Two kinds of count Ns

- Quantized Count Ns: lexically determine their CRITERION of INDIVIDUATION at all contexts (lexically fix what is one in their denotation for all contexts) - cat, lentil
- Non-quantized Count Ns: lexically do not uniquely determine their CRITERION of INDIVIDUATION (what is one in their denotation varies with context) - fence, teacup

**Key evidence:**

- fence-like count Ns, like just mass Ns, occur in measure (pseudo-particle) DPs: three pounds of cat, three yards of fence, three inches of snow

**Null Counting Context**

This makes

(a) 3 km of fence, 100 yards of hedge

**Lexical Mass Ns**

Measure Phrases, occur in measure (pseudo-particle) DPs. In contextually determined disjoint individuation schemas.

- This makes
  - The set of single cats is the same disjoint set at all counting contexts, hence also disjoint

**Landman (2011)**

Problem:

(i) direct modification by numerical expressions;
(ii) pluralization: three cats, three fences;
(iii) arguments of quantifiers that select for count Ps: cat, lentil

How many fences are there in the picture?

- In context K:
  - ([(k, ki); (h, hi); (c, ci)]) k >4 (four fences)

- In context H:
  - ([(h, hi); (l, li); (d, di)]) i > 1 (one fence)

- Counting is counting-context-context pairs

**Problem**

Assimilating the account of count Ns like cat under-count-sensitive count Ns like fence raises the question why we have only one licensed individuation schema for cat, but multiple ones for fence?

Landman (2011)

- For object mass nouns (Landman’s neat mass Ns), generator sets = entities that count as one: e.g.,
- Generators = objects, parts of fences at other specific counting contexts

**Landman’s Neat Mass Ns**

- Overlapping entities count as one

**EMPIRICAL EVIDENCE**

Prototypical count Ns like cat and fence-like Ns

- **Similarities**
  - (i) direct modification by numerical expressions;
  - (ii) pluralization: three cats, three fences;
  - (iii) arguments of quantifiers that select for count Ps: each boy, each fence;

- **Differences**
  - Measure (aka pseudo-particle) DPs with extensive measure functions admit fence-like Ns, which denote -QUA(P), but not prototypical count Ns, which denote QUA(P);
  - (a) 6 kilograms of baby
  - (b) You can find a heavy piece of baby in the nursery.
  - (c) 3 km of fence, 100 yards of hedge
  - (b) On the other side of town, we saw several pieces of wall.
  - (c) You can find a great many lengths/stretches of dry stone wall across NE England.

**Puzzle for a uniform semantic analysis of count Ns (Roithstein, 2010, and also Krifka 1989)**

- Why are count nouns like fence felicitous in measure (pseudo-particle) DPs when they pattern, grammatically, with count nouns like cat in other contexts?

**BACKGROUND**

Krifka (1989)

- Two Mereologically-based Predicate Types
  - CUMULATIVE: \( v^n(CUM(P), P) \rightarrow v^n(P, P) \land \Pi \rightarrow P(Y) \rightarrow \pi(Y) \) water, apples
  - QUANTIZED: \( v^n(QUA(P), P) \rightarrow v^n(Y)(P / x) Y \rightarrow (x \subseteq P) \) (an) apple, two liters of water

From Krifka (2007)

**Lexical Mass Ns**

- Denote CUMULATIVE sets, only specify a quantitative criterion of application: \( x \in [\text{water}] \)

**Null Count Ns**

- Denote QUANTIZED sets, specify a qualitative and a quantitative criterion of application: \( x \in [\text{apple, (an) apple}] \), \( x \in [\text{water, (two liters of water)}] \)

**Extensive Measure Function** \( P \) (e.g. LITER, KILO) is a function relative to a sum operation \( \Pi \) on a part structure \( P \), if it maps structures to positive real numbers such that:

\[
\Pi(P) = \text{additive}.
\]

**Quantizing Modification:**

\[
v^n(QUA(P), P) \rightarrow v^n(QUA(P), \Pi(P)) \text{ two liters of } (df), \text{ four kilos of } (df) \text{ require a } QUA(P) \text{ and derive a } QUA(P); (an) apple, two liters of water
\]

**Problem**

- Quantization not necessary for Ns to be grammatically count (Krifka 1989:87, Parce, p.c.)
- fence-like count Ns: sequence, line, wall, band, bouquet, plane, hedge...

Roithstein (2010)

- Lexical Mass Ns of type \((x,t)\)
- Lexical Count Ns of type \((x \times t, 1)\)

**Problem**

- The set of single cats is the same disjoint set at all counting contexts, hence also disjoint at the null counting context

**Landman’s Neat Count Ns**

- For object mass nouns (Landman’s neat mass Ns), generator sets = entities that count as one: e.g.,

**Landman’s Neat Count Ns**

- Overlapping entities count as one

**SIMULTANEOUSLY IN THE SAME CONTEXT**

- Different maximally disjoint subsets (Landman’s VARIANTS) yield different cardinalities

\[\Rightarrow \text{ COUNTING GOES WRONG}\]

**ANALYSIS**

**Basic Assumptions**

- Measure Phrases formed with extensive measure functions that are applied to -QUA(P),
- see above Quantizing Modification (Krifka 1989)
- Measure functions only exclude singular QUA(P’s) (also Schwarzschild 2002), pace claims in recent unpublished work of Roithstein and Landman that measure functions require ‘messy’ mass P’s as arguments.

**Null Counting Context**

- \( X/P, X/P \text{ for } X/P \text{ of all } P \text{ individuals at counting context } c \)
- COUNT Ns are derived from the disjointness of the IND-set at \( c \), rather than being a purely type-based distinction, as in Roithstein (2010).

**Count Ns**

- Count Ns have a counting context argument \( c >1 \), meaning that their denotations are evaluated relative to a counting context of utterance that uniquely determines what is ‘one’, cat: \( c >1 \text{ (CAT)} \text{ , IND-CAT } c_{1+c} \)
- The IND-set for CAT is disjoint (and quantized) at every specific counting context \( c_{1+c} \)
- COUNT NPs are not quantized. DPs at specific counting contexts are proper
  - Hence both parts and sums are count noun at the null counting context

**Landman’s Neat Count Ns**

- Makes measure grammatically mass, and felicitous in a measure phrase

**Measure Phrases**

- Apply extensive measure function to the counting base of the argument predicate

- Also saturate the base with the null counting context

**Landman’s Neat Count Ns**

- A function from a numeral to a function on an N predicate to a predicate for a measure DP.

- Interpretable only if the counting base of the resulting expression is not quantized

**Landman’s Neat Count Ns**

- IN-\( D \text{CAT}(c) \) is quantized, but IN-D\( E \text{CAT}(c) \) and WATER\( (c) \) are not quantized

**Why do we find NL predicates that are -QUA(P), and also -QUA(P)?**

- Because they admit a multiplicity of contextually determined disjoint individuation schemas.

**CONSEQUENCES**

- An explanation for the admissibility of count Ps as arguments of measure phrases.

**Selected References**