1 Introduction

The traditional notion of name-bearing (Bach 1981: 371):

Socrates is called ‘Socrates’ because he has the property of bearing the name ‘Socrates.’ He is called ‘Socrates’ because that’s his name.

(i) Name-bearing relations hold between names and individuals, independently of reference;

(ii) It is in virtue of these independently-established relations that names can be used to refer to individuals.

(Cf. Geurts 1997)

Consensus on this picture spans a wide array of semantic approaches to proper names. An appeal to name-bearing relations that are independent of, and ground, the referential function of proper names are made at many levels:

• In predicative/descriptive accounts, in the name’s predicative content (the property that the name denotes): when names are treated as predicates (Sloat 1969, Burge 1973, Matushansky 2008, Fara 2015, a.o.), or as definite descriptions (Kneale 1962, Loar 1976, Bach 1981, Geurts 1997 a.o.);

• In indexical accounts, at the level of character (Pelczar & Rainsbury 1998, Tiedke 2011 a.o.), or at the level of semantic use conditions (Rami 2014);

• In referentialist approaches, pre- or meta-semantically in the appeal to practices that establish name-bearing relations, and to causal chains of communication tracing back from individual uses of a name to those practices (Kripke 1980 a.o.).

There is no formal account of name-bearing on this (or any other) picture. Two problems with trying to provide such an account on this picture (Cf. Gray 2014):

(i) Empirically, name-bearing relations can be established in virtue of referential habits, not vice-versa, as in Madagascar cases (Evans 1973);

(ii) Conceptually, name-bearing itself substantially consists in the capacity to be referred to by a name (disanalogy between bearing a name and having a social security number, pace Geurts).

The goal: to provide a formally precise model-theoretic notion of name-bearing, exploiting the observation that bearing a name requires that an individual be able to be referred to by that name. We invert Bach’s dictum: His name is Socrates because that’s what he’s called.

The proposal, in outline:

1Outside this generalization lie older approaches to proper names that have not traditionally been taken up by linguists, such as classical descriptivism and the use of Quinean artificial name-predicates.
(i) Proper names are rigidly designating referential expressions of type e (ala Kripke);

(ii) Following Cumming (2008), names are assignment-sensitive variable expressions, whose extension in a context is relative to a syntactic index, and a contextually supplied assignment function.

The following two innovations then work together to characterize name-bearing:

(iii) Proper names introduce restrictions on which syntactic indices they can be tagged with: the interpretation function is defined for a proper name only on some proper subset of all possible indices;

(iv) The language does not necessarily include all formally definable assignment functions from indices to individuals, but usually only a proper subset of these.

For example: If ‘John’ can only be tagged with certain indices (‘John-indices’), then the language might allow assignments that map John-indices to some individual, or not; if it does, the individual is named ‘John,’ and if not, it isn’t.

2 Three kinds of proper names

(i) **Shared** names (‘John,’ ‘Smith’) exist in a linguistic reservoir, with the understanding they can be used for any number of individuals;

(ii) **Unique** names (‘Tuesday,’ ‘Spain,’ ‘The University of Chicago’) denote a single individual;

   - Unique names are semantically distinct from shared names – semantic competence requires knowing the individual they denote, which is ‘hard-wired’ into their semantics, while one can be competent with a shared name while not knowing of any individuals that bear it (who bears the name is not part of the definition of a shared name).

(iii) **Ephemeral** names (‘Captain Obvious,’ ‘Mr. Right’) denote only individuals that bear a certain property, and do not intuitively seem to be borne by individuals.

   - Ephemeral names behave syntactically as proper names despite being constrained by properties: in languages like English that disallow overt determiners like the definite article with proper names in argument position:

   \[
   \begin{align*}
   & (1) \quad \text{Captain Obvious needs to be quiet.} \\
   & (2) \quad \text{*The Captain Obvious needs to be quiet.}
   \end{align*}
   \]

Hypothesis: The semantic diversity of proper names is due to differences in restrictions that proper names allow on their indexation, and so the different ways in which they interact with name-bearing. Their unique properties can be captured while providing a unified account of name-bearing.

3 The semantics of proper names

A semantic model contains:

- A set of contexts of utterance \( C \); a set of possible worlds \( W \); a domain of individuals \( D \); a set of indices \( V \), the set of positive integers;

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\[2\] This division of proper names is not intended to be exhaustive, but only to provide a starting point for characterizing name-bearing. To give an example of a class of expressions not considered here that might fairly be called proper names: some referential expressions obligatorily take on the form of relational nouns, whose referents must bear the relation denoted by said noun, preferably toward the speaker, such as ‘Mom’ and ‘Teacher.’

\[3\] Cf. Sloat (1969), though see also Jeshion (2015) for cases in which this is allowed, when names are used predicatively.
A set of assignment functions $\mathcal{G}$, which are partial functions $\mathcal{V} \nrightarrow \mathcal{D}$. For every index $i \in \mathcal{V}$, there is some assignment $g \in \mathcal{G}$ such that $g(i)$ is defined.

Using the framework in Kaplan (1989), as adopted in Cumming (2008):

(i) The character of an expression is a function from contexts of utterance to intensions; these are functions from indices of evaluation (world-assignment pairs) to extensions;

(ii) Contexts are ordered tuples containing several contextual parameter values, including, for every $c$, a contextually provided world of evaluation $c_w \in \mathcal{W}$, and a contextually provided assignment function $c_g \in \mathcal{G}$.

And, following the innovation introduced above:

(iii) Because an expression must be interpreted relative to some member of $\mathcal{G}$, and per the above $\mathcal{G}$ need not contain all formally definable partial functions from indices to individuals, it follows that not all such formally definable functions need be available for linguistic interpretation. Some formally definable assignment functions are linguistically impossible to use.

Proper names come tagged syntactically with a referential index, and are then interpreted as standard variable expressions, as with Heim & Kratzer (1998)'s Pronouns and Traces rule of interpretation:

\[
\text{(3) Core variabilist semantics of a proper name } n \text{ indexed with } i \quad [n_i]_{c,w,g} = g(i)
\]

- Proper names are assignment-sensitive, but not world-sensitive: they are thus rigidly designating in the manner of Kripke (1980).
- As $g$ is contextually provided, and the semantic value of a proper name is a possibly a non-constant function from assignments to individuals, the extension of a proper name may vary from context to context: proper names have a non-stable character and so are indexical expressions (though as will be shown below, this is not true of unique names, whose extensions are invariant across contexts).

3.1 Shared names

Shared names can refer to any number of individuals, and there is no grammatical (that is, semantic) reason why shared names can refer to some individuals and not others. Every shared name has associated with it some infinite proper subset of $\mathcal{V}$; tagging a shared name with an index outside of this subset renders the expression uninterpretable. To reflect the grammatical arbitrariness of shared name-bearing, the subset that the shared name allows is itself arbitrarily selected.

The semantic entry for a shared name is as follows, where $s$ is the semantic type of an index of evaluation (a world-assignment pair), $w_s$ and $g_s$ are the world and assignment contained in the pair $s$, respectively, and $\mathcal{V}_n \subset \mathcal{V}$ is an infinite set of arbitrarily chosen indices.

\[
\text{(4) Semantics of a shared name } n \text{ indexed with } i \quad [n_i]_{c,w,g} = g(i), \text{ if } i \in \mathcal{V}_n; \text{ else undefined}
\]

- The semantic entry in (4) makes no reference to any particular individual.

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4. I assume that the set of assignments is part of the model, because the model represents linguistic competence, and I believe that knowledge of which formally definable functions $\mathcal{V} \nrightarrow \mathcal{D}$ are members of $\mathcal{G}$ is a kind of linguistic competence.

5. I remain agnostic here about the syntactic structure of NPs or DPs containing proper names, and how this affects the referential index. The present approach is intended to be compatible with any standard account that involves referential indices. It’s then a further question whether it can be imported in spirit to e.g. a variable-free approach.

6. Though as shown below, ephemeral names are world-sensitive in some sense, though this does not threaten their rigidity.
• The semantic entry for a shared name is minimal and formulaic: given the knowledge that some lexical item is a shared name, a learner is *ipso facto* equipped with its semantics.\(^7\)

• Against Kaplan (1989, 1990), shared names are not at all ambiguous for the fact that they have multiple possible referents. When an individual comes (or ceases) to bear a shared name, lexical items are not created (or destroyed). Rather, the membership of \(\mathcal{G}\) is altered.

### 3.2 Unique names

Unique names refer to a single individual, and semantic competence with a unique name requires knowing which individual that is. Unique names require a new kind of restriction on the indices that a proper name can allow. But this restriction is not model-theoretically arbitrary, since there is a reason that a unique name allows for some indices and not others: a unique name is inherently tied to a certain individual, and thus it allows only for indices that map only to that individual.

\(5\) **Semantics of a unique name \(n\) referring to individual \(d\) indexed with \(i\)**

(a) \(\llbracket n \rrbracket^c = \lambda s : \forall g : i \in \text{Dom}(g)[g(i) = d], g_* (i)\)

(b) \(\llbracket n \rrbracket^{c,w,g} = g(i), \text{if for all } g \text{ such that } g(i) \text{ is defined, } g(i) = d; \text{ else undefined}\)

(c) \(\text{(where } d_1 \text{ is Spain):}\)

\(\llbracket \text{Spain}_1 \rrbracket^{c,w,g} = g(1), \text{if for all } g \text{ such that } g(1) \text{ is defined, } g(1) = d_1; \text{ else undefined}\)

• A unique name always refers to the same individual, when it refers at all.

• In addition to being world-insensitive, and therefore rigidly designating, unique names are assignment-insensitive, and so non-indexical.

• The present proposal recapitulates the classical Millian semantics of proper names as constant expressions whose semantic contents are exhausted by their referents (and casts constant expressions as a specific kind of ‘frozen’ variable expression).

### 3.3 Ephemeral names

Ephemeral names can refer to an individual only if that individual bears some property in \(w\), the world of evaluation relative to which the name is interpreted. They require a new sort of restriction: they must be tagged with an index that always maps only to individuals that bear a certain property \(p\) in the world of evaluation \(w\). The semantic entry for an ephemeral name is as follows, where a property \(p\) is a function from indices of evaluation to individuals to truth values.

\(6\) **Semantics of an ephemeral name \(n\) limited by property \(p\) indexed with \(i\)**

(a) \(\llbracket n \rrbracket^c = \lambda s : \forall g : i \in \text{Dom}(g)[\forall s(g)(s)) = \text{true}], g_* (i)\)

(b) \(\llbracket n \rrbracket^{c,w,g} = g(i), \text{if for all } g \text{ such that } g(i) \text{ is defined, } g(i) = d; \text{ else undefined}\)

(c) \(\text{(where } d_1 \text{ is Spain):}\)

\(\llbracket \text{Captain Obvious}_1 \rrbracket^{c,w,g} = g(1), \text{if for all } g \text{ such that } g(1) \text{ is defined, } g(1) \text{ points out the obvious } w; \text{ else undefined}\)

• Like shared names, ephemeral names are context-dependent, but in two ways: \(w\) is dependent on the context via \(c_{w}\) to fix the set of individuals to which the ephemeral name is capable of referring in that context, and \(g\) is provided by the context to determine which of these individuals is in fact being referred to.

• Ephemeral names are rigidly designating, but their sensitivity to \(w\) means that modal contexts can have an impact on which single referent they allow.\(^8\)

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\(^7\)This excludes complications like gender features.

\(^8\)To see how ephemeral names can be world-sensitive, yet rigid, consider a sentence like, ‘Julie thinks she’ll meet Mr. Right.’ The ephemeral name has both a shifted and an unshifted interpretation: ‘Mr. Right’ might refer, within the scope of the belief operator, to some one man who must be marriageable in each of Julie’s doxastic alternatives, or, outside the scope of the operator, to some one man who is marriageable in the actual world, whom Julie independently believes she will meet.
• Ephemeral names do not ‘stick’ to any individuals in particular, but change their possibilities of reference as the properties that individuals bear change.

• Semantic competence with an ephemeral name does not require knowing any particular individual to which it can refer, but only knowing which property constrains its indexation.

4 The name-bearing relation

The above allows for a unified definition of name-bearing. Let $NR$ be the name-bearing relation which holds between individuals and proper names.

(7) Definition of name-bearing
For any proper name $n$ and individual $d$, $(n, d) \in NR$ iff:

(a) there is a set of indices $I \subset V$ such that for all $i \in V$, $i \in I$ iff for all $c, w$ and $g$ for which $g(i)$ is defined, $[n_i]^{c,w,g}$ is defined, and:

(b) for all $i \in I$, there is some $g \in G$ such that $g(i) = d$.

What this definition says is that an individual bears a proper name just in case (a) there is some set of indices consisting of all and only those that the proper name always allows, and (b) for each of these indices, there is some assignment available in the language that maps that index to the individual. In other words, an individual bears a proper name just in case that individual is always a potential referent of that name, depending on the selection of $g$. This the formal rendition of the inverted dictum: his name is ‘Socrates’ because that’s what he’s called.10

• Ephemeral names do not participate in name-bearing relations. For any ephemeral name $n$, there are no indices $i$ such that for all $c, w$ and $g$ such that $g(i)$ is defined, $[n_i]^{c,w,g}$ is defined. The reason for this is that which indices are permitted by an ephemeral name is sensitive to $w$. For any ephemeral name $n$ and index $i$, one can therefore find a $w$ relative to which, for some $c$ and $g$, $[n_i]^{c,w,g}$ is undefined: simply select a $w$ in which $g(i)$ does not bear $p$.11

5 Conclusion

Given the above, proper names can be given a definition as a semantic class despite their variety.

(8) Semantic definition of a proper name
A proper name is an assignment-sensitive referential expression whose extension relative to some $c$, $w$, and $g$ is defined only if the expression is syntactically indexed with a member of some proper subset of the total set of referential indices.

As defined here, the relation $NR$ is determined independently of any possible world, and thus name-bearing relations are ‘necessary’ from the perspective of the language. What this means is that where counterfactuals and so on are considered involving alternate name-bearing relations, these are counterfactual situations in which the language is different, and not the properties of the individual apart from the language — this reflects that name-bearing is a linguistically determined relation. From the language’s perspective, one cannot find a possible world in which John does not bear the name ‘John’ for its own purposes of reference, but one can find a possible world in which English is such that, from the perspective of the language as used in that possible world, he does not.

I have posited that in order for an individual to bear a name, for every index that a name always allows, there has to be some assignment mapping that index to that individual. The reasoning behind this is that it is a matter of indifference which specific index the proper name is tagged with, so long as it is one that the proper name always permits. It would be very strange, and formally there would be no sense in supposing, that an individual was named ‘John,’ in spite of the fact that some oddball John-index, e.g. $876 \in V_{John}$, was incapable of mapping to that individual. The point is that the name itself, regardless of which specific index that it always allows is chosen, can refer to an individual. Note also that the definition of name-bearing provided here overgenerates in the sense that it allows for many formally definable name-bearing situations that natural languages seem not to make use of. This just means that natural language generally makes use only of a proper subset of possible name-bearing scenarios: and though I don’t have space to talk about it here, the types of name-bearing exploited in natural languages can be characterized using a small set of simple possible operations on $G$.

Assuming that $p$ is not metaphysically necessary, which I take to be true for all ephemeral names.
We thus provide a single, formally precise account of name-bearing that falls naturally out of the semantic account of proper names, and so explain name-bearing rather than assuming it, that respects the semantic variety of proper names while capturing their core common features.

Further issues:

- The relation between proper names and pronouns: similarities and differences
- Predicative uses of proper names (the property of bearing a name now being defined)
- Proper names as R-expressions, and their relation to bound variable interpretations
- The sociolinguistic role of naming conventions

References