Monotonicity as a Consequence of Nominalizing Measures: Evidence from Romanian Pseudo-Partitives

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The two goals of this paper are: (*i*) to argue that, syntactically, the measure expression is the head of the extended projection in Romanian pseudo-partitive constructions like (1) – much like the leftmost noun is the head of true partitive constructions like (2) (in Romanian, the preposition *de* appears only with pseudo-partitives, while the preposition *din/dintre* appears only with true partitives); (*ii*) to propose a suitable semantics for pseudo-partitives that accommodates the syntactic generalization above. The main contribution is deriving the observation in **[6]** that measure expressions are monotonic in pseudo-partitive constructions from the fact that measure expressions have individual-based denotations in pseudo-partitives, which can be obtained only if measure expressions are used monotonically relative to the part-whole structures of their underlying domains of individuals. I use monotonic / non-monotonic in the sense of **[6]**.

Syntactic and Semantic Properties of Romanian Pseudo-Partitives. The number and gender agreement properties of pseudo-partitives indicate that the measure expression is the head of the (main) extended projection of the pseudo-partitive: the pronominal clitic *i* (they.m.pl) and the definite article *cei* (the.m.pl) in (5) agree with the measure noun *litri* (liter.m.pl) and not with the noun *apă* (water.f.sg) (see **[7]** for more discussion of – and a different take on – the syntax of pseudo-partitives). In contrast, the measure phrase is not the head of constructions in which measure expressions are non-monotonic, like in (6), where the pronominal clitic *o* (it.f.sg) and the indefinite article *o* (a.f.sg) agree with *apă*.

Moreover, the topicalization structure in (5) indicates that pseudo-partitives can be used referentially and the entities they refer to are individuated by the measure expression (a count noun) and not by the other nominal expression (a mass noun). This is further supported by the fact that pseudo-partitives can be embedded in partitive structures like the one in (7), which allow only referential, definite NP's (see **[2]** for more discussion). Also, in (7), the indefinite cardinal *doi* (two) agrees in gender with the masculine noun *litri* (liters), not the feminine noun *apă* (water). Example (8) is only meant to show that, as expected in view of (4), such definite pseudo-partitives cannot be further embedded in pseudo-partitive constructions.

Deriving the Monotonicity Requirement: Pseudo-Partitives as Nominalizations. Following **[6]**, I assume that nouns denoting sets of individuals always associate a part-whole structure with these sets: for mass nouns, this is the material-part lattice structure introduced in **[3]**; for count nouns, the structure is trivial: every individual is a part of itself and of no other individual.

The *nominalization* of a measure expression like *liter*, *degree* etc. (the basic denotations of which I take to be predicates of scalar intervals, following **[6]**) is the semantic operation by which these expressions are associated with predicates of individuals, obtained by restricting the domain of individuals and its associated part-whole structure contributed by the other nominal phrase in the pseudo-partitive to a sub-domain and a sub-structure that are *materially equivalent* (in the sense of **[3]**) to the original structure. Since *liter*, *kilogram* etc. are count nouns, the resulting sub-structure has a count part-whole structure, i.e. no two distinct elements in its domain have a common material part. Thus, the nominalization of a measure materially *partitions* its underlying domain and the individuals that form the partition cells have to also be individuals in the original part-whole structure: five kilograms of cheese are still cheese. Finally, each individual in the partition measures exactly one unit (one liter/kilogram etc.) according to the measure function involved in the original interval-based denotation of the measure expression.

Just as *bottle of wine* can be used to refer to both a measure and a portion of wine (in addition to referring to a container), *kilogram*, *liter* etc. can be used to refer to both measures/scalar intervals and individuals. This is an instance of polysemy, a better known and more extreme example of which is using the noun *ham sandwich* to refer to people: *Every ham sandwich at that table is a woman* (**[5]**, example (24b); see also **[4]**).

To this, I only add a principle of *individuation by measure* constraining measure-based polysemy: the measure-based partition is *arbitrarily* chosen from a *non-singleton* set of possible partitions – where 'arbitrarily' intuitively means that any partition would 'do equally well'. The non-singleton requirement rules out #*three kilograms of pencil*: only one partition respects the part-whole structure of the count noun *pencil* – the *pencil* part-whole structure itself (and it is unlikely that this is a suitable a partition: pencils do not weigh one kg). The arbitrariness requirement rules out #*ten degrees of water*: assuming that the temperature of the whole water is uniformly one degree, we can build multiple, non-equi-numerous partitions (one of them will have only one cell containing all the water, another will have two cells etc.) that will not 'do equally well'.

(1) zece grame **de** brînză (de capră)　　　　　　(2) zece grame **din** această brînză (de capră)
　　ten　grams of cheese (of goat)　　　　　　　　　ten　grams of　this　　cheese (of goat)
　　ten grams of goat cheese　　　　　　　　　　　ten grams of this goat cheese

(3) #zece grame **din** brînză (de capră)　　　　　(4) #zece grame **de** această brînză (de capră)

(5) (Cei)　trei　**litri**　　de **apă**,　　　Ion　tocmai　**i**　　　= a　　băut / *a　　băut = **o**.
(The.m.pl) three liter.**m.pl** of water.**f.sg**, John just　　　they.**m.pl** = HAVE drunk / *HAVE drunk = it.**f.sg**
John just drank (the) three liters of water (more precisely: (the) three liters of water, John just drank them).

(6) O　**apă**　　　de trei　**litri**,　　Ion　tocmai　a　băut = **o**　/ *i　　　= a　　băut.
　A.f.sg water.**f.sg** of three liter.**m.pl**, John just　　HAVE drunk = it.**f.sg** / *they.**m.pl** = HAVE drunk
John just drank a three liter water (more precisely: a three liter water, John just drank it).

(7) doi　**din** cei　　cinci litri　　de　apă　　　　(8) #doi　**de** cei cinci litri　　de apă
　　two.m of　the.m.pl five liter.m.pl of　water.f.sg　　　　two.m of the five　liter.m.pl of water.f.sg
　　two of (every/the) five liters of water　　　　　　two of the five liters of water

Two other uses of measure expressions provide evidence that we independently need an operation that maps interval-based denotations for measure expressions to individual-based denotations. First, individual-denoting measure expressions can be used by themselves, not only in pseudo-partitives – see (9). Second, a measure expression can provide the restrictor of a quantifier over individuals, as shown in (10) and (11) (naturally occurring examples, courtesy of www.google.com). The corresponding bare and quantified Romanian constructions are also felicitous. Such bare / quantified measure constructions seem to be possible only with monotonic measure expressions.

(9) Mary bought two kilograms of cherries and John already ate *one kilogram*.

(10) The Allies massed 3091 guns, or one to *every six yards of an eleven mile front*.
(11) There was a policeman *every two yards*, on both sides of the road, from one end of the town to the other.

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