Empirical Issues in Formal Syntax and Semantics 5
O. Bonami & P. Cabredo Hofherr, eds. 2004. pp. 63–73
http://www.cssp.cnrs.fr/eiss5

Naming and Economy*

Hans-Martin Gärtner

Each of us so deep and so superficial, Joni Mitchell

1. Introduction

The aim of this paper is to provide a semantic alternative to the account of modified proper names discussed in Kayne (1994). Whereas the latter takes the relevant facts to speak in favor of a head-raising analysis of relative clauses, the semantic alternative offered here can do without such an analysis.
The main ingredients of the theory developed below are (i) a generalization of the "blocking principle" of Chierchia (1998) and (ii) an appeal to a part/stage ontology for the analysis of the meaning of proper names along the lines of Paul (1994).

2. The Linear Correspondence Axiom, relative clauses, and proper names

Kayne (1994) argued for an asymmetry of hierarchical and linear notions of syntactic constituent tree structure. In particular, he showed how to derive the linearization of terminal nodes from the asymmetric c-command relation in terms of the "Linear Correspondence Axiom" (LCA). I state the LCA in simplified form in (2). (1) provides the familiar ingredients of constituent structure trees (cf. Partee, ter Meulen and Wall 1993:441).

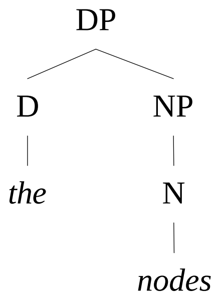
(1) a. $\mathbb{N}$ = the set of nodes
b. $\mathbb{T}$ = the set of terminals ($\mathbb{T} \subset \mathbb{N}$)
c. $\mathbb{D}$ = the dominance relation (weak, partial) [$\subseteq \mathbb{N} \times \mathbb{N}$]
d. $\mathbb{P}$ = the precedence relation (strict, partial) [$\subseteq \mathbb{N} \times \mathbb{N}$]

(2) *Linear Correspondence Axiom* (LCA) (cf. Kayne 1994)[1]
a. $\mathbb{P}\lceil\mathbb{T}$ is a strict linear order
b. $\forall x,y \in \mathbb{T}\ [<x,y> \in \mathbb{P} \leftrightarrow$
$\exists v,w \in \mathbb{N}-\mathbb{T}\ [<v,x> \in \mathbb{D} \wedge <w,y> \in \mathbb{D} \wedge <v,w> \in {}^{-}\mathbb{ACC}]]$

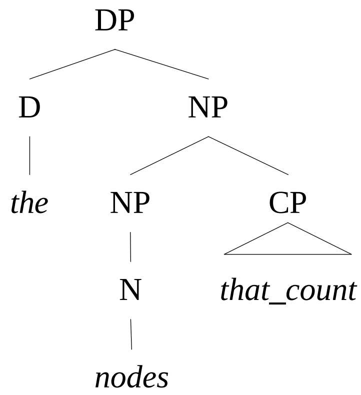
* The contents of this paper have been presented at the 2003 LAGB-meeting in Oxford and CSSP03 in Paris. I thank the audiences at both conferences, as well as Manfred Krifka and an anonymous reviewer for comments, suggestions, and criticisms. Common disclaimers apply.
[11] "$\mathbb{P}\lceil\mathbb{T}$" denotes the restriction of relation $\mathbb{P}$ in $\mathbb{N} \times \mathbb{N}$ to its subrelation in $\mathbb{T} \times \mathbb{T}$. "${}^{-}\mathbb{ACC}$" denotes the asymmetric c-command relation ($\mathbb{ACC}$), which is a relation in $\mathbb{N} \times \mathbb{N}$, restricted to its subrelation in $(\mathbb{N}-\mathbb{LS}) \times \mathbb{N}$, where "$\mathbb{LS}$" denotes the set of "lower segments," i.e. non-highest segments, of adjunction structures. The use of ${}^{-}\mathbb{ACC}$ is a rather *ad hoc* method for allowing leftward adjuncts, which do double duty as adjuncts and specifiers, to comply with the LCA. For more comprehensive discussion, see Kayne (1994, chapter 3), and for a formal approach to adjunction structures, see Kracht (1999).

The tree structures in (3) illustrate the structural consequences of these assumptions for modification of an NP/DP by a relative clause.

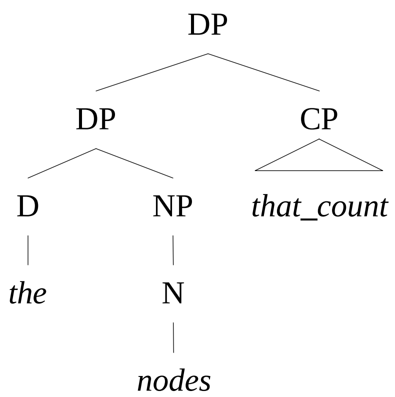
(3) a.



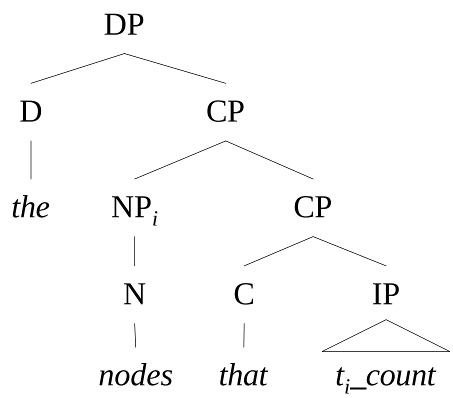
b. *



c. *



d.



Crucially, analyses that rely on righthand adjunction, i.e. (3b)/(3c), are incompatible with the LCA. (4a)-(4d) spells out asymmetric c-command for (3a)-(3d), respectively. Pairs that induce a linear order diverging from the one shown in (3) are marked by *.[2]

(4) a. $^{-}\mathbb{ACC}$(3a) = {<D,N>}
b. $^{-}\mathbb{ACC}$(3b) = {<D,N>,*<CP,N>}
c. $^{-}\mathbb{ACC}$(3c) = {<D,N>,*<CP,D>,*<CP,NP>,*<CP,N>}
d. $^{-}\mathbb{ACC}$(3d) = {<D,N>,<D,C>,<D,IP>,<NP,C>,<NP,IP>}

Clearly, (3d), which illustrates (a variant of) the "head raising analysis" (HRA) of relative clauses, is LCA-compatible. This is the structure endorsed in Kayne (1994):

"Summing up this section so far, the raising/promotion analysis of relatives, which is by far the most natural analysis of relatives from an LCA perspective, has led me to propose that [. . .] [*the nodes that count*] [. . .] involve[s] movement to the specifier of CP that is a sister to D = *the*" (Kayne 1994:91).

[2] Note the absence of <CP,N> from $^{-}\mathbb{ACC}$(3d), which is due to the fact that the lower segment of CP is not a member of $\mathbb{N}$–$\mathbb{LS}$. The higher one does not even c-command N.

In a footnote it is remarked that a restricted variant of what is called the CN+S analysis of relative clauses in the Montagovian tradition (cf. Janssen 1982) would be another LCA-compatible alternative.

"In the only alternative configurationally permitted by the LCA, the relative clause would be a complement of N°" (Kayne 1994:155fn.17).

This analysis is shown in (5).[3]

(5) [$_{\text{DP}}$ *the* [$_{\text{NP}}$ [$_{\text{N}^\circ}$ *nodes*] [$_{\text{CP}}$ *that count*]]]

Interestingly, Kayne (1994) cites the following contrast involving proper names in favor of a (3d)-style HRA.

(6) a. * *the Paris*
b. *the Paris that I read about*

"The approach to relatives [. . .] being developed here permits one to understand straightforwardly why [. . .] a proper noun (NP) is prohibited in English from being the sister phrase to a definite article" (Kayne 1994:103).

(7) shows the specific assumptions one has to make under an HRA of (6b).

(7) a. [$_{\text{DP}}$ *the* [$_{\text{CP}}$ *that* [$_{\text{IP}}$ *I read about Paris*]]] (D-Structure)
b. [$_{\text{DP}}$ *the* [$_{\text{CP}}$ *Paris*$_i$ *that* [$_{\text{IP}}$ *I read about* t_i]]] (S-Structure)

Crucially, nowhere in the analysis would the proper name *Paris* be a sister of, and thus combine directly with, the definite determiner.
Of course, this can only be a partial vindication of the HRA, given the coexistence of structures (3a) and (3d) in the domain of common nouns. However, instead of dwelling on the HRA here, I will give an alternative semantic account of the facts in (6). On the basis of that account, HRA will be dispensible in the domain of modified proper names, and arguments in its favor would have to be sought elsewhere.

3. Generalized Blocking and the modification of proper names

3.1 Generalizing the "Blocking Principle"

My alternative approach to the contrast in (6) will rely heavily on the theory of constrained type-shifting developed in Chierchia (1998). Accordingly,

---

[3] However, the general CN+S approach, according to which the category CN can be arbitrarily complex due to adjectival modification, cf. (i), is not LCA-compatible.
(i) [$_{\text{T}}$ *the* [$_{\text{CN}}$ [$_{\text{CN}}$ [$_{\text{A}}$ *terminal*] [$_{\text{CN}}$ *nodes*]] [$_{\text{S}}$ *that count*]]]
Another LCA-compatible approach to righthand modifiers could postulate conjunction-like structures, cf. (ii), where "MP" stands for a "modification phrase."
(ii) [$_{\text{DP}}$ *the* [$_{\text{MP}}$ [$_{\text{NP}}$ *nodes*] [$_{\text{M'}}$ M° [$_{\text{CP}}$ *that count*]]]]
For additional discussion of LCA and HRA, see a.o. Borsley (1997) and Bianchi (2000).

"[l]ocal type mismatches can be solved through a highly constrained set of universally available type shifting operations. These apply either in the lexicon or, possibly, as part of the compositional interpretation of phrases" (Chierchia 1998:340).

The crucial economy constraint involved in regulating type-shifts is formulated in (8).[4]

(8) *Blocking Principle* ('Type Shifting as Last Resort') (Chierchia 1998:360)
For any type shifting operation τ and any X: $*\tau(X)$,
if there is a determiner D such that $D(X) = \tau(X)$

(8) accounts for the free availability in English, where defined, of the $^\cap$- and $^\cup$-operator, shifting properties (<s,<e,t>>) to kinds (e) and vice versa, while ι and $\exists$ are usually blocked by the availability of *the* and *a*.[5] One example of this is shown in (9).

(9) a. *Dogs are widespread* ⟩⟩ WIDESPREAD($^\cap$DOGS)
b. * *Dog is barking* ⟩⟩ $\exists$DOG(IS_BARKING)
c. *A dog is barking* ⟩⟩ ($\lambda P \lambda Q \exists x[P(x) \& Q(x)]$(DOG))(IS_BARKING)

For the purpose at hand, (8) will have to be generalized as in (10).[6]

(10) *Generalized Blocking Principle* (GBP)
For any pair of expressions E_1 and E_2, such that
(i) $||E_1|| = ||E_2||$, and
(ii) E_2 involves type shifting operator τ, while E_1 doesn't,
E_1 *blocks* E_2.

(10) yields the same results as (8) for the case in (9), since while (9b) involves $\exists$, (9c) doesn't, and given that ||(9b)|| = ||(9c)|| , (9c) blocks (9b), i.e. *(9b).

3.2 Modifying proper names

In addition to the GBP I will adopt the approach to modified proper names in terms of a part/stage ontology put forward in Paul (1994).

"Under this analysis proper names denote sets of spatio-temporal parts of individuals as suggested by Quine (1960). This will give us a semantically satisfying analysis of the above modified proper names under which they pick out certain parts of those sets" (Paul 1994:269).

---

[4] I have slightly simplified that definition. In the original there is the additional condition that *D* be defined for argument *X*.

[5] I cannot go into a full-fledged discussion of this approach. For recent criticism of as well as alternatives, see Krifka (2003) and Longobardi (2001).

[6] The formal shape of expressions E_1 and E_2 is likely to have to be further constrained in order to prevent unwelcome consequences. This is the well-known problem of defining "reference-sets" for economy principles to apply to. For an interesting discussion of the latter problem in the domain of minimalist syntax, see Sternefeld (1997). See also the debate of CCG type-raising in section 4.2 below for some potential refinements.

In particular, I will rely on the following ontological and model-theoretic assumptions made by Paul (1994:275f).

(11) a. D is a non-empty set, namely our semantic domain, and ID a non-empty subset of D, namely the set of all individuals i, i', i'', . . . in D;
b. D is partially ordered by a spatio-temporal part relation $\leq_{st}$, such that $\leq_{st}$ is reflexive, transitive, and antisymmetrical;
c. For each $i \in D$, there is a set $P_i := \{x \mid x \leq_{st} i\}$ of i's parts which contains more elements than just i and forms a complete join semilattice under $\leq_{st}$, i.e., it is partially ordered by $\leq_{st}$ and each non-empty subset P' of P_i has a supremum in P_i.

(12) A model **M** is a structure $\langle D, ID, \|\ \|, f_{\leq}\rangle$, where
a. D and ID satisfy the conditions stated under [(11)];
b. $\|\ \|$ is an interpretation function that maps nouns and intransitive verb phrases onto subsets of D, in particular proper nouns onto some P_i for an individual $i \in ID$, and modifiers and qualifiers onto functions from D to D;
c. $f_{\leq}$ is a function that gives for each noun N a partial order on $\|N\|$; for proper nouns this partial order will be given by $\leq_{st}$.[7]

There is, however, one subtle but important difference between my proposal and Paul's. The latter doesn't seem to differentiate between proper names in the natural language and their counterparts in the interpreted formal language. Here such a difference will be crucial. Thus, denoting (maximal) sets of parts/stages as stated above will be a property of proper names in the formal language. For example, $\|\text{PARIS}\| \in \{0,1\}^D$. However, proper names of natural language will be translated as "Sharvy-style" definite descriptions, such as indicated in (13a).[8]

(13) a. *Paris* $\rangle\rangle$ $\iota(\text{PARIS})$
b. ιX = the largest member of X if there is one (else, undefined)

This proposal preserves the intuition that natural language proper names are "referring expressions" by default and that modified proper names are somehow "marked."
Let us further assume $^{\cup\circ}$, a variant of Chierchia's "up" (Chierchia 1998:350), to be a type-shifting operator from individuals (members of ID) to the set of their parts. Also, take the definite determiner *the* to be translated as ι. Then, on the basis of GBP the contrast in (6) will be accounted for by blocking, i.e. *Paris* blocks *the Paris*, as shown in (14).

(14) a. *Paris* $\rangle\rangle$ $\iota(\text{PARIS})$
b. * *the Paris* $\rangle\rangle$ $\iota(^{\cup\circ}(\iota(\text{PARIS})))$
c. $\|\iota(\text{PARIS})\| = \|\iota(^{\cup\circ}(\iota(\text{PARIS})))\|$

Conversely, a type-shift via $^{\cup\circ}$ will be necessary in order to make *Paris* available for "intersection" with a modifier, as shown in (15).

(15) $[_{NP}\ [_{NP}$ *Paris* $]\ [_{CP}\ Op_i$ *that I read about* $t_i\ ]\ ]$ $\rangle\rangle$ $(^{\cup\circ}(\iota(\text{PARIS})) \cap \lambda x(\text{I\_READ\_ABOUT}(x))$

[7] For a more elaborate vindication of such an approach, see (Link 1998).
[8] See Sharvy (1980). The definition of ι is taken from Chierchia (1998:346).

Now, in order to turn the resulting complex expression into a referring expression we need to apply a type-shift via ι again. This time, GBP will favor using *the*, which is available in the English lexicon, over using just ι, i.e. (16a) blocks (16b) where both are translated as (16c).

(16) a. *the Paris that I read about*
b. * *Paris that I read about*
c. $\iota({}^{\cup\circ}(\iota(\text{PARIS})) \cap \lambda x(\text{I\_READ\_ABOUT}(x)))$

3.3 Defending the account

Subtle though the differences might be, there seems to be a clear advantage of this account over the one in Paul (1994). There the referential reading of proper names is accounted for in terms of a phonologically empty definite determiner (cf. Paul 1994:276), as indicated in (17).

(17) ∅*Paris* ⟩⟩ ι(PARIS)

While it may not be fully straightforward to defend this assumption in the first place, the availability of ∅ raises the question as to why (16b), reanalyzed as (18), couldn't have the meaning in (16c) after all, and thus coexist with, if not block, (16a).

(18) ∅*Paris that I read about*

This has to be prevented by stipulation. In contrast, on my account the logic of the argument is reversed. One ι comes for free by lexical stipulation, but any additional one will have to be introduced by the overt determiner. In fact, the GBP-based account is founded on cross-linguistic evidence (cf. Chierchia 1998). In particular it is compatible with the claims made at length by Longobardi (1994; 2001) against null determiners in English as opposed to Italian.
The facts in (19) are a case in point.

(19) a. *Dogs are rare* b. *Leo ate potatoes*
c. * *Cani sono rari* d. *Leo ha mangiato patate*

Thus, the free availability of bare plurals in governed, (19b), as well as ungoverned position, (19a), distinguishes English from Italian, (19d) vs. (19c), the assumption being that null determiners have to be formally licensed by government much like other empty categories.[9]
Summing up so far, I have shown how to provide a semantic account for the contrast in (6): I assume that (6a) involves a superfluous addition of *the* given the translation of *Paris* as ι(PARIS), while such an addition is necessary in the case of (6b) in order to return to a referential expression from a set denoting one. As a consequence, contrary to what is suggested in Kayne (1994), no HRA of relative clauses is required for dealing with these facts.[10]

---

[9] For a wealth of additional facts and considerations I refer the reader to the cited works by Longobardi.
[10] An equivalent account of these facts can be given if one starts from an inherent GQ-denotation of proper names (cf. Muskens 1995). For an independent vindication of the HRA, see Bhatt (2002). Given the discussion in Hulsey&Sauerland (2003) and Heycock (2003), however, it is unclear whether that defense of the HRA is more compelling. Still, HRA-afficionados could interpret chain formation in (3d) to trigger the type-shift via ${}^{\cup\circ}$.

4. Two challenges to Generalized Blocking: "Avoid Structure" and optionality

4.1 Avoid Structure

Let me finish this paper by pointing out two issues that may seem problematic from the perspective developed so far. First, in addition to the blocking principle in (8), Chierchia (1998:393) appeals to the economy constraint "Avoid Structure," formulated in (20).

(20) *Avoid Structure* (AS): Apply SHIFT at the earliest possible level

This principle is argued to be responsible for the contrast in (21).

(21) a. *Dogs are widespread*
b. * *The dogs are widespread*

In particular, it is claimed that

"English, given its category-type map, can apply SHIFT at the NP level [. . .]. Evidently, when this option is available, it must be chosen over one which involves projecting D" (Chierchia 1998:393).

English NPs are taken to be categorially parameterized for licensing in syntactic, and therefore also semantic, "argument positions." Thus, the $^{\cap}$-operator, which turns pluralities (e.g. DOGS) into "plural kinds" (e.g. $^{\cap}$DOGS), *can*, and by the workings of (20) *must* apply at the NP level. This licenses translation (22) for (21a).

(22) WIDESPREAD($^{\cap}$DOGS)

The argument for AS in addition to GBP presupposes that the kind reading at stake in (21) could alternatively be arrived at by means of an intensionalized plural definite description, as provided in (23) (Chierchia 1998:392).

(23) WIDESPREAD(^ιDOGS)

Such a reading could in principle be contributed by a definite determiner, as the Italian translation of (21) shows.

(24) *I cani sono diffusi*
the dogs are widespread

So, why doesn't the GBP apply, predicting reverse grammaticality facts for (21)? The answer is that

"the definite article as such does not mean the same as $^{\cap}$. Only an overt morpheme whose meaning is identical to one of the available shifters blocks that shifter from being used covertly. Hence, use of $^{\cap}$ [. . .] is unaffected by the presence of the definite article" (Chierchia 1998:393).

If we accept this account, we need AS in order to rule out (21b). Since *the* and $^\cap$ don't seem to block each other in the sense of the GBP, it is the avoidance of structure, i.e. not projecting a DP-layer, which gives $^\cap$ its advantage over *the*. In the light of this reasoning, let us consider (25).

(25) a. *Dogs that interbreed with wolves are rare*
b. * *The dogs that interbreed with wolves are rare*

Clearly, modification by a relative clause preserves the NP-status of the resulting constituent. Consequently, the same effect of AS can be seen in (25) as well.
The potentially worrisome point of this account is that it may jeopardize the GBP approach to the contrast in (16), and, *mutatis mutandis* the contrast in (9b) vs. (9c). Thus, assume that a covert ι is able to bring about the type-shift from (15) to (16c) *at NP-level*. Then AS and GBP make conflicting predictions about the facts in (16). The former would, contrary to observation, predict (16b) to be fine and (16a) to be out, while GBP, as we have seen, makes the correct predictions. Clearly, further assumptions are needed.
Thus, either one resorts to direct stipulation, such as the one in (26).

(26) Application of covert ι requires projection of a syntactic DP-layer

An alternative way of defusing the power of AS for the case at hand would be by appeal to an OT-style ranking, such that GBP outranks AS.

(27) GBP >> AS

Although my impression is that this second approach is more congenial to the purposes of Chierchia (1998),[11] I will have to leave exploring its consequences for further research.

4.2 Optional type-shift*?*

A second issue concerns the application of type-raising in "Combinatory Categorial Grammar" (CCG) (cf. Steedman 1996; 2000). The availability of type-raising ($\mathbf{T}_\wedge$) allows for alternative derivations of one and the same sentence.[12] (28) gives an example. "$\mathbf{E}_/$" and "$\mathbf{E}_\backslash$" denote forward and backward "slash elimination," respectively, "$\mathbf{C}_>$" denotes "forward composition."

(28) a. $\mathbf{E}_/(\mathbf{C}_>(\mathbf{T}_\wedge(\mathit{Anna}_{\mathrm{NP}})(\mathit{married}_{(\mathrm{S\backslash NP})/\mathrm{NP}}))(\mathit{Manny}_{\mathrm{NP}}))$
b. $\mathbf{E}_\backslash((\mathit{Anna}_{\mathrm{NP}})\mathbf{E}_/((\mathit{married}_{(\mathrm{S\backslash NP})/\mathrm{NP}})(\mathit{Manny}_{\mathrm{NP}})))$

From the perspective of GBP, one might expect (28a) to be blocked by (28b), given the absence of $\mathbf{T}_\wedge$ in the latter. One way out would be to take information-structure into consideration as relevant for establishing "likeness of meaning." As argued at length in Steedman (2000), the alternative

[11] This solution would be further grist on the mill of "OT-semantics" (cf. Hendriks and de Hoop 2001).
[12] The definition of type-raising is given in (i). T is a variable over categories. I sidestep further restrictions, as well as the semantic side of this operation.
(i) *Type-raising* ($\mathbf{T}_\wedge$) (Steedman 1996:36)
a. $X \Rightarrow T/(T\backslash X)$
b. $X \Rightarrow T\backslash(T/X)$
The example discussed in the text is oversimplified and used for purely demonstrative reasons. Thanks to Mark Steedman (p.c.) for clarifying this issue.

bracketings in (28) have information-structural import. Thus one could reconcile type-raising in (28a) with the GBP by attributing different "meanings" (μ) to the two derivations, i.e. μ(28a) $\neq$ μ(28b).
This approach, however, is immediately challenged by the alternative "bracketing-preserving" derivation of (28b) provided by Steedman (1996:37), which is shown in (29).

(29) $\mathbf{E}_{/}(\mathbf{T}_{\wedge}(\mathit{Anna}_{\mathrm{NP}})\mathbf{E}_{\backslash}((\mathit{married}_{(\mathrm{S\backslash NP})/\mathrm{NP}})\mathbf{T}_{\wedge}(\mathit{Manny}_{\mathrm{NP}})))$

Instead, one could therefore add a condition on "form" (φ) to the GBP, where by "form" I mean the string of terminals of an expression. Thus, if it is required that $\varphi(E_1) \neq \varphi(E_2)$, (28) will not fall under the rule of the GBP, and (28a) and (28b) can coexist.
As far as I can see, this extra condition is compatible with the applications of the GBP so far, as all of these involve competition between covert type-shifters and overt determiners. A slightly more sophisticated notion of "form" will be required to distinguish covert shifters from phonologically empty determiners, a move that may be necessary for Chierchia's (G)BP-approach to Italian.

5. Conclusion

In this paper I have shown how to provide a semantic account for the contrast in (6), repeated below for convenience.

(6) a. * *the Paris*
b. *the Paris that I read about*

I assume that (6a) involves a superfluous addition of *the* given the translation of *Paris* as ι(PARIS), where, following assumptions made in Paul (1994), PARIS denotes the set of spatio-temporal parts of Paris. Formally, superfluousness is turned into ill-formedness by the Generalized Blocking Principle, (10), which is a generalization of the blocking principle proposed by Chierchia (1998).
The proper translation of *the Paris*, i.e. $\iota({}^{\cup\circ}(\iota(\text{PARIS})))$, would involve an intermediate upward-shift to a set denotation. This, however, is blocked by the GBP.
Crucially, the addition of the definite determiner *the* is necessary in the case of (6b) in order to turn a set denoting expression into a referential one. This involves an unavoidable prior shift of ι(PARIS) to the modifiable set denoting ${}^{\cup\circ}(\iota(\text{PARIS}))$. Again, the GBP is involved, blocking a covert application of ι, which could have derived the unacceptable (16b).

(16) b. * *Paris that I read about (is beautiful)*

As a consequence, and contrary to what is suggested in Kayne (1994), no head-raising analysis of relative clauses is required for dealing with these facts.[13]

[13] Ora Matushansky (p.c.) pointed out that the analysis of proper names in terms of a part/stage ontology is incompatible with taking them to be rigid designators. In order to decide this difficult issue, one has to look at attempts of applying the notion of rigidity to kind terms, given that the account defended here assimilates proper names to kind terms. One of the less naive approaches in terms of "essentialist predicates" is sketched in Soames (2002:251):
"EP. A predicate P is essentialist iff for all possible worlds w and objects o, if P applies to o with respect to w, then P applies to o in all worlds in which o exists."

References

Bhatt, Rajesh. 2002. "The Raising Analysis of Relative Clauses: Evidence from Adjectival Modification." *Natural Language Semantics* 10:43-90.

Bianchi, Valentina. 2000. "The Raising Analysis of Relative Clauses: A Reply to Borsley." *Linguistic Inquiry* 31:123-140.

Borsley, Robert. 1997. "Relative Clauses and the Theory of Phrase Structure." *Linguistic Inquiry* 28:629-647.

Carlson, Gregory. 1991. "Natural Kinds and Common Nouns." Pp. 370-398 in *Semantics. An International Handbook of Contemporary Research*, edited by Arnim von Stechow and Dieter Wunderlich. Berlin: de Gruyter.

Chierchia, Gennaro. 1998. "Reference to Kinds Across Languages." *Natural Language Semantics* 6:339-405.

Hendriks, Petra, and Helen de Hoop. 2001. "Optimality Theoretic Semantics." *Linguistics and Philosophy* 24:1-32.

Heycock, Caroline. 2003. "On the Interaction of Adjectival Modifiers and Relative Clauses." Edinburgh.

Hulsey, Sarah, and Uli Sauerland. 2003. "Sorting Out Relative Clauses: A Reply to Bhatt." Boston & Tübingen.

Janssen, Theo. 1982. "Compositional Semantics and Relative Clause Formation in Montague Grammar." Pp. 237-276 in *Formal Methods in the Study of Language,* edited by Jeroen Groenendijk, Theo Janssen, and Martin Stokhof. Amsterdam: UvA-Publications.

Kayne, Richard. 1994. *The Antisymmetry of Syntax*. Cambridge MA: MIT Press.

Kracht, Marcus. 1999. "Adjunction Structures and Syntactic Domains." Pp. 259-299 in *The Mathematics of Syntactic Structure,* edited by Hans-Peter Kolb and Uwe Mönnich. Berlin: Mouton de Gruyter.

Krifka, Manfred. 2003. "Bare NPs: Kind-referring, Indefinites, Both, or Neither?" Berlin.

Link, Godehard. 1998. "The Ontology of Individuals and Events." Pp. 269-310 in *Algebraic Semantics in Language and Philosophy*. Stanford CA: CSLI-Publications.

Longobardi, Giuseppe. 1994. "Reference and Proper Names: A Theory of N-Movement in Syntax and Logical Form." *Linguistic Inquiry* 25:609-665.

Longobardi, Giuseppe. 2001. "How Comparative is Semantics? A Unified Parametric Theory of Bare Nouns and Proper Names." *Natural Language Semantics* 9:335-369.

Muskens, Reinhard. 1995. *Meaning and Partiality*. Stanford CA: CSLI-Publications.

Partee, Barbara, Alice ter Meulen, and Robert Wall. 1993. *Mathematical Methods in Linguistics*. Dordrecht: Kluwer.

Paul, Matthias. 1994. "Young Mozart and the Joking Woody Allen. Proper Names, Individuals and Parts." Pp. 268-281 in *SALT IV*, edited by Mandy Harvey and Lynn Santelmann. Ithaca NY: Cornell University Press.

Quine, Willard Van Orman. 1960. *Word and Object*. Cambridge MA: MIT Press.

An exploration of whether a satisfactory account can be built along such lines is beyond the scope of this paper (for further relevant discussion, see for example Carlson 1991). An alternative would lie in taking the rigidity of proper names be a derived notion.

"Even in the case of proper names, it can be argued that their rigidity is the result of other, more fundamental, semantic properties that they possess. More specifically, the doctrine that names are rigid designators may be viewed as a corollary of the more central thesis that they are nondescriptional, together with an account of how their reference is fixed in the actual world" (Soames 2002:264).

Sharvy, Richard. 1980. "A More General Theory of Definite Descriptions." *The Philosophical Review* 89:607-624.
Soames, Scott. 2002. *Beyond Rigidity*. Oxford: Oxford University Press.
Steedman, Mark. 1996. *Surface Structure and Interpretation*. Cambridge MA: MIT Press.
Steedman, Mark. 2000. *The Syntactic Process*. Cambridge MA: MIT Press.
Sternefeld, Wolfgang. 1997. "Comparing Reference Sets." Pp. 81-114 in *The Role of Economy Principles in Linguistic Theory*, edited by Chris Wilder, Hans-Martin Gärtner, and Manfred Bierwisch. Berlin: Akademie Verlag.

Hans-Martin Gärtner
ZAS Berlin
gaertner@zas.gwz-berlin.de