A frequency-based account of kind-denoting participle modifiers in English

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We provide an analysis of English adjectival passives as kind-denoting, following Gehrke's (2015) analysis of German, and show how it plays out in English prenominal syntax. We further argue that apparent well-establishedness and informativity conditions on modifiers of prenominal participles are really frequency effects.

English adjectival passives as kind-denoting. Verbal passives, like their active counterparts, express event tokens[1], and in (existential) perfect aspect, they denote post-states (see 1b), which hold eternally following the originating event token (Kratzer (2000)'s resultant state participles).

(1) a. The bottle has been opened/broken by John.
b. λt9e[break(John, the bottle, e) & τe ≤ t] (τ is the temporal trace)

Pre-nominal participles can also express post-state properties of the modified noun (see 2a). Alternatively, they can express target state properties, in which case there is evidence of a category change 2b, to adjectives. Unlike post-states, target states need not persist.

(2) a. a recently opened$_V$ /broken$_V$ bottle
b. a(n) open$_A$/broken$_A$ bottle
c. λs9 e_k [break(e_k) & broken(bottle)(s) & BECOME (e_k)(s)]

Crucially, post-states are defined w.r.t. event tokens, while target states are defined w.r.t. event kinds, an analysis floated by (Gehrke 2015:915) for German, but ultimately discarded. An event token lacks a unique result, as argued in detail by Dowty (1979: 267-9). Instead, target states are generalizations over events, generic results associated directly with event kinds. Following Carlson (2003) inter alia, (pseudo-)incorporated nouns are kind modifiers. In English target state sub-kinds can be expressed through incorporation of modifiers including event participants such as agents, instruments, or locations 3a. That the compounds are kind- and not token-denoting can be seen from the contrast in 3b-3c.

(3) a. man-made, women-owned, oven-baked, London-based, frequency-based, etc.
b. a recently designed$_V$ house
c. *a recently architect-designed$_A$ house

We propose that the prenominal position in English has a bias for expressing kind meanings, for which the syntax is adapted: a right-branching X^0 structure lacking the phrasal recursion needed to describe the details of event tokens (cp. *an owned by women business).

Frequency effects on modifiers. Event related modifiers of property state words vary in acceptability. Rapp (1996:256) reports the contrast von Picasso/*Maria gemalt 'painted by Picasso/*Mary' for German adjectival (stative) passives, and similarly for English incorporation: Wright-designed / *Joe-designed. A variety of pragmatic formulations have been floated for these sorts of data, involving well-establishedness, noteworthiness, and informativity (Maienborn 2009, Gehrke 2015, i.a.). Instead we explain such contrasts as frequency effects.

[1]Or they express kinds, that can type-shift to instantiate.

First, the grammar of English lacks a general compositional rule for creating compounds such as Wright-designed; cp. the variety of roles in 3a. So how does a speaker decide whether to utter this form? Given the well-established principle that people (and animals) learn best through repetition, we posit a production algorithm in which a speaker is more likely to use a form x to refer to y, the more times they have heard x used to refer to y before, as a proportion of all previous tokens of x. To allow for innovation, the frequency count includes not only the exact words in x, but also semantically similar words in the same construction (e.g. Corbusier-designed), decremented with a similarity coefficient between 0 and 1.

Input frequency is affected by message biases: a well-known designer like Frank Lloyd Wright is more likely to be mentioned as filling the designer role. But the likelihood that x means y depends on the proportion of such utterances to all uses of x, including those with non-y reference. For common nouns as in woman-owned the proportion is high: woman almost always refers to women; similar for place names, as in London-based: London almost always refers to London. For proper names consider this example:

Famed landscape architect Lawrence Halprin was known to friends and associates as Larry. A designer who worked for him reports to us that people in his office would use locutions 4a or 4b, but that 4c would be strange– even though they otherwise referred to him as Larry:

(4) a. a Halprin-designed project
b. a project designed by Halprin/Larry
c. ??a Larry-designed project
d. a project designed by me
e. *a me-designed project

Similarly Halprin himself might utter 4d but never 4e. The generalization follows from the production algorithm: 4a in reference to Halprin, and similar (other famous designers, e.g. Olmstead-designed), has been heard; 4c is relatively rare overall because the name Larry is only used for Halprin by a small set of friends (and often used for other people); 4e is virtually non-existent, as the only person who refers to Halprin as me is Halprin himself.

Even pronouns anaphoric to kinds fail, as predicted:

(5) a. Beavers are amazing. They build dams. *a they/them-built dam
b. The beaver is amazing. It can build dams. *an it-built dam
c. me-centered, we-centered
d. λx[centered-on(x, x)]; λx9Y [centered-on(x, Y) ^ x 2 Y