in (81):

(81) John took out a key and opened the door.

Here we would infer that John used the key to unlock the door and that the events occurred in a relatively short space of time, typical of such actions. We base this inference on standard world knowledge that we have about keys and doors. Now, it is a truism that we use this kind of stereotypical knowledge in cases such as these, and there is an obvious connection between the fact that such information is easy to get at and use and its actual use in examples such as those above. However, as W&S point out, saying that such information is very accessible or statistically more likely to be right is not an explanation of why the hearer is entitled to use it in utterance interpretation. It is a virtue of the relevance approach that it can explain why we are entitled to infer the intended temporal reference in such examples on the basis of such stereotypical information. The account involves considerations of effort: As such stereotypical information provides the

most accessible context in which the utterance would be relevant enough, it is the one we should choose. W&S note that relevance theory predicts that if the speaker wished to communicate that a non-standard time elapsed between John's taking out the key and opening the door, or used the key in a non-standard way, it could not be done using (81).

So, in the absence of more specific background knowledge, we draw on such stereotypical contexts in order to derive some effects from an utterance. In cases such as (73), it is manifest that the hearer has little to go on other than stereotypical information, prominent among which is information which allows us to draw inferences concerning the fate of the individuals the definite is being used to talk about. As such facts are mutually manifest, and as the utterance is formulated in such a way as to leave the stronger, more relevant construal an open possibility, the criterion of consistency with the principle of relevance dictates that it is the speaker's intention that we adopt the stronger, more relevant interpretation. Moreover, the speaker should be able to foresee that this is the outcome of her choice of stimulus, so if she did not wish that the utterance be understood on the strong reading, then she should reformulate her utterance.

As the use of a definite NP signals that the speaker is talking about a determinate set of individuals, it is not surprising that the question as to whether or not all of the individuals are involved would be, in general, a relevant question¹², particularly as definites are most commonly used to talk about individuals in the focus of attention. Since it is open to the hearer to enrich the meaning of the predicate which the definite NP denotes, and since such enrichment would result in a positive answer to such a question, the apparent default to the strong reading is understandable.

5 Conclusion

To sum up, we have seen that a unitary account of definites involves both a semantics in which the existential and universal readings are open possibilities and an explanation at the pragmatic level of how these readings are obtained. I have shown that it is possible to set out the mechanism by which definites are interpreted in such a way that the type

¹²The notion of a *relevant question* is introduced in S&W (1986). It has no theoretical status, but it is a label for a question to which an answer would be relevant in the circumstance. For instance, we could say that a stretch of discourse or conversation raises the relevant question, *Who did Mary see?*, when the present cognitive state of the audience is such that an answer to that question would be relevant.

of underdetermination involved is quite pervasive in natural language interpretation. Moreover, I have shown that the type of pragmatic inference involved in establishing the universal/strong reading of definites is the very same one which accounts for enrichment in areas entirely unrelated to definites and quantification in general. I have also shown that this account based on general pragmatic principles has advantages over accounts which focus narrowly on the issue of predication.

I think that the generalisation, which follows from S&W's (1995) formulation of the definition of optimal relevance, of enriching to the strongest justifiable interpretation potentially has far reaching consequences in the field of research in the semantic/pragmatic interface - applying not only to domain restriction, but also to the interpretation of reflexives and pronouns in general and beyond.

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