Developing a resource for *-ance* nouns, and related verbs and adjectives

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Abstract

This article introduces the AdVeNance[1] resource, which includes 112 French nouns ending in -ance (Nance) (e.g. *résistance* 'resistance'), extracted from Lexique3 (New et al. 2001), and their related verbs and/or adjectives, and how it enabled us to verify the Extended Boundedness Hypothesis, an enlarged version of the Boundedness Hypothesis (Jackendoff, 1991).

We describe the procedure we followed to extract relevant data from Lexique3 and the tests we used to pair Nance with their relevant bases. The correlation between the mass/count properties of Nance, the (a)telicity of the related verbs, and the open/closed scale of the related adjectives is then discussed in detail.

Our results show that over 90% of Nance are mass. Mass Nance are mostly related to stative verbs and unbounded adjectives, in line with the Extended Boundedness Hypothesis. As for count Nance, all are related to telic verbs, but a significant number of them are unexpectedly paired with non-degree (vs bounded) adjectives. Therefore, the EBH is only partially confirmed by count Nance.

So as to expand AdVeNance, we began to examine nouns in *-ence* (Nence, e.g. *préférence* 'preference'). A preliminary analysis of these nouns and their verbal bases reveals that, similarly to Nance, most Nence are mass, and most of mass Nence derive from stative verbs.

1 Introduction

French *-ance* nominals (Nance) constitute a relatively small but most interesting noun class, since they can be related to verbs (1a), adjectives (1b) or both (1c) (Dal & Namer 2010, Knittel 2016).

(1) a. *appartenance*$_N$ / *appartenir*$_V$ 'belonging' / 'to belong'
b. *constance*$_N$ / *constant*$_{Adj}$ 'consistency', 'steadyness' / 'constant'
c. *abondance*$_N$ / *abonder*$_V$ / *abondant*$_{Adj}$ 'abundance' / 'to abound' / 'abundant'

As a consequence, they constitute a useful set of data to study the possible semantic relationship between three categories. In particular, they allow to check an extended version of the Boundedness Hypothesis (Bach, 1976; Mourelatos, 1978; Jackendoff, 1991; Brinton, 1998), which takes into account not only nouns and verbs, but also adjectives.

There is a broad agreement in the linguistic community that each category prototypically conveys a certain type of meaning. Verbs would then denote eventualities, nouns entities and adjectives properties. Each of these concepts is in turn characterized by a typical semantic property. Verbs fall into aspectual classes; nouns can be mass or count, and adjectives, when gradable, are either bounded or unbounded.

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In its original version, the Boundedness Hypothesis (Bach, 1976; Mourelatos, 1978) predicts a parallelism between verbal and nominal properties. More specifically, it predicts that mass nouns, as describing unbounded entities, should be related to atelic verbs, that describe unbounded events; conversely, count nouns parallel telic verbs, both describing bounded entities.

The Extended Boundedness Hypothesis, that we propose here, adds adjectives (Paradis, 2001) to the initial hypothesis, and predicts that open-scale adjectives should be paired with mass nouns and atelic verbs, while closed-scale adjectives are paired with count nouns and telic verbs. In line with Gumiel-Molina et al. (2020), we assume that closed-scale adjectives are those having a closed upper bound, i.e. a scale with a final boundary.

This work aims at verifying empirically the Extended Boundedness Hypothesis by means of the analysis of a significant number of Nance nouns, extracted from Lexique 3, and their related verbs and/or adjectives. The annotation of these nouns, verbs and adjectives has led to the elaboration of AdVeNance, a morpho-semantic resource that will be described here.

In the following section, we describe the bases of AdVeNance; particularly, the selection of Nance (ant their related verbs and adjectives), and the annotation of their relevant properties. In section 3, we present the main results we have found. In section 4, we include a comparison between Nance and a new group of nouns, those ending in *-ence* (Nence), that we will also include in AdVeNance. Finally, section 5 summarizes our main findings and points out some questions for further research.

2 The AdVeNance resource

2.1 Aims

The aim of the AdVeNance resource is to provide a list of Nance with the semantically related verbs and/or adjectives (1), annotated according to the properties relevant to the Extended Boundedness Hypothesis: nominal countability, verbal aspect and adjectival scalarity. The resource appears as a database providing columns presenting each category and its relevant feature, as shown in Table 1.

Nouns	Countability	Verbs	Aspect	Adjectives	Scalarity
confiance	mass			*confiant*	closed-scale
persistance	mass	*persister*	state	*persistant*	open-scale
vengeance	count	*venger*	achievement		

Table 1. Sample of the AdVeNance resource.

2.2 Nance selection

The nouns that we analyzed were extracted from the resource Lexique (New et al. 2001). From a total of 244 Nance listed in Lexique, we had to discard the nouns that were irrelevant for our study. Thus, we excluded non-suffixed nouns (2a), nouns without morphological relation with verbs or adjectives (2b), nouns build on other Nance by prefixation (2c), and spelling doublets (2d).

(2) Sample of discarded nouns
a. *chance* 'luck', *substance* 'substance'
b. *délinquance*$_N$ 'delinquency' > *délinquant*$_N$ 'offender'
c. *auto-surveillance* 'self-surveillance' > *surveillance* 'surveillance'
d. *becquetance / bectance* 'food, meal'

2.3 Matching Nance with their base(s)

The first annotation step was to pair the Nance kept at the end of the above selection with their related category in an appropriate manner, so as to discard improper pairs or triplets.
To do so, we used the tests provided in the literature. On the one hand, to identify Nance related to adjectives, we used the tests provided by Rainer (1989), Van de Velde (1995), Flaux & Van de Velde (2000), Beauseroy (2009). On the other hand, Nance related to verbs were identified using tests from Grimshaw (1990), Melloni (2007), Balvet et al. (2012), Fradin (2011, 2012, 2014), Kerleroux (2012).

In doing so, we were led to check if the formal closeness between Nance and the potential verbal or adjectival basis reflected a regular semantic pattern, which was not always the case. For example, *ambiance* 'atmosphere' does not react in the appropriate manner to the above tests, and cannot be easily related to *ambiant*$_{Adj}$, 'ambient', 'surrouding'[2]. That is why we choose to discard this pair and similar ones.

Another necessary step, as far as adjectives are concerned, was to identify and eliminate forms that behave rather as present participles or as nouns. For example, in the case of *gérance* 'stewardship', the potential base *gérant* does not qualify as an adjective, but either as a noun or as the present participle of *gérer* 'to manage'.

At the end of this stage, we gathered a list of 112 nouns, among which 72 are related to verbs, 97 to adjectives, and 56 to both, as shown in Table 2.

Nance [112]	Related to V	Non-related to V	Total
Related to Adj	56	41	97
Non-related to Adj	16	—	
Total	72	41	

Table 2. Distribution of Nance and their related categories

The availability of triplets (N/V/Adj) confirmed previous observations (Dal & Namer, 2010; Knittel, 2016), that Nance can be related to verbs and/or adjectives. Although in a reduced number, the nominals of the AdVeNance resource constitute a reliable list of nouns paired with their related verbs and/or adjectives.

2.4 Annotation

After the matching of the 112 Nance with their corresponding verb and/or adjective, we proceeded to the examination of their relevant characteristics, namely mass/count opposition for nouns, aspect for verbs and scalarity for adjectives.

The mass/count distinction was annotated following a methodology similar to that of Dugas et al. (2021), mostly applying the same tests. Unlike mass nouns, count nouns accept plurals (3a), count quantifiers (3b) and definite numerals (3c). On the other hand, unlike count nouns, mass nouns allow partitive articles (4a), as well as modification by intensifiers (4b).

(3) *table* ‘table’
  a. *tables* ‘tables’
  b. *plusieurs tables* ‘several tables’
  c. *trois tables* ‘three tables’

(4) *joie* 'happiness'
  a. *de la joie* ‘lit. of the happiness’
  b. *beaucoup de joie* ‘a lot of happiness’; *une joie intense* ‘an intense happiness’

On the other hand, verbs have been annotated with respect to the four Vendlerian classes (states, activities, accomplishments and achievements). As illustrated in Table 3, these four classes are characterized by means of three features: dynamicity, telicity and duration. Thus, states are the only verbs denoting non-dynamic situations; both states and activities are atelic, while accomplishments and achievements are telic; as for achievements, they are the only verbs denoting punctual (i.e. non durative) situations.

[2]The definitions found in the CNRTL (https://www.cnrtl.fr) confirm this discrepancy.
AMBIANT: Qui entoure ou circule autour, qui environne. [Engl. *ambient, surrouding*]
AMBIANCE: Qualité du milieu (matériel, intellectuel, moral) qui environne et conditionne la vie quotidienne d'une personne, d'une collectivité. [Engl. *atmosphere*]

	Dynamicity	Telicity	Duration
State	–	–	+
Activity	+	–	+
Accomplishment	+	+	+
Achievement	+	+	–

Table 3. Aspectual features of the Vendlerian verb classes.

Regarding the annotation of verbs, we used a battery of standard aspectual tests (Dowty, 1979), following a general procedure as the one described in Balvet et al. (2012).

States (*préférer* 'to prefer'), unlike dynamic predicates, are not compatible with the progressive form *être en train de* 'to be V-ing' (5a), and are not good answers either to questions of the type – *Que s'est-il passé hier?* 'What happened yesterday?' (5b).

(5) States
- a. **Il est en train de préférer les bettes.* lit.: 'He is preferring chard.'
- b. *– Que s'est-il passé hier?* 'What happened yesterday?'
  **– Il a préféré les bettes.* lit.: – He preferred chard.'

Atelic predicates are only compatible with *for x time* modifiers (6a), while telic predicates are compatible with *in x time* modifiers (6b). For similar reasons, telic predicates combine with expressions such as 'to take x time to V' (6c).

(6) Telic vs atelic predicates
- a. *Il s'est promené {pendant/*en} trois heures.* 'He walked {for/*in} three hours.'
- b. *Elle a réparé la voiture en trois heures.* 'She repaired the car in three hours.'
- c. *Il m'a fallu trois heures pour réparer la voiture.* 'It took me three hours to repair the car.'

Finally, among telic predicates, achievements are not compatible with the aspectual semi-auxiliaries *continuer* 'to keep on' or *arrêter* 'to stop' (7).

(7) **Marie a {continué/arrêté} de trouver le vaccin.*
'Marie {continued/stopped} to find the vaccine.'

All these tests are summarized in Table 4, which illustrates the way we have used them so as to assign aspectual classes to verbs.

	State	Activity	Accomplishment	Achievement
Progressive	–	+	+	–
What happened	–	+	+	+
for x time	+	+	–	–
in x time / take x time	–	–	+	+
keep on	+	+	+	–
stop	–	+	+	–

Table 4. The behavior of aspectual classes according to a battery of tests.

Finally, adjectives have been examined with respect to gradability and scalarity. The first distinction bo be made is between degree and non-degree adjectives (8a): only the former accept modification by *très* 'very' and similar adverbials (Paradis, 2001). After that, we distinguished, among degree adjectives, those encoding open scales from those encoding closed scales (Kennedy & McNally, 2005). Following standard views (Kennedy & McNally, 2005), we used diagnostics oriented towards upper bounds and others oriented to lower bounds. Thus, for example, closed upper bounds accept modification by *complètement* 'completely' (8b), while closed lower bounds accept

modification by *légèrement* 'sightly' (8c). However, according to EBH, we assume that bounded (or closed) adjectives are those having a closed upper bound. On the other hand, open-scale adjectives, unlike closed-scale ones, accept diagnostics on comparison (8d-e).

(8) a. *très petit* 'very small' ; **très mortel* 'very mortal'
b. *{complètement / légèrement} transparent* 'completely / slightly transparent'
c. **{complètement / légèrement} étranger* 'completely / slightly foreign'
d. *Marie est grande pour une enfant de neuf ans.* 'Marie is tall for a nine year old girl.'
e. *Par rapport à son ami, Marie est grande.* 'Compared to her friend, Marie is tall.'

3 Results

Our first result concerns the number of unbounded items in the three categories under examination. We noticed indeed a significant proportion of mass nouns (103/112) (9a), atelic verbs (62/72), among which 54 are stative) (9b), and unbounded adjectives (72/97 upper open) (9c).

(9) a. *élégance* 'elegance'; *connaissance* 'knowledge'; *méfiance* 'distrust', 'suspicion'
b. $consister_{Stative}$ 'to consist'; $dominer_{Stative}$ 'to dominate' vs. $croître_{Dynamic}$ 'to grow'; $errer_{Dynamic}$ 'to wander'
c. *arrogant* 'arrogant'; *important* 'important'; *répugnant* 'disgusting'

This provides a first confirmation of the accuracy and coverage of the Extended Boundedness Hypothesis. The following sections describe our results in more details.

3.1 Deverbal Nance and their corresponding verbs

The distribution of the aspectual properties of verbs with respect to the countability of Nance are shown in Table 5.

		Verbs					
Nouns [72]		Telicity			Aspectual class		
Mass	63	Atelic	62	98.4%	State	54	85.7%
					Activity	8	12.7%
		Telic	1	1.6%	Achievement	1	1.6%
Count	9	Atelic	0	0%			
		Telic	9	100%	Achievement	7	77.8%
					Accomplishment	2	22.2%

Table 5. Aspectual properties of verbs related to Nance.

The data in Table 5 clearly confirm that the overwhelming majority of mass Nance (98.4%) are related to atelic verbs (10a), which is in line with Balvet et al. (2012). More precisely, we notice that 85,7% of these atelic verbs are stative (10b), an observation also made by Fábregas & Marín (2017) for Spanish. Conversely, the verbs related to count nouns are systematically telic (11). These results clearly confirm the Boundedness Hypothesis as far as nouns and verbs are concerned.

(10) a. *assistance* 'assistance' > *assister* 'to assist'; *ignorance* 'ignorance' > *ignorer* 'to be unaware'; *maltraitance* 'abuse'> *maltraiter* 'to abuse'
b. *dominance* 'dominance' > *dominer* 'to dominate'; *gouvernance* 'governance' > *gouverner* 'to govern', 'to rule'; *nuisance* 'nuisance', 'disturbance' > *nuire* 'to harm', 'to affect'

(11) *délivrance* 'delivery', 'deliverance' > *délivrer* 'to issue', 'to set free'; *soutenance* 'defense (of a thesis)' > *soutenir* 'to defend (a thesis)'; *vengeance* 'revenge' > *(se) venger* 'to retaliate'

3.2 Deadjectival Nance and their corresponding adjectives

Table 6 presents the distribution of degree and scalar properties of adjectives with respect to the countability of Nance.

Nouns [97]		Adjectives		
Mass	91	Non-degree	9	9,89%
		Unbounded	72	**79.12%**
		Bounded (upper)	10	10.98%
Count	6	Non-degree	5	**83.3%**
		Unbounded	0	0%
		Bounded (upper)	1	16.7%

Table 6. Scale properties of adjectives paired with Nance.

According to the Extended Boundedness Hypothesis, we should find unbounded adjectives in relation with mass nouns, and bounded adjectives related to count nouns. Table 6 shows that this prediction is not completely borne out. On the one hand, 79.12% of mass nouns are related to unbounded adjectives (12), while there is no count nouns related to an unbounded adjective, in line with the Extended Boundedness Hypothesis. However, count nouns are mostly paired with non-degree adjectives (13a), where bounded adjectives were expected (13b). This result, although unexpected and in need of closer analysis, has to be weighed against the reduced number of count nouns paired with adjectives (6/97).

(12) *abondance* 'abundance' > *abondant* 'abundant'; *endurance* 'endurance' > *endurant* 'enduring'; *répugnance* 'disgust' > *répugnant* 'disgusting'

(13) a. *naissance* 'birth' > *naissant* 'nascent'; *renaissance* 'revival' > *renaissant* 'reviving'; *suppléance* 'replacement', 'substitution' > *suppléant* 'substitute'
b. *défaillance* 'failure' > *défaillant* 'defective'

3.3 Nance related with verbs and adjectives

Finally, Table 7 sums up the properties of Nance related with both verbs and adjectives, and confirms our previous results.

Nouns [56]		Verbs			Adjectives		
Mass	52	Atelic	51	**98%**	Non-degree	10	19.6%
					Unbounded	37	**72.5%**
					Bounded	4	7.8%
		Telic	1	2%	Unbounded	1	100%
Count	4	Atelic	0	0%			
		Telic	4	**100%**	Non-degree	3	**75%**
					Bounded	1	25%

Table 7. The properties of verbs and adjectives related with Nance.

As before, we observe that mass nouns are mostly paired with atelic verbs and unbounded adjectives (14a), while the few count nouns that we have found are paired with telic verbs and non-degree adjectives (14b). In the latter case, however, the reduced number of examples prevents us to draw a firm conclusion. Similarly, the unavailability of count nouns related to atelic verbs is an interesting result, corresponding to our expectations. However, no strong conclusion can be drawn from such a number of cases.

(14) a. *condescendance* 'condescendance' > *condescendre* 'to condescend' / *condescendant* 'condescending'; *médisance* 'slander' > *médisance* 'slander' / *médisant* 'slandering'

b. *naissance* ‘birth’ > *naître* ‘to be born’ / *naissant* ‘nascent’; *suppléance* ‘replacement’, ‘substitution’ > *suppléer* ‘to substitute’/ *suppléant* ‘substitute’

4 A comparison with Nence

As a further step, we began to expand AdVeNance by also including nouns ending in *-ence* (Nence), that stand in the same relation with verbs and adjectives as Nance, as shown in example (15).

(15) a. *préférence*$_N$ / *préférer*$_V$ ‘preference’ / ‘to prefer’
b. *éloquence*$_N$ / *éloquent*$_{Adj}$ ‘eloquence’ / ‘eloquent’
c. *négligence*$_N$ / *négliger*$_V$ / *négligent*$_{Adj}$ ‘negligence’, ‘carelessness’ / ‘to neglect’ / ‘negligent’, ‘careless’

From the 212 Nence extracted from Lexique3, we discarded nouns that are not paired with verbs or *-ent* adjectives (*conférence* 'conference') and prefixed nouns (*incohérence* 'inconsistency', from *cohérence* 'consistency'), similarly to what we did for Nance. The few Nence referring to concrete objects (cf. *semence* 'seed') were also eliminated. We finally obtained a list of 109 forms related to verbs (15a), adjectives ending in *-ent* (15b) and both (15c), as displayed in Table 8.

Nence [109]	Related to V	Non-related to V	Total
Related to Adj	23	80	103
Non-related to Adj	6	—	
Total	29		

Table 8. Distribution of Nence and their related categories

Table 8 shows that most Nence are related to adjectives (103/109), whereas verbs are less represented (29/109, among which 6 Nence paired with verbs only). By contrast, we found 97 Nance related to adjectives, 72 to verbs and adjectives, and 16 to verbs only, on a total of 112 nouns (see Table 2).

Regarding the relevant semantic features of each category, we have for now completed the annotation process for both nouns and verbs, but we do not yet have gathered all the data for adjectives.

In the case of nouns, we observed a prevalence of mass nouns (99/109), which was also the case for Nance. Similarly, verbs, although less represented for Nence than Nance, are mostly stative (25/29).

Table 9 provides a comparison of the distribution of nominal countability and verbal aspect for Nence and Nance.

	Features	Nence (109)	Nance (112)
Nouns	Mass	99 (90,82%)	102 (91,07%)
	Count	10 (9,17%)	9 (8,03%)
Verbs	**Total**	**29 (100%)**	**72 (100%)**
	State	25 (86,2%)	54 (75%)
	Activity	2 (6,9%)	8 (11,11%)
	Accomplishment	—	2 (1,78%)
	Achievement	2 (6,9%)	8 (11,11%)

Table 9. Comparison of the properties of Nance and Nence and their related verbs.

These data lead us to conclude that Nance and Nence, as well as their related categories, display similar characteristics. In both cases, we observe a predominance of mass nouns and stative verbs. Thus, unboundedness is a consistent pattern of at least two of the categories involved.

Although more research is needed to examine thoroughly the relations between the mass/count properties of Nence and the aspectual properties of their related verbs on the one hand, and the

gradable / scalar properties of their related adjectives on the other hand, we can conclude that the two sets of data we examined tend to confirm the Extended Boundedness Hypothesis.

5 Concluding remarks and further research

The AdVeNance resource contains 112 Nance associated with their corresponding verbs and/or adjectives. All its items are annotated for the features prototypical to their category: mass/count for nouns. lexical aspect for verbs, scalarity for adjectives. The results provided by the annotation evidence that mass nouns are mostly related with atelic verbs and/or unbounded adjectives, thus confirming the Extended Boundedness Hypothesis (Bach 1976, Mourelatos 1978, Paradis 2001). Although we do not have a full picture of Nence and their related verbs and adjectives yet, the first results we obtained seem to point in the same direction.

The next step of the AdVeNance project is to make the resource we built available to the community as a remotely interrogatable database.

As a further development, we consider comparing the properties of Nance and their related verbs and adjectives with their Italian and Spanish counterparts, for which similar cross-categorial relations are observed.

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