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MAKING THEM NEAT (MASS NOUNS AND PLURALS)
UIUC Slavic linguistics reading group, May 12, 2025

> Dirk Stroeve flattered himself on his skill in cooking
> Italian dishes, and I confess that his *spaghetti* were
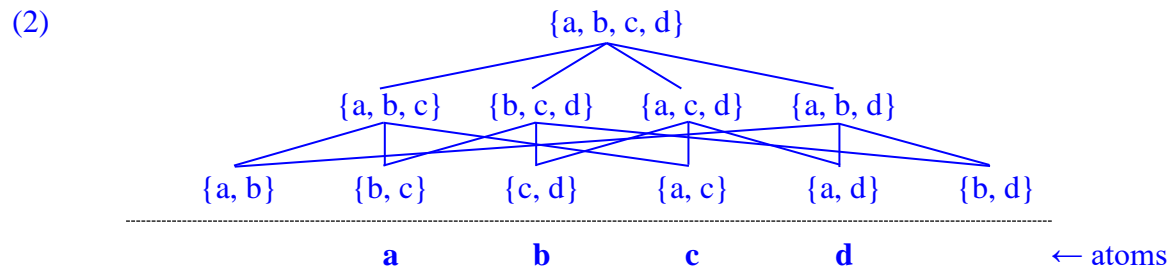> very much better than his pictures.
>
> Somerset Maugham, *The Moon and Sixpence*, 1919

1 INTRODUCTION: MASS NOUNS, THEIR DENOTATION AND UNCOUNTABILITY

Quine 1960:91: plurals and mass nouns both have cumulative reference:

(1) a. A is water and B is water; therefore, A and B together are water.
  b. A are apples and B are apples; therefore, A and B together are apples.

Link 1983, Landman 1989, etc.: plural predicates form an atomic join semi-lattice (derived via the pluralization operation, now conventionally referred to as *):

(2)
$$\{a, b, c, d\}$$

$$\{a, b, c\} \quad \{b, c, d\} \quad \{a, c, d\} \quad \{a, b, d\}$$

$$\{a, b\} \quad \{b, c\} \quad \{c, d\} \quad \{a, c\} \quad \{a, d\} \quad \{b, d\}$$

$$\mathbf{a} \qquad \mathbf{b} \qquad \mathbf{c} \qquad \mathbf{d} \qquad \leftarrow \text{atoms}$$

The denotations of mass nouns like *sand* or *flour* do not have minimal parts, but otherwise their structure (with built-in cumulativity) is the same

If counting involves access to atoms (3), mass nouns are predicted to not be countable (except on kind or package readings):

(3) $[\![\text{three}]\!] = \lambda x . |x| = 3$

(4) a. ??seven bloods
  b. five beers (= packages of beer)   package reading
  c. three wines (= sorts of wines)   sub-kind reading

Reason: either they have no atoms at all (Link 1983, Landman 1989, 1991) or their only non-vague atom is the entire kind (Chierchia 1998)

Problem: some mass nouns do have minimal parts (henceforth, **neat mass nouns**):

(5)
$$\{a, b, c\} \qquad\qquad \text{luggage}$$

$$\{a, b\} \quad \{a, c\} \quad \{b, c\}$$

$$\mathbf{a} \qquad\quad \mathbf{b} \qquad\quad \mathbf{c}$$
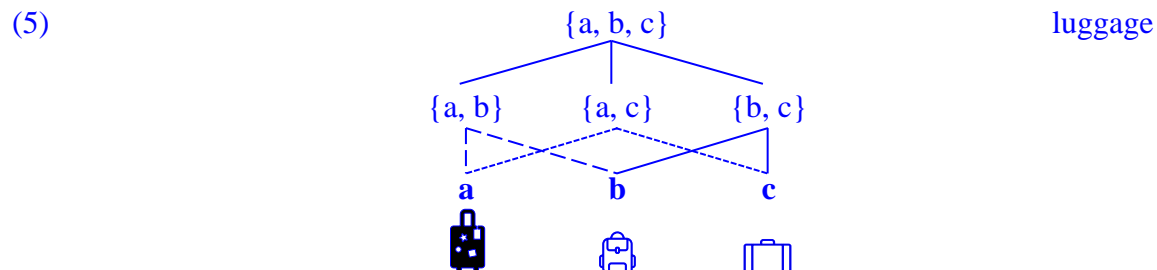
A person's luggage can consist of just their backpack

1.1 Some terminology

Issue 1: too many terms:
- ➢   count mass nouns (Doetjes 1997)
- ➢   object mass nouns (Barner and Snedeker 2005, Mihatsch 2016)
- ➢   fake mass nouns (Chierchia 2010, 2021)
- ➢   **neat mass nouns** (Landman 2011)
- ➢   **collectives** (Grimm 2018)

Issue 2: collective vs. aggregate vs. superordinate (following Joosten 2010)
- ➢   **collectives** are count (committee, army, herd…)
- ➢   **aggregates** are mass (furniture, luggage, poultry…)

I choose the term *neat mass nouns* so as to also have the complement set denotation, ***mess mass nouns***

1.2 Neat mass vs. plurals

Aggregates have the syntax of mass nouns: they cannot be pluralized or combine with cardinals

Yet it seems impossible to define how the denotation of a neat mass noun differs from that of a plural

Concepts that are encoded as neat mass nouns in one language can be encoded as count nouns in another:

(6)   a.   *linsen* 'lentils.PL' (German), *lentils* (English)   Sutton and Filip 2016
      b.   *lešta* 'lentils.SG' (Bulgarian); *čočka* 'lentils.SG' (Czech)

Or within one language:

(7)   a.   fencing/fences, hair/hairs
      b.   spaghetti/noodles

(8)   a.   *mobilia* 'furniture'   Italian (Chierchia 2010)
      b.   *mobile* 'a piece of furniture.SG', *mobili* 'pieces of furniture'
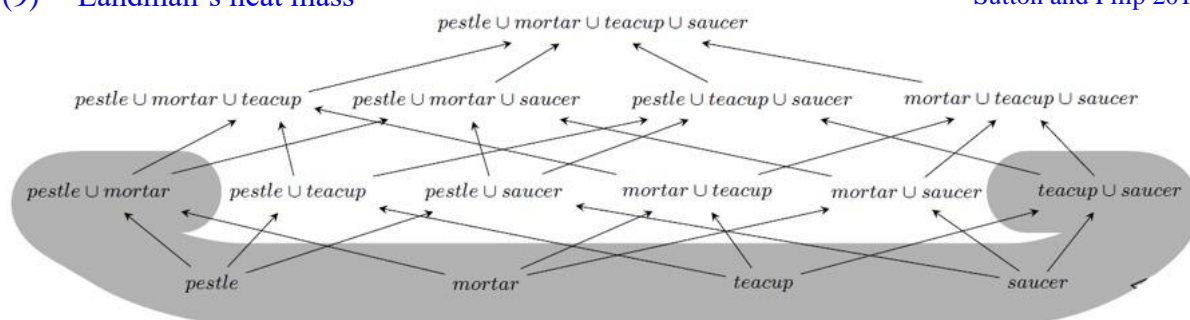
The denotation of neat mass nouns and plurals seems to be the same: cumulative reference with atoms

General reponse: **these are not good atoms** (vagueness and overlap)
See Chierchia 2010, Landman 2011, 2020, 2021, Sutton and Filip 2016, 2021

Landman 2011, 2020, 2021: the minimal parts of mass nouns overlap:

(9)   Landman's neat mass   Sutton and Filip 2016

Chierchia 1998, 2010, 2021: minimal parts of mass nouns are too vague to permit counting, so their atoms are the totality of the denotation. Neat mass nouns result from linguistic encoding of count concepts as if they contain just one atom (p.43)

Neat mass nouns derived from count bases (in Russian and in French) can be shown to have **non-vague, non-overlapping atoms**

2   ATOMS IN THE DENOTATION OF NEAT MASS NOUNS

Derived mass nouns can be shown to have atoms in their denotation when the input is count

2.1   Russian mass nouns in *-ĭj-*

The suffix *-ĭj-* (surface [ʲj], dominant post-accenting) creates neuter neat-mass nouns:
  ➢   mostly denominal
  ➢   semi-productive and pejorative for [+human] bases
  ➢   natural for disliked animals
  ➢   otherwise unproductive
For the productivity of this suffix in Russian dialects see Lopatenko 2003, Kaspshikovskaja 2013, among others

The denotation of the derivate depends on whether the base is mass or count:

(10) a.   *duračʲjó* 'fools' (cf. *durák* 'fool')   (semantically animate) neat mass
      b.   *vorʲjó* 'thieves' (cf. *vor* 'thief')
      c.   *voronʲjó* 'ravens, crows' (*vóron* 'raven', *voróna* 'crow')
      d.   *komarʲjó* 'mosquitos' (*komár* 'mosquito')
      e.   *otrébʲje* 'trash (arch.), rabble' (cranberry root)

(11) a.   *dubʲjó* 'cudgels' (cf. *dubína* 'cudgel')   inanimate neat mass
      b.   *višénʲje* 'cherries, cherry trees' (cf. *víšnʲa* 'cherry')
      c.   *belʲjó* 'linen, underwear' (from *bélɨj* 'white')
      d.   *rvanʲjó* 'tatters' (from *rvánɨj* 'torn')

(12) a.   *starʲjó* 'old stuff' (cf. *stárɨj* 'old')   inanimate mess mass
      b.   *korʲjó* 'bark stripped from trees' (cf. *korá* 'bark')
      c.   *smolʲjó* 'resinous firewood' (cf. *smolá* 'resin')

Not cluster-forming, as far as I can determine (especially for higher animates (10a–b, e))

(13), with lots of attested instances online, shows that the denotation of neat *ĭj*-nouns based on animate stems contains singular individuals:
Individual humans are not decomposable into smaller entities that can still be fools

(13) Tɨ –   duračʲjo.
      you.SG [are]   fool.ĬJ
      You're a fool.

Whether an *ĭj*-noun is interpreted as neat or mess depends on the structure of the input:
count bases yield neat mass nouns, mass bases (mess or adjectival) usually yield mess mass nouns (barring semantic drifts)
See section 5.1 for the full picture

> The suffix *-ĭj-* introduces mass/plural structure, i.e., cumulative reference

Which makes it similar or identical to **Link's (1983) *-operator**

If derived neat mass nouns have a semantic structure distinct from plurals, what is it?

Unlike Czech *i*-collectives (Grimm and Dočekal 2021), Russian -*ĭj*- nouns do not combine with cardinals, including collective cardinals:

Russian collective cardinals are required with count *pluralia tantum* nouns (like *sani* 'sleigh') and possible with animate masculine nouns (subject to a lot of variation, see Nikunlassi 2000 and other references in Corbett 2019)

(14) *semʲ/semero   duračʲj-ov/duračʲj-a
      seven/seven.COLL fools-PL.GEN/SG.GEN

In other words, **these are normal neat mass nouns** except they are derived from a count base

2.2   French mass nouns in *-aille-*

Aliquot-Suengas 2003: the French suffix *-aille-* creates (feminine) collective mass nouns:

(15) a.   fer 'iron' → ferraille 'scrap iron'
      b.   flic 'cop' → flicaille 'cops' (pejorative)

Like the Russian -*ĭj*-, *-aille-* can create mess mass nouns (and they do so just as rarely):

(16) a.   gris 'gray' → grisaille 'grisaille ; gloomy gray weather'
      b.   brume 'mist' → brumaille 'light mist'

Pejorative connotation for human-denoting nouns

Language change!

The suffix *-aille-* might be becoming purely **pejorative, with concomitant syntactic changes**

Plénat 1999 (criticizing Aliquot-Suengas' thesis): *-aille-* can create nouns that are not collective or even feminine (all classified as 'évaluatifs'):

(17) a.   flic 'policeman'
      b.   flicaille 'policeman.M' ('flic')
      c.   flicaille 'police.F' ('police')

(18) a.   copaille 'boyfriend.M' ('copain')
      b.   copaille 'homosexual.F'

(19) a.   coutaille 'knife.M' (from couteau 'knife')
      b.   Saint-Denaille 'Saint-Denis' (a city)

Once the suffix is reanalyzed as purely pejorative, it loses its gender (cf. the inanimate derivates in (19a) and (44b) below) and may be used as a count noun

Plénat (p.250) uses *une ducaille* in the text but his cited examples do not have an indefinite article

2.3   Intermediate conclusion

There is at least one suffix deriving neat-mass nouns with non-vague, non-overlapping atoms in their denotation (the Russian -*ĭj*-)

The French *-aille-* is extremely similar
Latin and Italian (section 5.4) are likely to be the same

What is then in the semantics of neat mass nouns that distinguishes them from plurals?

Is it plural morphology?

3   ON THE NON-COMPLEMENTARITY OF MASS AND MORPHOLOGICAL PLURALITY

Plural marking need not coincide with semantic plurality (obviously!):

(20)	a.	odni	sani	i	odni	štany	Russian
		one.PL	sleigh.PL	and	one.PL	trousers.PL	
		a sleigh and a pair of trousers					

	b.	solnečn-ye	Afiny	
		sunny-PL	Athens.PL	
		the sunny Athens		

Crucial here: Russian morphological plurals agree as plurals but need not have plural semantics

And there also exist plurals without plural marking:

| (21) | a. | five people (no singular) | |
| | b. | lavè 'money' (indeclinable) | Russian |

Conversely, *pluralia tantum* nouns can be both neat and mess mass (cf. McCawley 1975, Gillon 1992, Corbett 2000, Ojeda 2005, Acquaviva 2008 and Lasersohn 2011, among others:

| (22) | a. | clothes, furnishings, groceries | neat mass |
| | b. | arrears, dregs | mess mass |

| (23) | a. | *kandalɨ* 'fetters', *drová* 'firewood' | neat mass |
| | b. | *dénʲgi* 'money', *kaníkulɨ* 'school holidays' | mess mass |

None of these *pluralia tantum* nouns can combine with cardinals

But other *pluralia tantum* nouns with non-singular, non-mass denotation can:
- ➢ in Russian by a collective cardinal
- ➢ in Finnish by a plural-marked cardinal (Karlsson 2002:133, Karttunen 2006)
- ➢ English does not have these options (but it allows singular use of *pluralia tantum* nouns inside compounds, cf. Corbett 2019)

Languages differ in whether they allow counting of (some types of) *pluralia tantum* nouns:

(24)	a.	dvoe	nožnic	Russian
		two.COLL	scissors.PL	
		two pairs of scissors		

	b.	Minulla	on	kahdet	sakset.	Finnish
		me.ADE	is	two.PL	scissors.PL	
		I have two pairs of scissors.				

Plural marking and denotation are double-dissociated

Table 1: Number vs. countability

marking syntax	singular	plural
count	*stol* 'table'	*sáni* 'sleigh'
countable		*devčáta* 'girls.PL'
neat mass	*kukurúza* 'corn'	*rodnɨe* 'relatives.PL', *drová* 'firewood'

mess mass	*muká* 'flour'	*dén^jgi* 'money'

What is the difference between *sáni* 'sleigh', which allows the cardinal *odin* 'one', and *devčáta* 'girls', which does not?

(25) dvoe   devčat   Russian
     two.COLL girls.PL
     two girls

This is a standard plural form for this morphological class, there is just no singular (the form can be constructed but cannot be used)

Hypothesis: these nouns have a **deficient paradigm without a singular form**
The appropriate singular would be of the wrong gender (masculine), though this does not seem to be a problem in other cases

Other neat mass plurals cannot combine with a cardinal even when they can be shown to have non-vague atoms in their denotation:
In Russian collective numerals might be possible for (26a), I only found one example in the corpus

(26) a. *rodnɨe* 'relatives.PL' (Russian)
     b. *omwonenden* 'neighbors.PL' (Dutch)

The existence of countable (i.e., atomic) *pluralia tantum* (e.g., *sáni* 'sledge', see also Karttunen 2006 on Finnish) completes the empirical picture: the underlying denotation of an atomic set (can be counted) or of an atomic join semi-lattice (cannot) is only partially linked to plural morphology but directly connected to compatibility with cardinals.

4   NEAT MASS NOUNS AND PLURALS

Why can't neat mass nouns be counted, when their minimal units can?

(27) a. three fences
     b. *three fencing

Two issues really: counting and pluralization

Predicate view of cardinals (cf. Landman 2003): a cardinality function applied to a plural:

(28) a. $[\![\text{two hundred}]\!] = \lambda x \in D_e \,.\, |x| = 200$
     b. $[\![\text{two hundred books}]\!] = \lambda x \in D_e \,.\, |x| = 200 \wedge {}^*\text{book}\,(x)$

(28a) is predicted to be applicable to neat mass nouns

Cardinals cannot combine with **neat mass** nouns:

(29) a. five *(pieces of) furniture, three *(pieces of) luggage

     b. *sem^j klubnik-Ø/-i   c. *p^jat^j l^jud-a   Russian
         seven strawberries.SG-PL.GEN/SG.GEN   five   folk.SG.GEN

What's wrong with |luggage|?

Ionin and Matushansky 2006, 2018: **cardinals combine with quantized properties (QU)**, i.e., with properties that have in their denotation individuals of the same cardinality

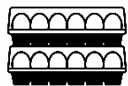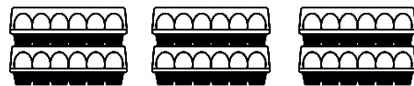I now prefer Chierchia's alternative (2010) treating atomicity as relative:
A property is atomic (AT(P)) if entities it contains are not parts of each other

(30) $[\![three]\!] = \lambda P \in D_{\langle e, t\rangle}: \mathbf{AT(P)} . \lambda x \in D_e . \exists S \in D_{\langle e, t\rangle} [\Pi(S)(x) \wedge |S| = 3 \wedge \forall s \in S \ P(s)]$
  $AT(P)$ is true iff $\forall x [P(x) \rightarrow \neg\exists y [P(y) \wedge y <_i x]]$

(31) $\Pi(S)(x)$ is true iff   partition
        S is a *cover* of x, and
        $\forall z, y \in S [z=y \vee \neg\exists a [a \leq_i z \wedge a \leq_i y]]$ (Forbidding that cells of the partition overlap ensures that no element is counted twice.)

(32) A set of individuals C is a *cover of a plural individual* X iff
        X is the sum of all members of C: $\sqcup C = X$

In normal words: **cardinals combine with atomic sets** and do the multiplication:

(33) a.   an egg   b.   dozen eggs   c.   three [dozen eggs]

Mass nouns, neat or mess, do not denote atomic properties

Proposal: the denotation of neat mass nouns is an atomic join semi-lattice (5)

Then under I&M's definition, a neat mass noun can no more be counted than a plural can!

Nor can it be pluralized: pluralization of (5) would just return (5)
Unless it yields plurals of abundance (*waters*) and emphasis (*heavens*), cf. Tsoulas 2006, Alexiadou 2011

5   CONCLUSION AND FURTHER QUESTIONS

Two main contributions of this work:

➢   neat mass nouns and counting: assuming the same atomic join semi-lattice structure for neat mass nouns and plurals is unproblematic if cardinals combine with atomic predicates (i.e., with singular count NPs) and plural marking if present is agreement rather than the locus of semantic pluralization (Ionin and Matushansky 2018)

➢   Russian *-ĭj-* nouns: the suffix is argued to contribute the same semantics as Link's *-operator, the resulting denotation is shown to include atoms if the base does

Vagueness and overlap (Sutton and Filip 2016, 2021 after Chierchia and Landman) matter for lexicalization, but neat mass nouns can be created on the basis of stable non-overlapping atoms

5.1   Russian deadjectival derivates

Denotation of the adjectival stem is probably non-atomic

Prediction (false): deadjectival derivates should only denote mess mass:

(34) a.   *starʲjó* 'old stuff' (cf. *stárɨj* 'old')   deadjectival mess mass
     b.   *sɨrʲjó* 'raw materials/stuff' (cf. *sɨrój* 'raw')
     c.   *svežʲjó* 'fresh raw materials/stuff' (from *svéžij* 'fresh')

(35) a.   *belʲjó* 'linen, underwear' (from *bélɨj* 'white')   deadjectival neat mass
     b.   *rvanʲjó* 'tatters' (from *rvánɨj* 'torn')
     c.   *malʲjó* 'small things' (from *málɨj* 'small')

Proposal: (35b-c) are neat because these adjectives are stubbornly distributive (Schwarzschild 2011), i.e., apply to atoms; (35a) is an exception (idiosyncratic interpretation)

Apparent deadjectival derivation may involve an intermediate null-derived noun:

(36) a.   Solnce   i   sinʲ,   **zelen-ʲj-o**   šelestʲaščee   počkoj…   γ
            sun   and blue.NMLZ green-ĬJ-SG.NOM rustling.NSG bud.INSTR
            The sun and the blue, plants rustling their buds…

      b.   A   doktoram   vsegda   respekt!!! i   **zelen-ʲj-o**.   γ
            and doctors.DAT always   respect   and green-ĬJ-SG.NOM
            And doctors should always have respect! And greenbacks.

      c.   studenčeskoe **zelen-ʲj-o**   ne […] bylo priveredlivim v plane edɨ   γ
            student.ADJ green-ĬJ-SG.NOM NEG   was picky   in plan food.GEN
            It's not that green students were particularly picky about food.

The neologism in (36a) could be derived from *zelenʲ* 'greenery', and (36b), from the slang null-derived deadjectival pluralia tantum *zelʲónɨe* 'greenbacks' (literally, *green ones*). (36c) is not explained

5.2   Event nominalizations

The suffix *-ĭj-* in event nominals (which Chierchia 2010 regards as neat mass) is historically identical to the neat-mass *-ĭj-*

However, it is pre-accented and has an *-ij-* allomorph, which the neat-mass *-ĭj-* does not

(37) a.   *britʲjó* 'shaving' (cf. *britjʲ* 'to shave')   action
      b.   *štópanʲje* 'darning' (cf. *štópatʲ* 'to darn')   result

Babby 1993, 1997, Sadler, Spencer and Zaretskaya 1997, Rappaport 2001, and Pazelskaya and Tatevosov 2008: **event nominalizations** are derived by the combination of the passive past participle suffix (three surface allomorphs: *-n-*, *-en-* and *-t-*) and the suffix *-ĭj-/-ij-*:

(38) a.   ot-   kry-   v-   **a-**   n-   ij-   e   -n-
            PRFX cover IMPV TH PPP ĬJ   NOM
            opening

      b.   ot-   kry-   t-   ij-   e   -t-
            PRFX cover PPP ĬJ   NOM
            discovery

      c.   ot.noš-   en- ij-   e   -en-
            PRFX.carry.TH PPP ĬJ   NOM
            relation, attitude

Thus this *-ij-* is an allomorph of *-ĭj-* (37), but sometimes there is a difference in meaning:

(39) a.   proščánie ← *proščátʲ* 'to forgive' (imperfective)
            the process of forgiving

      b.   proščánie ← *proščátʲsʲa* to say goodbuy' (imperfective)
            the process of saying farewell

      c.   proščánʲje
            farewell

(40) *pečénʲje* 'cookie(s)', *pečénie* 'the process of baking' ← *pečʲ* 'to bake'

Special meanings can appear in both types of derivations

5.3   Locative and PP nominalizations

Non-final stress also characterizes PP-based *-ĭj-* nominals:

(41)   a.   *bezvódʲje* 'lack of water, aridity' (from *bez* 'without' and *vodá* 'water')
         b.   *primórʲje* 'seaside' (from *pri* 'by, next to' and *móre* 'sea')
         c.   *poxmélʲje* 'hangover' (from *po* 'along, post (i.e., after)' and *xmelʲ* 'inebriation')
         d.   *privólʲje* 'free space, freedom' (from *pri* 'by, next to' and *vólʲa* 'freedom')

Numerous pattern, probably not exactly productive

Locative nouns (small closed class):

(42)   a.   *nizóvʲje* 'the lower reaches (of a river)' (from *niz* 'bottom')   locations (count)
         b.   *ploskogórʲje* 'table land' (from *plóskij* 'flat', *gorá* 'mountain')
         c.   *verxóvʲje* 'upper reaches (of a river)' (from *verx* 'top')

Most of these nouns are not count

The locative ones are based on specific locations and are themselves referential

Hypothesis: cumulative semantics over loci (points, vectors, or regions)

5.4   Some other derived collectives

Magni 2018: the **Latin** *-alia-* (the source of the French *-aille-* and the Italian *-aglia-*) is similar to similative and associative plurals (creating ad-hoc categories from the base stem)

The **Italian** *-aglia-* is also pejorative, except (as Magni notes, contra the traditional description) with inanimate bases:

(43)   a.   frataglia 'bunch of monks' (cf. frati 'friars')   human count
         b.   ciurmaglia 'mob, rabble' (cf. ciurma 'galley slaves, crowd')   human neat mass
         c.   ramaglia 'tangle of twigs and small branches'   inanimate count or mass

Neologisms on the basis of proper names have similative interpretation (e.g., *prodaglia* 'nasty things related to the Italian politician Prodi'): "ad hoc categories where the referent is taken as a starting point to make inferences about further potential exemplars" (p.216)

p.217: many surnames are derived from a name + *-aglia-*, e.g., *Renzaglia* (hypothesized to come from 'Renzo and his family', *Antonaglia* 'family of the Antoni', etc., suggesting similarity to associative plurals

Plénat 1999:261 points out the existence of the derived **French** suffix *-caille-*, which attaches to the root (inside nominalizing suffixes):

The masculine *-ail-* in (44b) is an unproductive suffix, Plénat lists *bétail* 'cattle', *foirail* 'fair or market square', *frontail* 'bridle', and *portail* 'portal'

(44)   a.   poisson 'fish.M'
         b.   poiscail 'fish.M'
         c.   poiscaille 'fish.M' ('poisson', i.e., not necessarily collective)
         d.   poiscaille 'fish.F.COLL' ('ensemble de poissons')

(45)   a.   buffecaille 'buffet.M' ('buffet')
         b.   Biscaye 'Bicêtre' (a town)
         c.   Franchecaille 'Frenchman' ← français 'French, Frenchman'
         d.   fiscaille 'rope' ← ficelle 'rope'

Strictly slang or colloquial, most probably derived via *secretion* (Haspelmath 1995): reanalysis of part of the root as part of the affix

The existence of the purely pejorative *-[c]aille-* makes it difficult to estimate whether nouns derived with *-aille-* have atoms in their denotation

And Russian has a non-productive feminine counterpart of the suffix *-ĭj-* (most likely, borrowed from French, except for (46a)), exx. from Švedova 1980:203:

(46) a.   brat 'brother (in a monatery)' → bratija 'brethren'

      b.   pioner 'pioneer; member of the Soviet pioneer organization'
              → pionerija (coll.) 'the Soviet pioneer organization members'

      c.   inženerija 'engineers', rabkorija (obs.) 'working correspondents', selʲkorija (obs.)
              'village correspondents', aristokratija 'aristocrats', intelligencija 'intelligentia',
              etc.

Švedova 1980:203 also notes pejorative aggregate feminine nouns in *-nʲa-*, such as *matrosnʲa* 'sailors', *rebʲatnʲa* 'kids', etc.

The aggregate reading obtained with these two suffixes is most likely derived (they also create abstract nouns)

5.5   On mass uses of plurals

Geist 2024: plurals denoting foodstuffs may have apparent mass syntax, e.g., combining with *viel* 'much', along with *viele* 'many' and with unit classifiers:

(47) a.   Kretakuchen aus   weißem Mehl   mit   viel   Rosinen
              Crete cake   from   white   flour with   much   raisins
              Crete cake from white flour with lots of raisins

      b.   Der   Gewinn   waren zwei   Stück   Zwiebeln.
              the   profit   were   two   item   onions
              The gain was two onions.

Which means that even pluralized NPs might have divisive denotation

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