Nonsortal definite description  
Barry Schein  
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0. **Nonsortal definite descriptions** include both those that omit lexical nouns altogether, e.g., the stained, that which is stained, what(ever) is stained and descriptions where the lexical noun is defective as a sortal, where what is denoted in context is too dense, too entangled, or too indeterminate to be reliably counted: the stained stuff, the things that are stained, the stained part or parts of the fabric, the amount of fabric that is stained, the stained amounts of fabric, the stained area of the fabric, the areas that are stained, the stained thread in the fabric, the weave in the fabric that is stained, etc.  

To include the nonsortal, a general theory of definite descriptions demands mostly friendly amendment to Sharvy’s (1980) classic definition:

\[ \exists X : \Phi \land \forall Y [\Phi[X/Y] \rightarrow \forall X (I_X \rightarrow X_Y)] \Psi \]

As (1)-(2) would have it, the plural the fires that dot the hillside and the mass term the fire that dots the hillside refer to some fire or fires that dot the hillside of which are any fire or fires that dot the hillside.

The thought, natural enough, is that definite description is an accumulation, so that anything that is as described is said to be of what is referred to, or— to be-part-of it. This definition by accumulation is what I mean to point to in saying that Sharvy’s definition is based on a partitive relation. But, the intended relation between any such fire and what the definite description refers to, however formalized or glossed informally, is always meant to track bedrock plural or mass predication, as tokened, for example, in (3), which predication happens in this case not to validate:

(3) All fire is one or more fires.

Of a single campfire blazing without interruption, the fire within it that laps a single marshmallow is not itself a fire. Any amount of fire is material part of one or more fires;

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1 See Koslicki 1997 for discussion. The existence of such examples suffices for the argument to follow, even without a satisfactory characterization of the sortal/non-sortal, count/mass distinction, which is therefore sidestepped here.

2 e.g. also Cartwright 1996. In (1)-(2), Sharvy’s term-forming iota-operator \( \iota X \Phi \) \(^3\) is made over into a quantifier in anticipation that definite descriptions are quantificational in natural language, where all DPs (Determiner Phrases) are quantifier phrases.

3 In Monosortal Plural Logic, there is only one type of variable, and it is non-singular, so that the partitive relation “\( X \leq Y \)” may be paraphrased variously as “\( \text{they}_X \) are among them\( _Y \)” or as “\( \text{that}_X \) is (part) of that\( _Y \)”, when mass terms are translated. Yet another variation, First-Order Plural Logic has two variable types, singular ‘\( x \)’ and plural ‘\( xx \)’ and an overt partitive relation, ‘\( x \leq xx \)’, ‘\( xx \leq yy \)’. See Schein (2006: §29.1.2) and references therein for discussion. In natural language, it is difficult to escape from distinguishing singular and non-singular, demanding in the monosortal language supplemental morphology such as ‘sg\( \text{X}_1 \)’. When too cumbersome and without anything at issue here, I will resort to second-order logical forms exclusively.
but, not all fire is one or more fires. Thus, if the logical language elects to gloss (3) as “all fire be-part-of one or more fires” (v. (2)), as I will also do for expository purposes, care must be taken not to confuse the logical partitive relation that stands in for plural and mass predication with a metaphysical mereology of material parts. Likewise, the nonsensical predications in (4) should not be confused with what could very well be truths about the material in (5):4

(4) a. All fabric that is half the length of the tapestry is fabric the full length.
   b. All thread that is half the length of the tapestry is thread the full length.

(5) a. All fabric that is half the length of the tapestry is part of fabric the full length.
   b. All thread that is half the length of the tapestry is part of thread the full length.

What is friendly in my amendment (§1) moves to replace the logical partitive relation with a logical overlap relation, drawing on no more resources than Sharvy’s original definition. As amended, the above definite descriptions are instead said to refer to some fire or fires that dot the hillside which any fire or fires that dot the hillside overlap, and they refer to the least such that all such overlap:

(6) (2L) \[
\text{Overlap}(Y, X) \leftrightarrow \exists x (Yx \lor Xx) \rightarrow \exists x (Yx \land Xx)
\]

(7) (MPL) \[
\text{Overlap}(Y, X) \leftrightarrow \exists \neg \exists Y \leq Z \land \neg Y \leq Z \rightarrow \exists \exists W (W \leq Y \land Y \leq Z \leq X)
\]

(8) (2L) \[
\{X : \Phi \} \Psi \leftrightarrow \exists x (\Phi \land \text{Overlap}(Y, X)) \land \\
\forall Z (\forall Y (\Phi [X/Y] \rightarrow \text{Overlap}(Y, Z)) \rightarrow \forall X (Yx \rightarrow Zx)) \}
\]

(9) (MPL) \[
\{X : \Phi \} \Psi \leftrightarrow \exists x (\Phi \land \text{Overlap}(Y, X)) \land \\
\forall Z (\forall Y (\Phi [X/Y] \rightarrow \text{Overlap}(Y, Z)) \rightarrow X \leq Z)
\]

As the partitive and overlap relations are inter-definable ((6), (7), n.5), it is of some interest that the substitution should matter for the semantics of definite descriptions. Friendly amendment (§1) to the meaning of the iota-operator then turns to a dissent (§2) from its application in the translation of natural language, the so-and-so, what(ever) so-and-so, that so-and-so which is such-and-such, etc., all definite descriptions in one way or another, none of which is the spoken counterpart of a spare, logical iota-definite description. Natural language definite description is an act of reference with more to it than strict translation as the iota-operator in (1)-(2) or (8)-(9) would make it out to be. What is plain in the meaning of this/these and that/those, reference to a space or frame of reference, here with a metric to distinguish proximal and distal reference, is latent in the meaning of the and any other natural language definite description, where reference, like the cognitive act itself, is always perspectival.

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4 The abuses of mereology in semantics are well-documented in Koslicki 2008.
5 \[X \leq Y \leftrightarrow \exists \forall Z (\text{Overlap}(Z, X) \rightarrow \text{Overlap}(Z, Y))\]
1. **Description by overlap.** The nonsortal definite descriptions for which amendment in terms of overlap will matter and on which the argument rests are just those in which the predicate denotes a *counter-dissective* property. A *dissective* property (Quine 1960), is true of (almost) all of whatever it is true of, such as *clean*, *sterile*, *unstained*, *immaculate*, *pure*, *aflake*, *ablaze*, consumed by fire, engulfsed in fog, covered all over in *schmutz*, soaked in wine, drenched in blood, *saturated with oil*, *steeped in kerosene*, *untouched*, *smooth*, *flat*, etc. It suffices for a *counter-dissective* property to be true of some of whatever it is true of: *dirty*, *unclean*, *not sterile*, *stained*, *not uncontaminated*, *impure*, *not aflake*, *not ablaze*, *not consumed by fire*, *not engulfsed in fog*, *not covered over in schmutz*, *not soaked in wine*, *not drenched in blood*, *not saturated with oil*, *not steeped in kerosene*, *dented*, *crooked*, *kinked*, *not smooth or flat*, *scratched*, *flawed* etc. The amendment rests on such non-sortal, *counter-dissective* definite descriptions as the *stained*, the *not sterile*, the *unclean*, the *flawed*, that which is not *engulfsed in fog*, what is not covered in blood, what is not surrounded.

Consider a 100% cotton sheet, 5000 cm$^2$, 100cm length by 50cm width, of which the lower half is saturated in blood and the upper half sterile:

(10) ![Diagram of a sheet with a blood-stained lower half]

It—the sheet—a singular object—is dirty, unclean, not sterile, stained, impure and not uncontaminated, in virtue of the presence of blood on some of it; and, it is not saturated in blood and not covered over in blood, in virtue of the blood’s absence from the rest of it. The same can be said of that, 5000 cm$^2$ of cotton or cotton thread, that it is stained, *etc.*, and of those, the threads themselves, that they are stained and not covered over in blood:

(11) stained((10))
not covered over in blood((10))

Deploying now non-sortal *counter-dissective* definite descriptions, it is true of the sheet’s lower half that:

(12) a. The blood-stained is 2500 cm$^2$ of the sheet.
   b. The blood-stained covers only its lower half.
   c. The blood-stained is (a) square.

(13) a. What is blood-stained is 2500 cm$^2$ of the sheet.
   b. What is blood-stained covers only its lower half.
   c. What is blood-stained is (a) square.

(14) a. That (which is) stained with blood is 2500 cm$^2$ of the sheet.
   b. That (which is) stained with blood covers only its lower half.
   c. That (which is) stained with blood is (a) square.
(15) a. The stained area of the sheet is 2500 cm\(^2\).
    b. The stained area of the sheet covers only its lower half.
    c. The stained area of the sheet is (a) square.

(16) a. The area of the sheet (that is) stained with blood is 2500 cm\(^2\).
    b. The area of the sheet (that is) stained with blood covers only its lower half.
    c. The area of the sheet (that is) stained with blood is (a) square.

(17) a. The stained parts of the sheet are 2500 cm\(^2\).
    b. The stained parts of the sheet cover only its lower half.
    c. The stained parts of the sheet are (a) square.

(18) a. The parts of the sheet that are stained with blood are 2500 cm\(^2\).
    b. The parts of the sheet that are stained with blood cover only its lower half.
    c. The parts of the sheet that are stained with blood are (a) square.

(19) a. The blood-stained cotton is 2500 cm\(^2\) of the sheet.
    b. The blood-stained cotton covers only its lower half.
    c. The blood-stained cotton is (a) square.

(20) a. The thread that is stained with blood is 2500 cm\(^2\) of the sheet.
    b. The thread that is stained with blood covers only its lower half.
    c. The thread that is stained with blood is (a) square.

Correlatively, it is true of the sheet’s upper half that:

(21) a. The not covered over in blood is 2500 cm\(^2\) of the sheet.
    b. The not covered over in blood covers only its upper half.
    c. The not covered over in blood is (a) square.

(22) a. What is not covered over in blood is 2500 cm\(^2\) of the sheet.
    b. What is not covered over in blood covers only its lower half.
    c. What is not covered over in blood is (a) square.

(23) a. That (which is) not covered over in blood is 2500 cm\(^2\) of the sheet.
    b. That (which is) not covered over in blood covers only its upper half.
    c. That (which is) not covered over in blood is (a) square.

(24) a. The not covered over in blood area is 2500 cm\(^2\) of the sheet.
    b. The not covered over in blood area covers only its upper half.
    c. The not covered over in blood area is (a) square.

(25) a. The area of the sheet (that is) not covered over in blood is 2500 cm\(^2\).
    b. The area of the sheet (that is) not covered over in blood covers only its upper half.
    c. The area of the sheet (that is) not covered over in blood is (a) square.
These truths are rendered false if their definite descriptions are interpreted according to the original definition in (1)-(2). That is, the stained, and the others, refers to (10) in that it is stained ((11)) and any stained part of (10) is part of what the stained is said to refer to. But, (10) is neither its own upper nor lower half, falsifying (12)-(29). Rather, interpreting the definite description, as amendment in (6)-(9) invites, the stained should refer to (10)’s lower half, which overlaps anything of (10) that is stained, including (10) itself, while being the least of (10) to do so.

There is then to be found a stark contrast between the nonsortal definite descriptions at issue here and the sortal definite descriptions at the focus of most discussions including Sharvy 1980, which the following illustrates. Suppose that in (10), every thread in the sheet’s length (its warp) runs its entire 100cm length and every thread in its width (its weft) runs its entire 50cm width:

(30) a. The threads that are stained with blood are 2500 cm$^2$ of the sheet.
    b. The threads that are stained with blood cover only its lower half.
    c. The threads that are stained with blood are (a) square.

(31) a. The threads that are not covered over in blood are 2500 cm$^2$ of the sheet.
    b. The threads that are not covered over in blood cover only its upper half.
    c. The threads that are not covered over in blood are (a) square.

The sentences (30)-(31) with sortal definite descriptions are here all false. The stained threads are all the 100cm threads in the sheet’s length and half the 50cm threads in its width, those in the width of the sheet’s lower half, which threads length-wise and width-wise altogether span the entire 5000cm$^2$ sheet. Likewise, the threads not covered over in blood are all the 100cm threads in the length and half the 50cm threads in its width, those of the sheet’s upper half, again spanning altogether the entire 5000 cm$^2$ sheet. Sentences (32)-(33) distill the contrast between nonsortal and sortal descriptions:
The stained thread is 2500 cm² of the sheet.
The stained threads are 5000 cm² of the sheet.

Crucial to the contrast are some observations about the sheet’s stained 2500 cm² lower half. Its threads are only the 50 cm threads that lie across its width. None of the half-threads or shorter in its length is a thread. In no sense do the stained threads of the sheet’s lower stained half, all horizontal, overlap the stained 100 cm threads in the sheet’s vertical length: neither is any thread of the one a thread of the other, nor is any thread of the one even a material part of a thread of the other. It thus comes about that the sortal the stained threads, either including or overlapping all the stained threads, refers to all the sheet’s threads spanning 5000 cm², as (33) reports, a point on which original and amended definitions agree. The nonsortal the stained thread, in contrast, refers to only the sheet’s lower half, as in (32). That it should be so starts from the observation that the thread of the sheet’s stained lower half is thread of the threads in its width and of the half-threads in its length. And, it should seem obvious—and with deliberate sleight-of-hand I relied on it earlier—that the stained thread of the sheet’s stained lower half overlaps all the stained thread of the sheet, the least such amount of stained thread and therefore what the stained thread refers to according to the amendment in (8)-(9). Yet, this sentiment, which I encourage, comes down in this concrete instance to this: whether it is true that the thread of a stained 50 cm half-thread in the length of the sheet’s lower half overlaps the thread of the stained 100 cm thread in the sheet’s length of which the half-thread is a material proper part. If so, it suffices that this thread overlaps that thread if a material part of one is (a material part of) the other. This stands in contrast to the strictly logical notion, according to which this thread overlaps that thread just in case some of this is some of that, and these threads overlap those threads just in case some of these are some of those (v. (6), (7)). But, no thread half the sheet’s length is thread its full length; all such half-length thread is merely material part of full-length thread. If overlap remains the strictly logical notion defined in (6)-(7), the amended definition (8)-(9) does no better than definition in terms of a partitive relation in distinguishing the stained thread from the stained threads. Both end up referring to thread that spans the entire 5000 cm², failing the contrast recorded by (32)-(33).

2. Definite descriptions as latent demonstratives. It is not open to us to divorce mass and plural definite description from mass and plural predication or to corrupt the latter with a metaphysics of material parts if the contrast between the false (34) and the true (35) and the affinity between quantification and definite description within each of (34) and (35) are to be respected and preserved:

(34) a. i. All fabric that is half the length of the tapestry is fabric the full length.
     ii. All thread that is half the length of the tapestry is thread the full length.

     b. i. The fabric that is half the length of the tapestry is fabric the full length.
     ii. The thread that is half the length of the tapestry is thread the full length.
(35)  a. i. All fabric that is half the length of the tapestry is part of fabric the full length.
    ii. All thread that is half the length of the tapestry is part of fabric the full length.

b. i. The fabric that is half the length of the tapestry is part of fabric the full length.
    ii. The thread that is half the length of the tapestry is part of thread the full length.

We are then left to look elsewhere for a repair that will render the contrast in (32)-(33) between non-sortal the stained thread and sortal the stained threads.

It is uncontroversial that the semantics of demonstrative articles this/these vs. that/those mention a space or frame of reference within which are defined and distinguished proximal and distal reference. If so, it really becomes just another empirical question the extent to which the next article stumbled upon in natural language—the—also happens to have a semantics that resorts to perspective, even if the spatial reference is more subtle than a rude gesture. So far, Sharvy’s original definition and its amendment have agreed that reference for the Φ be fixed by a universal sampling of what is Φ so that:

(36) Anything Φ be part of the Φ (v. (1)-(2)); or,
(37) Anything Φ overlap the Φ (v. (6), (7)).

The perspectival turn moves from universal sampling to a universal scan or survey:

(38) Anywhere there be Φ, the Φ there overlap the Φ.

As before, definite reference is to the least such Φ overlapping what Φ there is in the given spatiotemporal context THERE (e.g., (10)):

(39) “The Φ THERE are
    some Φ THERE-X such that anywhere THERE there be Φ, the Φ there overlap X, and
    for any ζ that also be such, the X be ζ.”

In effect, definite description culls its referents not from a univeral quantification over arbitrary samples of Φ but only over samples that are all the Φ that fill some spatiotemporal region or some region of the perceptual field. This spatiotemporal restriction is what distinguishes the definition in (40) from its antecedent in (8):

(40) Within[\mathcal{V}, \alpha] \leftrightarrow_{df} \forall \nu(V \nu \rightarrow \text{within}(\nu, \alpha))

\text{(2L)} \quad [\text{Th}X : \Phi \text{ there}] \Psi \leftrightarrow_{df} \\
[\exists X : \exists \alpha : \text{there}(\alpha)] (\Phi \land \text{within}[X, \alpha]) \land \\
(\forall \nu : \text{there}(\alpha)) \forall Y [i \iota|X| \land \text{within}[Y, \alpha] = Y \rightarrow \text{Overlap}[Y, X] \land \\
\forall W [\forall \nu : \text{there}(\alpha)] \forall Y [i \iota|X| \land \text{within}[Y, \alpha] = Y \rightarrow \text{Overlap}[Y, W] \rightarrow \\
\forall x (X x \rightarrow W x)] \Psi

\text{6 iota-operator, either original (1)-(2) or amended (8)-(9).}
In (40), ‘within(\(v, \alpha\))’ is the native concept that relates object, event, or spatiotemporal region \(v\) to a spatiotemporal region \(\alpha\) it is within. From laziness, the spatiotemporal regions that are the range of this relation are left for dead as a spatiotemporal mereology. But, if I am sincere in the speculation that the universal quantification mirrors a perceptual scan, no region scanned at any moment is likely to be the mereological fusion of scattered spatiotemporal regions, and no completed scan is likely to be the result of scanning the mereological closure of some spatiotemporal regions.\(^7\)

Return now to the nonsortal the stained thread and the sortal the stained threads, and to the disposition of any a 100cm thread in the length of (10), which earlier thwarted an account of the contrast in (32)-(33). It is stained thread and a stained thread, in virtue of the 50cm bloodstain in its lower half. It remains under (40), as before, that the stained threads of the sheet’s lower 2500cm\(^2\) half are all horizontal in its width and thus do not overlap in any sense canvassed vertical threads in its length. Hence, the stained threads in (10) are nothing less than 5000cm\(^2\) if they are to overlap the stained threads of its length—correctly so, (33). Consider next the solitary 100cm thread and even that region \(\alpha\), 100cm in length and some micrometers in width, which coincides with this thread. According to (40), what the stained thread refers to must overlap the stained thread within \(\alpha\). Certainly, the stained thread within \(\alpha\) includes the solitary strand coincident with \(\alpha\); but, it also includes the 50cm stained half-thread within \(\alpha\) and any smaller amount thereof, too. The region is populated with much stained thread, many amounts of it. It suffices that these are some of what the stained thread refers to for definite description to allow reference to only the lower 2500cm\(^2\) of the sheet, as in (32), as the least stained thread to overlap all the stained thread in (10), as desired.

Were one to accept quantification over spatiotemporal regions and instead revert in (40) to the original partitive relation in (1)-(2), the semantics for nonsortal definite description, the stained, would again fail, for the same reason. The stained thread within any region would then be said to be be-part-of the stained thread referred to—not merely to overlap it—with the result that the nonsortal the stained thread again ends up referring like sortal the stained threads to all 5000cm\(^2\) of (10). Counter-dissective properties are true of what they are true of in virtue of something about some of it. Special to nonsortal, counter-dissective definite description is the contraction of reference to what in the field is the sine qua non for the property to be true of what it is true of—the stain in the stained fabric of (10). This contraction in reference is an effect of the definition in terms of overlap and the least that overlaps. This contraction is restrained and obscured if the least is described to be whole threads, as in the sortal the stained threads. It has an effect that becomes apparent when the domain is dense and fine-grained enough—any and all the thread—and reference shrinks to fit all of what is stained and none of what is not stained. The special nature of nonsortal, counter-dissective definite description can be accommodated in a general theory of definite descriptions with two-fold amendment: the

\(^7\) I cannot anticipate what commitments would arise in properly characterizing the relevant domain—whether a formal mereotopology (\(v, e.g., Casati & Varzi 1999\)) would suffice or it requires appeal to a full-throated theory of spatial perception and orientation.
substitution of the logical overlap relation for the logical partitive relation, and the shift in perspective to quantification over spatiotemporal regions, as in (40).

The logic of the contraction in reference that the overlap relation induces interacts with nonsortal denotation. Instead of (10), imagine that the sheet is pin-pricked with blood:

\[
\begin{array}{cccccccc}
\cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \\
\cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \\
\cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \\
\cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \\
\end{array}
\]

Of (41), the sortal the stained threads refers cleanly to just those threads that happen to intersect a bloody pin-prick. But, the reference of the nonsortal the stained thread quivers under one’s commitment to (42):

(42) All thread is rather longer than it is wide.

It is indeterminate how contracted the reference to stained thread can be while it remains thread-y enough to be thread rather than a small amount of bloody cotton. In contrast, the nonsortal weave supervenes on intersections, and the stained weave refers snugly to just what coincides with the pin-pricks in (41).^8

The contraction in reference is also constrained by an essential feature of definite description inherited from Sharvy’s original definition^9— that the Φ Φ. Returning to (10), as any of its bloody lower half may be the half of something half-stained, the reference of the half-stained must include within its perimeter the 2500cm² lower half. But, then the half-stained is half-stained only if its reference also includes the sheet’s upper half. The 5000cm² of (10) is thus the least half-stained that all that is half-stained there either is part of or overlaps, and so the half-stained refers to all of (10). In contrast, the mostly stained equivocates in its reference. If it is understood that mostly stained does not exclude the entirely stained, then the mostly stained refers in (10) to the entirely stained, to its 2500cm² lower half, as do the mostly stained thread, the mostly stained weave, the mostly stained area(s), the mostly stained part(s), etc. Reference contracts to the least mostly stained that overlaps all the mostly stained, as (40) says. If instead definite description were as originally defined, only failure can be expected, in that the least that anything mostly stained is part of is not itself mostly stained. All of that is all of (10), which is merely half-stained. If, next, it is rather understood that mostly stained excludes the entirely stained, then definite reference to the mostly stained fails on all accounts, as it does in fact, as there is

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^8 unless of course the pin-pricks are so tiny that the blood inhabits the interstices without soaking through any intersecting thread.

^9 The importance of which Cartwright 1996 emphasizes.
now no least, mostly but not all stained that all the mostly but not all stained is either part of or overlaps. For any alleged such, there is an even lesser, closing in asymptotically on the entirely stained. Reference or failure of reference for the stained, the half-stained and the mostly stained, their predicates variously understood, follows from (40) alone and what it says about the $\Phi$ overlapping whatever $\Phi$ there is. Any case of successful definite reference that is also contracted reference is dispositive in favor of (40)’s amendment in terms of the overlap relation.

There are also cases where (40) alone predicts a failure of reference that is not seen. These are not explained away without the refinements to natural language translation proposed in the next section. Here they appear at first blush to favor the original definition of definite description. Take partly stained not to be true of the entirely stained, which seems strongly to be so. As with the mostly stained, there is no least, partly stained that all the partly stained overlaps, since reference to any alleged such is always defeated by a lesser that closes in on the entirely stained. Yet, here there is the least, partly stained that all the partly stained is part of, viz. the entire 5000cm$^2$ of (10), which is indeed partly stained, to which it seems the partly stained, the partly stained thread, the partly stained weave, the partly stained area, etc. refer. The empirical generalization is: if contracted reference fails according to (40), contracted reference fails; but, the definite description the so-and-so is rescued if there is instead the least so-and-so that all so-and-so is part of, to which its reference then defaults. Some further examples modulate between contracted reference and its default to maximal reference. Suppose that what is centered in (10) is only that which is continuous, half in the upper 2500cm$^2$ and half in the lower 2500cm$^2$. Whereas as above, the stained, the stained thread, the stained part(s), the stained area(s), etc. contract reference to (10)’s lower half, the stained and centered, the stained centered thread, the stained centered part(s), the stained centered area(s), etc. default to refer to what covers all of (10) (except perhaps for the stray thought that the intended referent is to a proper part of (10), in which case definite reference again fails). But, as with the mostly stained (not excluding the entirely stained), the stained and off-center, the stained off-center thread, the stained off-center part(s), the stained off-center area(s), successfully contract their reference to the lower 2500cm$^2$, in accordance with (40).

3. **Definite descriptions in natural language.** When applied blindly to natural language, common to all the definitions, (1)-(2), (8)-(9), (40), is that descriptive content, whole and unstructured, simply $\Phi$ in the definitions, applies equally to the $\Phi$ that the description refers to and to everything $\Phi$ or everywhere $\Phi$ that goes into it. Already this fails translation of definite descriptions that contain cardinals (Schein 2006: §29.2.2):

\[(43)\] The 365 custards that blanketed exactly one buffet were served in a cup with a cherry on top.

Suppose that there are two buffets, one blanketed in 248 custards and the other, in 365 custards. The definite description in (43) fails to refer. It ought to refer to all the custards that blanket exactly one buffet. It cannot refer to the custards on just one buffet omitting those on the other; and it cannot refer to the custards on both, as these are 613 not 365. In this respect, the prenominal cardinal in (43) behaves like the non-restrictive
relative clause in (45) rather than the restriction in (44), in which the definite description refers felicitously to the custards on just the one buffet:

(44) The custards that blanketed exactly one buffet and numbered 365 were served in a cup with a cherry on top.

(45) The custards that blanketed exactly one buffet, which numbered 365, were served in a cup with a cherry on top.

Thus, the translation of the 365 custards that blanketed exactly one buffet is (47) rather than (46):\(^1\)

(46) * [Th.X : 365(X) & custards that blanketed exactly one buffet(X)]

(47) [Th.X : custards that blanketed exactly one buffet(X) &
               [Th.X : custards that blanketed exactly one buffet(X) 365(X)]]

Crucially, (47) parses the description so that the cardinal predicate 365 is segregated from the accumulative custards that blanketed exactly one buffet and applied only to the accumulated referent. More generally, even among modifiers all of which are restrictive, modification is ‘layered’, iterating application of the definite description operator:

(48) a. The stained thread (that is) woven together into whole sheets is 5000cm\(^2\) of the fabric.
        b. The thread not covered over in blood that is woven together into whole sheets is 5000cm\(^2\) of the fabric.
        c. The woven-into-sheets, stained thread is 5000cm\(^2\) of the fabric.

(49) a. The woven-into-sheets thread (that is) not covered over in blood is 7500cm\(^2\) of the fabric.
        b. The thread woven together into whole sheets that is not covered over in blood is 7500cm\(^2\) of the fabric.
        c. The stained, woven-into-sheets thread is 7500cm\(^2\) of the fabric.

(50)

Of the three sheets in (50), the stained thread, the thread not covered over in blood, is half of it. Of this thread, only the thread of the right sheet is woven together into whole sheets, covering 5000cm\(^2\), as in (48), where the inner modifier first derives reference to the stained thread, which the outer modifier in turn further restricts. Permuting in (49) the inner and outer modifiers, the thread woven together into whole sheets in (50) is all of it—

\(^1\) The point holds equally under translation \(\text{via}\) any of the iota-operators (1)-(2) or (8)-(9).
no wasted or scrap thread there— of which the stained thread is 7500cm$^2$, the right sheet and half the center sheet:

$$(51) \quad [\text{Th} \subseteq \{\text{Th}X_0 : \text{thread}(X_0)\}] [\text{Th}X_1 : X_1 \leq X_0 \& \text{stained}(X_1)]$$

$$[\text{Th}X_2 : X_2 \leq X_1 \& \text{woven}(X_2)]$$

$$(52) \quad [\text{Th} \subseteq \{\text{Th}X_0 : \text{thread}(X_0)\}] [\text{Th}X_1 : X_1 \leq X_0 \& \text{woven}(X_1)]$$

$$[\text{Th}X_2 : X_2 \leq X_1 \& \text{stained}(X_2)]$$

Iterated modification thus shows semantic scope effects, asymmetric in their truth-conditional import.$^{12}$

Inner and outer modification are further divided by the content of the modifiers assigned to these positions. Modifiers taken to attribute dispositional properties are all

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$^{11}$ Plural predication ‘$X$ are $Y$’ is expressed in Monosortal Predicate Language (MPL) in terms of ‘$\leq$’, an elementary relation interdefinable with ‘overlap’ as in (7) and n.11. For Second-Order Logic, let plural predication be abbreviated:

$$(2L) \quad X \leq Y \text{ for } \forall x(Xx \rightarrow Yx).$$

$^{12}$ Compare the scope effects of modification in (i)-(ii):

<table>
<thead>
<tr>
<th>M1</th>
<th>M2</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) a. The left right object is Messier Number 3.</td>
<td>b. The large small object is Messier Number 3.</td>
</tr>
<tr>
<td>(ii) a. The right left object is Messier Number 2.</td>
<td>b. The small large object is Messier Number 2.</td>
</tr>
</tbody>
</table>

And, contrast (i)-(ii) with the contradictory, referential failure in (iii)-(iv):

| (iii) * The left and right object is Messier Number 3. |
| (iv) * The small and large object is Messier Number 3. |

Also, contrast (48)-(49), with the symmetric modification in (v):

| (v) a. The stained and woven-into-sheets thread is 10000cm$^2$ of the fabric. |
| b. The framed/edged and stained thread is 10000cm$^2$ of the fabric. |

The cross-sentential anaphora of tense and anaphoric event reference destroys symmetry and wreaks ambiguity when clauses are conjoined:

| (vi) a. The thread not covered over in red dye after the spill and then woven into whole sheets is 5000cm$^2$ of the fabric. |
| b. The thread stained by the spill and then edged all around its perimeter is 5000cm$^2$ of the fabric. |

| (vii) a. The thread that is not covered over in blood and is woven into whole sheets is 10000cm$^2$ of the fabric. |
| b. The thread that is stained with blood and is edged all around is 10000cm$^2$ of the fabric. |
interior to the modifiers that are episodic in meaning or indexical to the context, which occur in more peripheral position (Bolinger 1967, Larson 1998, Larson et al. 2004, 2007):

\[(53)\]  
a. On Mt. Wilson that night, the invisible visible stars were shrouded in the Los Angeles smog.  
b. On Mt. Wilson that night, the visible stars (that were) invisible were shrouded in the Los Angeles smog.

\[(54)\]  
a. # On Mt. Wilson that night, the visible invisible stars were shrouded in the Los Angeles smog.  
b. # On Mt. Wilson that night, the invisible stars (that were) visible were shrouded in the Los Angeles smog.

Thus, the sentences in (53) may report without contradiction that the stars listed in an atlas of visible stars were invisible that night; but, (54) only means that the standardly invisible were visible that night through the smog—not very likely. Note that the very same modifiers, visible and invisible, vary in their apparent meaning according to their syntactic position. Such positional variation in meaning holds the explanation, I suspect, for an observation I owe to Anna Szabolcsi (p.c., 22 December 2014), who finds that (55) and (56) differ in what they prefer to refer to in (10):

\[(55)\] the stained fabric, the stained cloth  
\[(56)\] the fabric that is stained, the cloth that is stained

The definite descriptions in (55) contract their reference, as above, to the sheet’s lower 2500cm²; in contrast, (56) favor reference to the entire sheet. The relative clause, in peripheral position, contains present tense, indexical to context, which distinguishes the modification in (56) from (55). Suppose demonstrative reference abhors the nonsortal, contingent, as it is, on a spatiotemporal perception that parses the perceptual scene and integrates what it spots into a survey landmarked by the uninterrupted, continuous surfaces, masses, actions, events or objects—the results of its gestalt perception (v., e.g., Spelke 1990) that projects from the perceptual scene a foreground of events, objects, their motions and locations in a background 3D frame of reference. In short, the act of demonstrative reference into a scene is itself sortalizing, supervenient on spatiotemporal perception and orientation. These remarks combine with the positional variation in meaning just noted to suggest an account of the contrast between (55) and (56). If the meaning of the modifier is dispositional—and so, without grounding in any particular scene—definite description as in (40) accumulates its reference from anywhere at all where there be stained fabric in (10). If the meaning of the modifier is instead indexical to context, (56), definite description scans everywhere salient in the current scene where there be stained fabric, and the locations scanned and salient are just those where there is perceived something whole, as it were. Note that the contrast between (55) and (56) fades between (57) and (58), correlative with the denotation in (10) of whole fabric, whole cloth vs. whole thread, whole weave:

\[(57)\] the stained thread, the stained weave  
\[(58)\] the thread that is stained, the weave that is stained
The nouns *whole fabric* and *whole cloth* do not divide their reference in that scene. The only amount of fabric or cloth there that is whole is all of it. Any bias toward wholes in demonstrative reference into that scene is bias towards (10) itself, which is indeed stained, and where there are no lesser wholes which it might overlap leading to contracted reference. In contrast, the nouns *whole thread* and *whole weave*, if they mean anything, mean thread or weave that isn’t frayed, indiscernible in (10) at the given resolution. Moreover, any resolution fine-grained enough to reveal fraying scans locations in (10) (almost) as dense as the scan for the dispositional meaning, thus effacing contrast between (57) and (58). As *whole* is itself episodic, applicable to what is whole only when it is found to be so, any modifier in a more peripheral position is driven also to be episodic, so that (59) now contrasts with (55) and comes to resemble (56) in referring to all of (10), without contracting reference to just the stain:

(59) the stained whole fabric, the stained whole cloth
(60) the whole stained fabric, the whole stained cloth

The definite descriptions in (60) are rather ambiguous: either both prenominal modifiers are taken to be episodic and again reference is to all of (10); or, *stained*, innermost, is taken to be dispositional, contracting reference to the stain, and since this is not whole, definite reference in fact fails on this meaning.

(61) the stained whole thread, the stained whole weave
(62) the whole stained thread, the whole stained weave

In (61), *whole thread* and *whole weave* again divide their reference among those locations where thread or weave is unfrayed, which are in turn the locations, everywhere among which there is stained thread or weave relevant for the reference of the definite description. These are fine-grained enough to allow reference to contract to the stained lower half of (10), provided the thread or weave there is unfrayed. Unlike (59) and (60), not much tells apart (61) and (62). In (62), *stained* dispositional, the stained thread is that of just the stain, which (62) refers to if its thread is again unfrayed.

4. **Summary.** The argument for amendments to Sharvy’s general theory of definite descriptions is the existence of a few that contract their reference to the *sine qua non* that makes their description true, as canvassed above. The contraction in reference demands substitution of logical overlap for the logical partitive relation in the definition of the definite description operator, as in (40). If definite description is still to conserve plural and mass predication, definite reference in natural language, like the cognitive act itself, must always be perspectival, also as in (40), scanning everywhere the description is satisfied. The definite descriptions on which the argument rests, the non-sortal, counter-dissective definite descriptions, are relatively rare in the wild. If most definite descriptions in use are incomplete, it does not help that the implicit, demonstrative reference to context that completes them is itself sortalizing. Mostly, the amended and original definitions of definite description agree that most definite descriptions do not contract their reference, for one interfering factor or another of natural language translation. The decisive
(thought) experiments that expose their underlying logic have rather to be carefully constructed, like any other experiment.


