

## Reference to states and degrees across categories

Rebekah Baglini | University of Chicago

**Introduction:** Linguists and philosophers often mention *states* in characterizing the referential properties of certain lexical items. While statives share some well-known semantic properties—gradability in particular—different languages use different syntactic categories to encode these meanings, leading to systematic variation in the shape of stative constructions cross-linguistically (Francez and Koontz-Garboden, 2013). As observed by Baker (2003), English exemplifies the three primary strategies for expressing stative meaning attested cross-linguistically: non-dynamic verbs (1), certain abstract mass nouns (2), and adjectival predicates (3), which are the dominant strategy in languages with an open class of this category (Dixon, 1982).

- (1) V: Sam **hungers** for pie. (2) N: Sam has **hunger**. (3) A: Sam is **hungry**.

(1)-(3) can all describe the same state of affairs. But while all three constructions have received attention in the literature independently, no effort has been made to explore a unified model-theoretic basis for their common stative meaning. This talk aims to address the question of stative meanings as a natural semantic class by comparing morphosyntactically diverse strategies for their expression in English and the Senegambian language Wolof.

**Data:** In addition to class of stative verbs expressing prototypically adjectival concepts (4), Wolof also has a large open class of abstract mass nouns naming human propensities like ‘intelligence’ and ‘strength’. The latter cannot function as predicates on their own, as shown in (5).

- (4) *Awa rafet/njool/bees/baax na-∅* (5) *\*Awa doole/sago/jom/wërsëk/xel na-∅*  
 Awa pretty / tall / new / good FIN-3SG Awa strength / calm / resolve / luck / wit FIN-3SG  
 ‘Awa is pretty / tall / new / good.’

Instead, as seen also in English (2) and a typologically diverse array of unrelated languages (Francez and Koontz-Garboden, 2013), such nouns must first combine with a verb meaning ‘have’ to be predicated of an individual (7), thus resembling possessed NP constructions (6).

- (6) *Awa am na-∅ ceeb (\*lool)* (7) *Awa am na-∅ xel (lool)* (8) *Awa rafet-na-∅ (lool)*  
 Awa **have** FN-3S **rice** (\*very) Awa **have** FN-3S **wit** (very) Awa pretty-FN-3S (very)  
 ‘Awa has rice.’ ‘Awa is (very) witty.’ ‘Awa is (very) pretty.’

However, possessed stative noun constructions like (7) exhibit several distributional differences from non-stative possessed NPs like (6); specifically, they pattern with stative Vs (8) with respect to degree modifiers like intensifier *lool* and comparative morphology. As shown in (9), appealing to the notion of ‘abstractness’ is not sufficient to explain these distributional patterns, as mass nouns naming abstract discontinuous phenomena also fail to pattern with possessed stative nouns in, e.g., occurring the *gën(-a)* quality comparative morpheme (9). (Nouns like *ndox* ‘water’ and *jox* ‘time’ combine with a different morpheme—*ëpp*—which expresses amount comparison.) Thus, in Wolof, possessed stative noun constructions appear to be compositional predicates with the semantics of underived gradable predicates.

- (9) *Awa-a gën-a rafet<sub>Vs</sub>/am-doole<sub>NCV</sub>/\*am-ndox<sub>N</sub>/\*am-jot Aida*  
 Awa-FOC COMP-a pretty / have-strength / \*have-water / \*have-time Aida  
 ‘Awa is prettier / is stronger / \*has more water / \*has more time than Aida.’

**Analysis:** I propose a formal analysis which captures both the observed syntactic and semantic variation in a unified way using an enriched semantic ontology with states. While most commonly associated with the semantics of stative verbs, properties associated with state eventualities have also been linked to adjectives (Morzycki, 2011; Toledo and Sassoon, 2011) and nouns (Van de Velde, 1995; Tovená, 2001; Roy, 2004). Building on this work, I propose that *all* state-denoting lexical items, regardless of category, have a stative eventuality argument in their denotation, and that the domain of states is totally ordered by intensive rather than extensive quantity (Tovená, 2001) (10). I further enrich the ontology to derive degrees from states, by treating degrees as intervals (Kennedy 2002) (11) defined on totally ordered sets of states (10).

- (10) Domain of states: Any set of states  $S$  is ordered by a total order  $\leq_{IQ}$ , intuitively thought of as less intense or equal to.  
 (11) Domain of degrees: An interval for a linearly ordered set of points (states):  
 $\forall s_1, s_2 \in d \forall s_3 \in S [s_1 < s_3 < s_2 \rightarrow s_3 \in d]$ .

Under this approach, states and degrees are distinct formal objects, yet are related ontologically. Denotations which select for a set of states  $S$  are underspecified as to which sort of ordered sets within the domain is selected: sets of states or sets of intervals. This captures the intuition that (1)–(3) all share some referential property (all denote in the domain of states), but allows for variation with respect to gradability.

My analysis maintains the standard view that gradable adjectives are of type  $\langle d, et \rangle$ , where  $d$  is an argument representing intervals over states. Furthermore, I treat gradable stative verbs as the same semantic type as adjectives, explaining why mixed subdeletion is licit between these two categories in English (12). (Wolof only allows subdeletion constructions when both lexical items naming the gradable dimension are nominal(ized), and thus does not provide mixed subdeletion data for comparison.)

(12) I love Sam more than I'm resentful of him.

However, I argue that there is variation in the denotations of stative nouns. In a language like Wolof, nouns denoting stative properties like *hunger*, *courage*, and *tallness* name sets of intervals as in (11). Thus, when combined with the semantics of possession (13), which relates an individual to the set of entities named by a noun, the resulting complex predicate (15) is of the same semantic type as a gradable adjective or stative verb (16).

(13) **Wolof stative possession operator:**  $[[am]] = \lambda S \lambda d \lambda x [S_s(d) \ \& \ \pi(x, d)]$

(14) **English stative possession operator:**  $[[have]] = \lambda S \lambda s \lambda x [S_s(s) \ \& \ \pi(x, s)]$

(15) **Wolof possessed stative noun:**  $[[am \ doole]] = \lambda d \lambda x [S_{strength}(d) \ \& \ \pi(x, d)]$

(16) **English/Wolof gradable predicate denotation:**  $[[pretty_A / rafet_V]] = \lambda d \lambda x [S_{pretty}(d)(x)]$

In contrast with Wolof, I argue that English stative nouns pick out simple sets of states rather than stative intervals. Because sets of states are formally different from intervals, combining such a noun in English with the possessive predicate *have* results in a compositional predicate of type  $\langle s, et \rangle$  rather than a gradable predicate type of  $\langle d, et \rangle$ . This correctly predicts that comparative subdeletion between possessed stative nouns and adjectives is impossible in English (17).

(17) \*I'm happier than I have courage.

**Conclusion:** This analysis has the positive consequence of explaining why special morphosyntax (often related to possession) is required to make a predicate out of a noun or root naming a simple state (Francez and Koontz-Garboden, 2013): it is because state-referring nouns and roots, unlike stative verbs and adjectives, do not directly select for an individual argument, but rather name sets of states or intervals over states. By utilizing an enriched ontology with states, a common semantic core is established for state-denoting expressions across syntactic categories. At the same time, interpretational and distributional differences are correctly predicted to arise between predicates with ordered states versus stative interval arguments.

## References

- Baker, Mark C. 2003. *Lexical categories: Verbs, nouns and adjectives*, volume 102. Cambridge University Press.
- Dixon, Robert. 1982. *Where have all the adjectives gone?: and other essays in semantics and syntax*, volume 107. De Gruyter Mouton.
- Francez, Itamar, and Andrew Koontz-Garboden. 2013. Semantic variation and the grammar of property concepts. Unpublished ms.
- Morzycki, Marcin. 2011. Degrees and state kinds. Handout from Workshop on Modification With and Without Modifiers.
- Roy, Isabelle. 2004. Predicate nominals in eventive predication. *University of Southern California Working Papers in Linguistics* 2:30–56.
- Toledo, Assaf, and Galit W Sassoon. 2011. Absolute vs. relative adjectives-variance within vs. between individuals. In *Proceedings of SALT*, volume 21, 135–154.
- Tovena, Lucia. 2001. Between mass and count. In *Proceedings of WCCFL*, volume 1, 565–578.
- Van de Velde, Daniele. 1995. *Le spectre nominal. des noms de matières aux noms d'abstractions*.