Where to Put the Theory of Reference?

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> [T]o explain what competent, mature, native speakers know about their language, it is unnecessary – and indeed quite misleading – to postulate a level of semantic [i.e. reference theoretical] representation halfway between the syntax of the sentence and the pragmatics of the utterance. […]
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> Interpretations that depend on such ontological concerns fall outside the theory of linguistic competence properly speaking. […]
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> The assumption that a theory of meaning must (or at least can) exploit semantic [i.e. reference theoretical] notions must be dropped as a regulative principle in the study of natural language.
>
> (Norbert Hornstein, *Logic as Grammar*)

§1 Philosophical semantics and Model Theory (as semantics at least of formal languages) usually put the idea or 'reference' centre stage. Language relates to reality, so we, it might seem obvious, need a theory and description how language in general, and words and phrases relate to reality. Referential semantics is usually understood as delivering just that.

§2 A truth theory for a language *L* can be read as a theory of meaning, at least if coming with an analysis of composition and Logical Form (LF). One can read the right-hand side of a truth-condition or some semantic condition for sub-sentential expressions as presenting the reference for the expression quoted on the left-hand side (e.g. by *using* on the right-hand side that very same sentence *quoted* on the left-hand side).

This truth theory, though, as a collection of equivalences and inferential principle is a *description*, a *representation* (in natural language or be it in the *Language of Thought* [LoT]). As such it could be part of the Language Faculty (LFC), i.e. internally represented. As representation it is *syntax*. With it the LFC equips a speaker with *core* semantic knowledge as an *internal* model how language has meaning. It is *internal semantics* (or '*syntactic semantics*' in the sense of

proponents of Generative Grammar (like Chomsky or Hornstein [cf. Bremer, "Conceptual Atomism"]).

The (disquotational) truth theory for a language *L* could be read at face value, i.e. without a substantial metaphysics. No metaphysics of existence need to be involved. The singular terms of the language can be read disquotational as presenting 'items', existing or not. The LFC in its grammatical constructions treats referential and non-referential expressions the same.

Generative Grammar [GG] works on a theory of the LFC, especially the principles and parameters of Universal Grammar, and the Language Acquisition Device. GG's theory of syntactic structures and LF, for example, has been developed successfully without integrating a theory of reference. Whether a term refers makes no distinction to the term's (and its phrase's) derivational potential.

Reference and existence, reference failure and non-existence play a crucial role in understanding statements and interpreting the situational use of language. They may, thus, rather belong to a theory of interpretation/understanding present in language use (i.e. *pragmatics*) and information flow and acquisition through language (i.e. *epistemology*).

§3 'Reference', in this perspective, is *not* a key concept of GG linguistics and a theory of the LFC, only *indirectly* so as the theory of language employs a *Representational Theory of Mind* (RTM) which employs the assumption of (empirical) 'concepts' (types in the LoT) being counterfactually dependent on properties in the ecological niche of humans. 'Reference' fits into such a RTM type theory of cognition and a, at least partial, *Computational Theory of Cognition* [CTC].

§4 'Syntactocentrism' (viewing the LFC as a representational and computational system to be explained in its workings) corresponds to this division of labour: the LFC works under the constraints of the phonological and conceptual interfaces, all in an internal medium of computation (some LoT), i.e. pure syntax.

§5 Because of the constraints posed by conceptual system reference indirectly enters the picture. From a 3rd person perspective a theory of the conceptual system tries to explain the evolutionary success and evolutionary development of this system by the thesis of concepts hooking up to relevant properties of human or an animal species' environment.

§6 One need not – absurdly so – deny that language relates to the world, but this does not imply that a theory of the LFC in its working computations and structure needs to look at this relation in detail. Composition of linguistic units and deriving complete sentences needs no appeal to reference. Even a theory of semantic *knowledge* as a theory of the individual state of the LFC is a theory of *mental representations* and their role in linguistic competence.

§7 'Truth' occurs as undefined key concept in truth-conditional semantics. Its central use, however, is in pragmatics: in making assertions (assertive statements), claiming some sentence (anchored to a situation of usage) to be true. A theory of linguistic interaction, speech acts, and knowledge acquisition, confirmation, and sharing, part of linguistic pragmatics, belongs into epistemology or cognitive science (broadly taken, inheriting most topics of traditional epistemology). Within this theory the relation of language to reality has to be explained. This will be in part a naturalized theory (of proper representations in an evolutionary context), and in part a reconstruction of the felicity conditions of assertions and other speech acts,

§8 Quantifying-in expresses the belief or recognition from the speaker quantifying-in that an expression used in a belief refers to an existing object.

(1) $(\exists x)(\text{Monster}(x) \wedge \text{BELIEVE}(j, \text{Under}(b,x))$

roughly expresses that

(2) John believes a monster lurks beneath the bed.

is a correct belief. (2) is not ambiguous; syntactically it has not two derivations. (1) is *another sentence* added by some speaker (the speaker of (1) or John himself expressing belief in the existence of the monster with respect to which John has a belief.

There are ambiguous sentences with respect to quantification, namely the well-known cases of scope ambiguity between a universal and existential quantifier, say in:

(3) Every man loves a woman.

with the two readings in LF:

(3') $\forall x(\text{Man}(x) \supset (\exists y)(\text{Woman}(y) \wedge \text{Loves}(x, y))$

(3'') $\exists y(\text{Woman}(y) \wedge (\forall x)(\text{Man}(x) \supset \text{Loves}(x, y))$

which have *different derivations*, depending on which quantifier was introduced/raised first. Such derivational differences do not occur with existence/non-existence, respectively reference/non-reference.

§9 The distinction *de dicto/de re* can be linked to the distinction between *two* sentences in which the quantifiers have different scope, but these two sentences *are not* two logical forms, both related to (2), present in the derivational system of the LFC. The distinction *de dicto/de re* is made *epistemologically*, as a doxastic or diagnostic tool.

§10 Similar remarks apply to Russell's supposed scope distinctions in

(4) The King of France is not bald.

Prima facie this sentence is about the King of France and his hair. If someone wants to express the belief that she agrees to (3) not because of observed plentiful hair with the King of France but because there is no King of France, she may say:

(5) $\neg\exists x(\text{K}(x) \wedge \forall y(\text{K}(y) \supset y = x) \wedge \text{B}(x))$

and contrast this with

(4') $\neg\text{B}(\iota\text{K}(x))$

or

(4'') $\exists x(\text{K}(x) \wedge \forall y(\text{K}(y) \supset y = x) \wedge \neg\text{B}(x))$

as logical forms of (4). (5) is *another sentence* making an ontological assertion, not one of the two readings of an ambiguous (4).

Descriptions in natural language behave like singular terms, not like sentential quantifiers. Natural language uses singular terms freely. A semantic model with scruples may employ a Negative Free Logic, but the truth-conditions coming with Negative Free Logic are then *imposed* as interpretation of sentences. They can be a general part even of internal semantics, they are not part of the derivation of sentences with singular terms (DPs or NPs), and – crucially – they do not tell the derivational system which singular terms do not refer. That is factual information gained in language use.

Semantics of Free Logics outline how speakers deal with reference failure. They are part of modelling interpretations and language *use*. They are part of epistemology and cognitive science – cognition employing language – not part of the inner workings of the LFC, in the narrow sense, at least.

§11 These demarcations may seem to be drawable this way or that way. From a perspective of clear-cut theory construction this is not so. Having linguistics deal with the LFC in the narrow sense allows aiming at a computational theory coherent with CTC analyses in cognitive science. Epistemic matters (e.g. justification and making assertions in creative language use) supposedly are not computational in the proper sense (of being able to be simulated by a Turing-Machine). They involve aspects of the mind which are not computational in the proper sense. Judgement (that something is the case), situational creative language use can *post hoc* be printed by a machine, but not be initiated by a machine.

Thus, one may opt for a scientific strong theory of (parts of) the LFC accompanied by a non-computational or not completely computational elucidation of human epistemic faculties. These are employed in interpretation and referential reasoning. Epistemology can only be partially naturalized, whereas cognitive linguistics (GG is a branch of) is an empirical science (a branch of empirical cognitive science.)

§12 In the LFC reference and reality play only an indirect role, mediated by concepts, i.e. mental representations which are the core constituents of lexical entries. The LFC starting a derivation accesses the lexicon, and by this computes with mental representations taken for granted.

A general theory of cognition (like RTM) deals directly with the questions of intentionality and reference: how do mental representations hook up to properties in reality. Under the assumption that at least a subset of the concepts in the lexicon are types of a LoT, this broader theory of intentionality can be classified as a semantics (a theory of reference) of the LoT.

In humans natural language presumably has replaced other LoT in many procedures of mental computation. In some lexical entries some concepts – clearly meta-linguistic ones – are expressed in natural language, pointing to an extent of holism in internal semantics.

Internal semantics deals with humans as speakers of natural languages only. LoT semantics may deal also with concepts shared with animals, supposedly basic perceptual concepts not depending

on a LoT with sentential or even recursive structures. This referential semantics can overlap with naturalized epistemology, Cognitive Neuroscience, and approaches like Millikan's *Teleosemantics*. A theory of this type is Fodor's theory of the LoT and its *Psychosemantics*.

§13 A theory of reference takes the theory of the LFC and the computational procedures of internal language for granted, which again do *not* depend viciously circular on a theory of reference.

Internal semantics elucidates linguistic competence, and this has a focus on reflective equilibrium of its principles with speakers' judgements of meaningfulness. The theory of reference shares more of the characteristics of empirical cognitive science than with GG pursuing elucidations.

§14 Internal semantics works with semantic knowledge present in some representational structure. It need not employ the concept of 'reference' at all. It should not deny that elements of conceptual structure have reference to real properties. It should certainly avoid epistemic confusion or anti-realism by stipulating [as Jackendoff does] that linguistic structures *refer* to inner representations! Internal semantics, obviously, should not deny that we speak *about* real situations and other real entities, even if not only so (not just in error, but also in fiction and predictions). The communicative and information conveying function of language contributes essentially to the benefits of language, besides its role as inner medium of thought. These reality related functions of language just need not directly be part of a syntactic/internal semantics and a narrow internalist theory of the LFC.

§15 Related to meaning but neither part of core semantics (i.e. internal semantics) nor meaning constitutive are rules associated with the justification of term application in making assertions. Assertive statements claim to be true and confirming their truth and/or assertibility employs rules of confirmation or justification or – in terminology in disrepute – verification. Competent speakers have partial, deferred or complete knowledge of such rules and procedures *associated with* – but not constitutive part of – the lexical entry of a term [cf. Bremer, "Meaning and Justication"].

§16 Applied semantics also deals with situated language use. Sentences uttered in situated language use need to be anchored in their indexical and parametric parts to the *situation of usage*, and their anchored meaning relates the situation of usage to a *described situation*, which can but need not be the same situation. Situated meaning can be understood as linking these two situations or situation types. A theory focussing on such 'constraints' and 'anchored' usage is Situation Semantics. Situation Semantics should be seen less as a theory of meaning in the narrow sense, but as a theory of situated language usage (i.e. externally applied language), and thus as an essential part of a theory of *reference*. Anchored expressions *refer* to parts of situations. The semantic externalism stressed by proponents of Situation Semantics [like Barwise and Perry] fits this focus on reference and relating meaning to reality [cf. Bremer, *Situated Information Flow*].

§17 A *complete* theory of meaning (a complete semantics) will consist, therefore, of at least four components:

1. Internal Semantics – as part of a linguistic theory of the LFC.
2. Justificationist Semantics – as part of an epistemological theory of justification and testability of assertions.
3. Situation Semantics – as a theory of situated language use and referential anchoring.
4. Psychosemantics – as a theory of intentionality of the LoT.

§18 A naturalized theory of reference has to be much more differentiated in its account of reference than Model Theory. For instance,

(i) It has to drop the convenient fiction that predicates *refer to sets*, because sets are not part of the furniture of human earthly environment, and a capacity of reference to abstract sets seems obscure,

(ii) Names of existing entities and fictional names cannot *refer* in the same way.

It may well be that 'reference' and 'satisfaction' as used in Model Theory are convenient fictions – almost harmless in formal language semantics – *beneath* which the real theory of the ecological and/or causal relations between concepts and reality has to be sought.