

No Vacuous Quantification Constraints In Syntax

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Much recent work appeals to a ban on vacuous quantification (henceforth NVQ) that operates not merely as a criterion of non-redundancy in an informal semantic sense but is actually assumed to constrain syntactic well-formedness at certain levels (usually LF). It is perhaps not generally appreciated that checking representations to ensure that all quantifiers (or other operators) bind at least one variable is excessively expensive in computational terms. Certainly such checking is beyond the power of context-free-equivalent mechanisms (which is not true of most of the content of linguistic theory). Marsh and Partee (1984) conjecture that it is even beyond the power of indexed grammars, which would be unprecedented in natural language syntax. Yet NVQ has been claimed to regulate the syntax of such central and basic constructions as relative clauses. It is therefore reasonable to subject arguments for the syntactic use of NVQ to unusually close scrutiny. I undertake that task here.

The first requirement is an explicit statement of NVQ (the principle is rarely formulated). A survey of the literature suggests that NVQ should be treated as a condition on vacuous abstraction modelled on the Binding Rule of Bittner (1994). I then address the phenomena that have been used to motivate it, showing first that Chomsky's (1982, 1995) use of NVQ to block (1) is unnecessary: independently required principles of Case Theory suffice to block it.

The appeal to NVQ by Kennedy (1997) is more challenging. Addressing the failure of Antecedent Contained Deletion (ACD) in (2), Kennedy suggests that (2) is ungrammatical because the relative pronoun *who* fails to bind a variable. However, I show that an elegant account of (2), and of ACD in general, can be given in categorial grammar (CG) terms within the theory of Jacobson (1992), so NVQ certainly cannot be crucially required in order to describe ACD. Moreover, on the CG account, the failure of (1) follows from fundamental assumptions about the combinatoric system.

Kratzer (1995) argues that (3a) is deviant because the adverbial *when*, semantically equivalent to *always*, fails to bind a variable. But (3a) is not syntactically deviant; (3c) merely puts it in context to render it fully acceptable. The oddness of Kratzer's examples, and the similar cases in Fox 2000: 168ff, follows from pragmatic requirements on modification. The *such that* constructions studied by Higginbotham (1985) behave similarly, as seen in (4).

Intricate and interesting arguments for NVQ are given by Fox (2000), who argues that the coordinate structure constraint, as in (5), follows from NVQ plus a multi-dimensional analysis of coordination, which analyzes (5) as having the "components" in (5a,b). In (5b), the interrogative pronoun fails to bind a variable in its nuclear scope.

(5) alone is not sufficient to motivate NVQ; on the CG account, such cases involve coordination of syntactically and semantically unlike phrases, which is known to be ungrammatical. But Fox argues that (6) provides decisive evidence for the relevance of NVQ. Here, he claims, a wide-scope reading of the object quantifier is possible only if it binds a pronoun in both clauses; see (6a,b). The pronoun in effect licenses non-Across-the-Board (ATB) extraction of the quantifier.

However, there are many reasons to doubt that these cases involve true variable binding: (i) the order of the conjuncts is restricted (7); (ii) most downward entailing operators do not license the apparent binding (8); and (iii) non-upward-entailing operators reveal that the interpretation is not as a variable binding structure, but rather as E-type anaphora. This is evident in (9), which is interpreted as in (9b), rather than as in (9a), the reading Fox's analysis predicts. (10) provides an uncontroversial E-type case for comparison. Furthermore, (6) involves a configuration that leads to Weak Crossover violations elsewhere. Fox's cases are surprising and intriguing, but it is clear that they do not involve binding of the sort NVQ is intended to regulate.

Examples

- (1) *the man who John saw Bill
- (2) *Beck believes that every suspect who Kollberg {does/is} ~~guilty~~ is guilty.
- (3) a. *When Mary knows French, she knows it well.
 b. When a Moroccan knows French, she is knows it well.
 c. On days when she takes her memory medication, Mary speaks French as well as English. On other days she doesn't even know her own name. But when Mary knows French, she knows it well.
- (4) a. John and Mary are one of those couples such that people say they love her but hate him.
 b. #John and Mary are one of those couples such that Paris is the capital of France.
- (5) *Who do you think Mary likes and Bill hates Sue?
 a. Who₁ do you think Mary likes t₁?
 b. Who₁ do you think Bill hates Sue?
- (6) A different student likes every professor₁ and wants {him₁ / *the dean} to be on the committee.
 a. [every professor]₁ A different student likes t₁.
 b. [every professor]₁ A different student wants {him₁ / *the dean} to be on the committee.
- (7) *A student wants him₁ to be on the committee and likes every professor₁.
- (8) *A student likes no professor₁ and wants him₁ to be on the committee.
- (9) Every student likes exactly one professor₁ and wants him₁ to be on the committee.
 a. There is at most one professor that every student likes, and this lucky professor is such that every student wants him on the committee. (The set of uniformly-liked professors is a singleton.)
 b. There is exactly one professor such that every student both likes him and wants him to be on the committee. (The intersection of the uniformly-liked professors with the wanted-on-committee professors is a singleton.)
- (10) Every student₁ likes exactly one professor₂. She₁ meets with him₂ on Tuesdays.

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