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# Pathways of evolution, contiguity and bridging contexts

**Abstract:** Semantic maps, to which Johan van der Auwera has brought a major intellectual contribution, are a representation of implicational relations in the typological domain. They have increasingly been used to chart historical evolution. They are arranged as a series of contiguous cells that define pathways of variation and change. The questions raised concern the rationale for the contiguity arrangement. It is demonstrated on the basis of novel diachronic analyses that the cells making up a semantic map should be semantic functions and that the contiguous arrangement of these functions relates to the existence of bridging contexts. Because evolution from one function to the next is made possible by bridging contexts, a specific pathway of function pairs defines the evolution of items that can only proceed between cells that share bridging contexts.

**Keywords:** language change, bridging contexts, language variation, n-word, counterfactuality

## 1 Introduction

Johan van der Auwera has significantly contributed to inform the theoretical debate about the conditions of typological and diachronic variation in grammar. His proposals have helped clarify the nature of the implicational relations that capture the extent of possible typological, synchronic and diachronic variation of grammatical items. In this contribution, we focus on diachronic change and propose an answer to the major question of the cause of ordered pathways of implicational relations. Why is there a tendency for (a family of) grammatical expressions to evolve across a series of functions in an orderly way? Why should movement verbs, deictic expressions, perfect tenses and indefinites typically

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evolve into future markers, definite articles, past tenses and negatives respectively in a number of unrelated languages? The proposal that we develop here is that such pathways of evolution exist because contiguous functions share bridging contexts. Bridging contexts enable change from one function to the next and thus explain the order of contiguous functions that shape a pathway of change. While the claim has been made before that bridging contexts play a role for language change (Traugott 2012a and references therein), it has not always been substantiated with detailed empirical mapping. This is what this paper does, by looking at two cross-linguistically well-established cases of change in French. The available quantitative evidence regarding the evolution of negative polarity items (henceforth NPIs) into negative words (n-words) and of perfect or past tenses into modal markers supports the role of bridging contexts as a condition of language change and as a determinant of the order of change from one function to the next.

## 2 Pathways of evolution, contiguity of functions and bridging contexts

A major type of language variation and change involves expressions that get associated with different functions. This conjunction of functions is not random but tends to be realized following an ordered pathway that constrains possible configurations synchronically and diachronically. Pathways of typological variation have been represented through semantic maps by Haspelmath (1997). Semantic maps are visual representations of implication relationships designed to capture typological generalizations. As an illustration, let us look at the semantic map of indefinites in Figure 1.

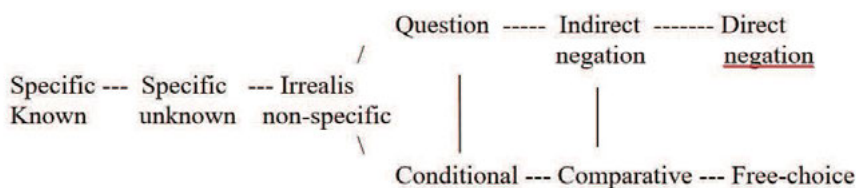


Fig. 1: Haspelmath's (1997: 64) semantic map of indefinites

The map visualizes the implication relationship constrained by the contiguity between the conjoined cells. Thus, synchronically, (families of) indefinite items that

are found in questions can also potentially be found in indirect negation, conditional clauses and *irrealis* environments. They cannot “jump” a cell and be used with direct negation, in comparatives and as a specific unknown, for instance. The contiguity condition similarly constrains diachronic evolution, even though semantic maps were not originally designed for that purpose. An item that expresses *irrealis* is expected to evolve, if it does, by going successively through the various contiguous cells in an orderly way.

The design of such maps contributes to the theoretical and empirical understanding of variation and change by raising at least two questions, regarding the nature of the cells and the condition of contiguity between them.

On the one hand, indeed, why have these particular cells been chosen? One suspects that selection is based on contexts that recur in grammatical descriptive work. Not all relevant contexts are, however, included (lexically inherent negatives, sequences commanded by *before*), and one is left wondering which should and which should not. What is more, as both van der Auwera and Van Alsenoy (2011a) and Larrivée (2011) regret, the content of the cells refers to different levels of analysis. Specific known, specific unknown and *irrealis* are semantic categories; questions, comparatives, conditionals, indirect negation and direct negation are syntactic contexts; and free-choice is both. The unfortunate result is that one use of an item could occur in two cells at the same time: specific unknown *someone* could well occur in a conditional (e.g., *if someone calls, let me know*). And the same context could host items with different interpretations: conditional can happily host specific indefinites, as we have just seen, but also negative polarity items (such as *any* in *if anyone is found on the grounds, security will be annoyed*) and, possibly, free-choice (e.g., *if you hang around with just anyone, you'll get into trouble*). More generally, the interaction between item and context is not considered. To take a fairly obvious case, negation is a licenser for negative polarity (as in the solitary attitude expressed by *I do not hang around with anyone these days*) but it can exert focus on a free-choice item (as in the exclusivity claimed by *I do not hang around with just anyone*). These considerations led van der Auwera and Van Alsenoy (2013: 31) to propose a more functional type of cell, as in Figure 2.

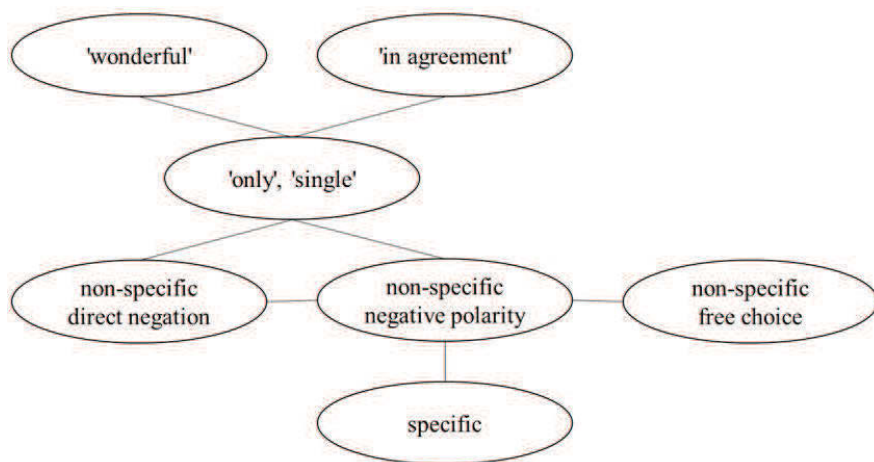


Fig. 2: van der Auwera and Van Alsenoy's (2013: 31) semantic map of *any*

Since both contexts and functions such as specific indefinite, negative polarity and n-word characterize the behavior of (a morphological family of indefinite) items, Larrivée (2011) suggests that it may be wise to map both. The functions would chart the higher-level map, complemented by a set of contexts subordinate to each. While the details of the map design need to be worked out, the idea from both proposals is that a map designed from functions might account more robustly for typological, diachronic and synchronic variation.

On the other hand, the contiguity condition deriving from implicational relationships appears as a desirable constraint on pathways of synchronic and diachronic variation. Haspelmath (1997) points out that this reveals a variation that is more limited than one might expect from a purely Saussurean arbitrary association between a phonological form and a particular meaning. However, particular arrangements might make unsupported predictions. Van der Auwera and Van Alsenoy (2011b: 335) remark that Dutch *niemand* 'no one' can be used in questions and direct negation but not with indirect negation, in contradiction to the contiguity principle. It may thus be that, while the contiguity principle is correct, the particular arrangement of cells may not be. Basing the map primarily on functions rather than contexts may help distinguish between language-specific behavior and general patterns of evolution. However, the question remains as to why contiguity of functions should constrain the evolution of items on a pathway of change. To take a concrete illustration, why do n-words such as *nothing* tend to emerge from negative polarity items such as *anything*, which themselves arise from specific indefinites such as *someone*? Why should items not jump a step and

go directly from specific indefinites to n-words, for instance? Larrivée (2003) tentatively proposes that contiguous functions share the largest number of semantic traits between them but concedes that this is a potentially circular proposal in need of empirical support. The proposal that we put forward and substantiate in this paper is that the cause of the contiguity condition between functions on a pathway of change is the existence of a bridging context that relates them. It is because there is a bridging context between NPIs and n-words that they are regularly related through variation and change. Such relations are not normally found between specific indefinites and n-words since there are no bridging contexts between them. This proposal maintains a ban on jumping over cells which constrains variation in a desirable way while explaining why things are ordered and why they are ordered in the way they are.

The notion of bridging context calls for some clarifications. It can be conceived of as an environment that is compatible with two interpretations of a given expression. Thus, expressions occurring in a bridging context provide input for new generations of speakers to reanalyze them and, as such, bridging contexts are often considered as the condition of language change. Whether the change is necessarily effected by children as the new generation of speakers is a point of some debate (see Diessel 2002 and references therein). For one thing, children do not have the sociolinguistic prestige to force actuation of change. Moreover, it is well-known that language changes during the life of speakers (Diessel 2002). But whether it is children or adults who effect the reanalysis, it seems plausible that language-internal ambiguity plays an important role in grammatical change. The different steps of ambiguity-led change have been discussed by Heine (2002), Diwald (2002) and Traugott (2012a, 2012b). We gloss over the details of the various models and of the putative relations between them to summarize the general points of agreement. It is generally assumed that an item can acquire a new meaning because it occurs in a context that allows both its conventional meaning and the new target meaning. Such contexts are known as bridging contexts because they act as bridges between source and target. A bridging context must be distinguished from a so-called switch context, which is compatible with the target meaning only, exclusive of the source interpretation. An illustration would be the interpretation of the present perfect in *I have bought the car last year*, where the temporal phrase makes it clear that a past reference (the target meaning) is at stake rather than a resultative one (the source meaning) which would require a present reference. In many cases, it is difficult to know whether the target meaning is a conventional property of the item or just a potential reading of it. The final stage of the change is one in which the target meaning is fully conventionalized.

A debate concerns the stage at which the target meaning becomes foregrounded (Heine 2002; Traugott 2012a).

It is striking that, despite the plausible nature of this model and its popularity in typological and diachronic research, little empirical support has been adduced to buttress it, although works by Diewald and a few others come to mind (e.g., Diewald 1999 on German modal verbs; Diewald and Ferrarresi 2008; Giacalone Ramat and Mauri 2009 on the temporal and adversative adverb *tuttavia*). What would prove that a context promotes change from a source to a target meaning? An experimental protocol is proposed by Cournane (2014), which is very interesting but clearly quite elaborate, and it is not clear whether it can be replicated for all changes. A replicable approach is one that examines corpus data with a quantitative method. Traugott (2012b) provides a detailed analysis of future markers developing from the movement expression *be going to*. The compatibility of both readings with a majority of contexts of use for a long period makes the precise bridging context difficult to pin down. This raises the question whether there is always a bridging context for change and whether all changes involve ambiguity between the source and target interpretation. Diewald (1999) claims that opacity of the source meaning is sufficient for change to take place. Traugott and Trousdale (2014) point out that no obvious ambiguous context comes to mind as a candidate for bridging changes in information structure value. The questions of whether all changes involve ambiguity arising from one precise bridging context could be answered confidently once a sufficient body of quantified empirical results has been brought together to characterize changes where ambiguous contexts play a definite role.

In this section, we have proposed that regular language change finds its cause in the occurrence of an expression in an ambiguous context that allows it to be reanalyzed with a new function. The grammatical changes thus mapped should correspond to the contiguous cells of the relevant semantic map, especially if the contents of cells relate to functions. Empirical evidence with respect to the role of bridging contexts in grammatical change is provided by the two following sections.

### 3 From NPIs to n-words?

In the previous section, we have suggested that the reason why grammatical items evolve from one function to the next in an orderly way is that these functions are related by a bridging context. However, the demonstration that such bridging contexts play a causal role in language change, in the cases where they

can reasonably be expected to play such a role, remains, on the whole, to be provided. This is what this section contributes to by examining critical aspects of the evolution of n-words in medieval French.

There is substantial empirical evidence in a well-documented language like French that items that became n-words like *no one* were NPIs like *anyone* in previous historical periods. This evolution is documented in a number of traditional and recent studies (e.g., Martineau and Déprez 2004; Prévost and Schnedecker 2004; Vanderheyden 2010; Ingham 2011; Kallel and Ingham 2014; Labelle and Espinal 2014). Martineau and Déprez (2004) provide quantitative data showing that the positive indefinite use of *rien*, as in (1), and *aucun*, disappears during the 17th century, that the NPI use, as in (2), varies between 10% and 30% in the medieval period and that a majority of negative uses, as in (3), is found from the 17th century onward.

- (1) *Quant la rien que ge plus amoie / Voi morte, vie que me vait?*  
‘When the *thing* that I loved most I see dead what is life worth to me?’  
(Foulet 1970: 272)
- (2) *Honnis soit ki rien lour donra.*  
‘May he be casted out he who will give them *anything*.’  
(Foulet 1970: 275)
- (3) *Il (ne) leur donne rien.*  
‘He gives them *nothing*.’

However, the chronology seems conservative in that, for instance, NPI uses are uncommon in contemporary vernacular French. This may be related to the fact that the data used come from the literary corpus Frantext. Moreover, there is no breakdown of figures per main contexts of use. Based on administrative material presumably closer to the vernacular practice than literary sources, Ingham (2011) and Kallel and Ingham (2014) provide partial quantitative information on some contexts of use of future n-words, more specifically, in conditional clauses. However, this context is chosen because it epitomizes the NPI function of items and is therefore unlikely to be the critical context that makes the change from NPI to n-word possible.

This highlights the issue of which contexts should particularly be paid attention to in the study of change from NPI to n-word. Which context can be considered as a bridging context between NPI and n-word functions? Remember that a bridging context is one which is compatible with both functions of an item, in



which therefore reanalysis can occur. In other words, a bridging context from NPI to n-word should be compatible with both interpretations of an item. Haspelmath (1997: 154) and Breitbarth (2014: 60) propose that comparatives could be the context in question. If so, one would expect comparatives to allow both for an NPI and n-word reading to occur with target expressions. However, the expected ambiguity does not seem to arise. Consider the sequences in (4) to (7) with English NPI and n-words in the equality and superiority comparatives.

- (4) *He's as good as anyone.*
- (5) *He's better than anyone.*
- (6) ?? *He's as good as no one.*
- (7) ?? *He's better than no one.*

The NPI reading is available in converging contexts (4) and (5), which contain an NPI. However, with the English n-word in (6) and (7), it is not clear whether an NPI reading is possible: if acceptable, these sentences do not assert that the person in question is better than anyone; they rather deny that they are better at all. So English shows a complementary distribution, where the NPI has an NPI reading and the n-word an n-word reading. The expected ambiguity is not provided by comparative contexts.

There is one context that does provide the expected ambiguity. It is that of a strong NPI, under the direct scope of *without* and sentential negation.<sup>1</sup> Consider (8) and (9).

- (8) *He was left without anyone to talk to.*
- (9) *He was left without no one to talk to.*

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<sup>1</sup> Following standard formal definitions, whereas weak NPIs depend on a downward entailing environment where there is an entailment from superset to set (*I didn't eat a single vegetable* entails *I didn't eat kale*). Strong NPIs depend on the more stringently defined anti-additive property such that a negation of conjoined phrases implies the conjunction of two negated sequences (*no kale or spinach was sold* entails *no kale was sold and no spinach was sold*). For more details on this, see, for instance, Krifka (1994).

The NPI reading seems available in both sequences. Although the *without no one* sequence might be frowned upon by prescriptivists, it seems prevalent enough and the attestation in (10) raises no comprehension problem.

- (10) *Have you ever ridden a bus or the train feeling bored without no one to talk to and wishing that you were listening to something good?*  
(<http://www.sampleessaytopics.info/trying-to-sell-an-ipod-essay>)

Thus, both NPIs and n-words can occur in strong polarity environments with an NPI reading. How does that fact show that an NPI can be reanalyzed as an n-word? It does so because, in that context, an NPI is indistinguishable from an n-word. An item that occurs in that context can therefore be reanalyzed as an n-word by some speakers. In (11), the item *aucun*, under the command of ‘without’ and clausal negation, can be analyzed either as a commanded NPI or as a concurring n-word.

- (11) a. *ledict suppliant a esté et est de bonne vye et renommée et s’est honnorablement gouverné, sans jamais avoir esté attainct ne convaincu d’aucun villain cas*  
‘the said suppliant is and has been of good repute and had behaved well, *without* ever having been convicted of any/no *judicial case before*’  
b. *dudit suppliant qui n’avoit jamais eu aucune dispute ne querelle avecq ledit deffunct*  
‘the said suppliant who never has had any/no dispute with the said dead man’

What is crucial is the inability, in that context, to distinguish whether one is dealing with an NPI or an n-word, making the reanalysis possible.

The question of which context bridges the two readings remains an empirical matter, however. It would be necessary to examine cases of evolution from NPI to n-word to establish whether strong NPI environments indeed play a particular role at the period of change. The expectation is that, if strong NPI contexts allow NPIs to be reinterpreted as n-words, they should be preponderant right before and during the period of change. How preponderance is to be understood is still to be established. This gap is what Kallel and Larrivée (2016) are intending to fill. This study aims to determine what the bridging context is in the evolution from NPI to n-word functions, whether it corresponds to a strong NPI context and whether this context can be demonstrated to play a preponderant role at the time of change. One way to establish such preponderance would be to determine that

there is a significantly higher rate of use of the relevant items in strong NPI contexts before they acquire a majority of n-word uses. In order to answer these questions, the study examines the evolution of contemporary French n-words. French is a well-documented language, with continuous prose material for a variety of genres since the end of the 13th century. This variety of genres allows to focus on material other than literary texts. The reason to do so is the stylistic dimension of literary genres that tends to make the language used more conservative and further removed from the immediate competence of speakers. The evolution of a new series of n-words is further known to be taking place in medieval French. One such evolution is that of *aucun* ‘no(ne)’, which goes from a specific indefinite equivalent to ‘some’ to an NPI equivalent to ‘any’ and, in a final stage, to an n-word equivalent to ‘none’ by the 17th century. Other n-words have already completed a similar evolution, like *rien* ‘nothing’ by 1300 or are yet to complete it, like *personne* ‘nobody’, which starts having n-word uses by 1700. In our study, the behavior of *aucun* was examined in a set of strictly comparable judiciary texts called remission letters. These are letters in which a culprit describes in narrative format the crime he or she has committed and asks for royal pardon against a financial payment. The document is drafted at the local level and received, finalized and archived by the Royal Chancery. This means that the language broadly reflects that of a single geographic region, i.e., Paris. Such letters were produced from the mid-14th century to the 18th century, are plentiful, dated and localized and tend to be edited without the extensive interventions that literary texts may have been subjected to, including normalization of orthography and insertion of punctuation. Groups of remission letters separated by about 50 years have therefore been looked at. The occurrences of *aucun* were extracted and each categorized as to whether it represented a specific indefinite, an NPI in weak or strong context or a pre-verbal or post-verbal n-word. Furthermore, in order to exclude formulaic sequences that might not reflect the immediate competence of speakers, strings including *aucun* that were likely to represent fixed phrases were excluded. The results are presented in Table 1.

**Tab. 1:** Evolution of functions and contexts for productive uses of *aucun* in remission letters

	Neg		NPI		Specific in- definite	Totals
	Pre-verbal	Post-verbal	Strong	Weak		
1357–1360	0	2	12	26	11	51
1422–1435	3	24	18	6	57	102
1487	2	61	49	11	126	241
1531–1532	2	35	56	3	70	169
1580–1600	0	41	91	24	16	172
1688–1783	1	9	5	1	0	16

The important pieces of information are the emergence of the preponderant n-word function and the proportion of uses in strong NPI contexts. It is not before the latest period that *aucun* most frequently functions as an n-word. That period is represented by only a small number of occurrences: the corpus of later remission letters is smaller due to the destruction of many sources at the time of the Revolution. Nonetheless, this is only a partial concern since it is independently known that *aucun* had gained n-word status by the 17th century. The crucial observation supported by a sufficient number of occurrences is that of the preponderant function at a given period. The strong NPI context represents over 50% of the 172 cases of *aucun* in the late 16th-century period. The use in the bridging context at preponderant rates obtains in the period that immediately precedes the period in which *aucun* has a majority of n-word uses.

These results are important in that they support the bridging context scenario of language change. It supports the view that the strong NPI context plays the role of bridging context between the two contiguous functions of NPI and n-words. The reported investigation shows that the bridging context represents over 50% of occurrences in the period immediately before the change. There is therefore a suggestion that the hypothesized preponderance of bridging contexts immediately before the change is the case and may be represented by a threshold of half the occurrences.

In this section, we have reported on one recent study (Kallel and Larrivé 2016) that provides empirical support for the bridging context scenario of change. The new evidence shows that the use in a bridging context is preponderant just before a change occurs. Of course, more data is needed to confirm this. If confirmed, the results help resolve a mystery about grammatical variation, as underlined by semantic maps, which is why evolution occurs along an orderly pathway

of functions. Change occurs from one function to the next without a jump because pairs of functions are related to one another by specific bridging contexts that do not relate non-adjacent functions. Whether bridging contexts can be demonstrated for other types of change is pursued in the next section.

## 4 From perfect/past to counterfactuality

Another well-known case of semantic variation exhibited by grammatical items is that of perfect/past markers which may also express modality. Indeed, in many languages, it is the same markers that give a perfect viewpoint on a situation or refer to the past and, in parallel, convey a modal attitude toward the speech content or toward the hearer (hypothesis, counterfactuality, politeness, suggestion and so on). Examples (12) to (15) are a few illustrations from English.

(12) *If I won the lottery, I would travel the world.*

(13) *I wish he had invited me to his birthday.*

(14) *I wanted to ask you a favor.*

(15) *It's high time we came back home.*

This functional variation is well-documented cross-linguistically (e.g., James 1982; Fleischman 1989; Thieroff 1999; Iatridou 2000; Van linden and Verstraete 2008) but barely diagrammed by means of semantic maps (but see Patard 2014 for the modal uses of preterits and imperfects). We would like to argue that the two types of functions are not randomly conjoined across languages but that they are historically connected by bridging contexts allowing for semantic reanalysis. The existence of bridging contexts also attests to the fact that the connection between the two functions follows an orderly pathway from tense/aspect to modality and not the other way round (see also Patard 2014). In the section, we focus on one specific type of such functional variation: perfect or past markers meaning counterfactuality. Bridging contexts between these semantic functions will be evidenced by historical data concerning one verbal tense from French: the so-called *conditionnel passé*.

The *conditionnel passé* is morphologically the perfect version of the conditional tense, which is etymologically an alethic<sup>2</sup> periphrasis conjugated in the imperfect tense (Benveniste 1974; Bourova 2005). Originally, the conditional tense – and therefore its perfect version, the *conditionnel passé* too – expresses two distinct functions (Patard 2017): a future-of-the-past function (in indirect speech) – the situation lies in the future of a past moment (generally expressed by a *verbum dicendi*) – and a hypothetical function – the speaker does not specify whether the situation is true or false ('neither p nor non-p'). Hence, the *conditionnel passé* may express the anteriority of a future-in-the-past situation, as in (16), or of a hypothetical situation, as in (17).

- (16) *Je me dis ... qu'elle ne pourrait plus rien exiger quand je l'aurais replacée au milieu de sa famille.*

'I told myself ... that she would not demand anything when I *had put* her within her family.'

(B. Constant, 19th century)

- (17) *Si cette clef ne quittait jamais Mlle Stangerson, l'assassin aurait donc attendu Mlle Stangerson cette nuit-là, dans sa chambre, pour lui voler cette clef.*

'If this key never left Miss Stangerson, then the murderer *would have waited* for Miss Stangerson this very night, in her room, to steal the key.'

(G. Leroux, 20th century)

However, in Modern French, the *conditionnel passé* further conveys counterfactuality: the denoted situation is contrary-to-facts; it cannot be helped anymore ('non-p'). This reading, which has become by far the most frequent in Modern French, is obtained, for instance, in if-sentences, as in (18), or with a modal verb, like deontic *devoir* in (19).

- (18) *Si je m'étais obstiné à aller à Rome, j'aurais perdu Milan.*

'If I (had?) persisted to go to Rome, I *would have lost* Milan.'

(B. Napoléon, 19th century)

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2 According to Bourova and Tasmowski (2007: 28–29), the Latin periphrasis *INF + habere* conveys alethic necessity *lato sensu*, i.e., a logical necessity: the situation is necessarily the case in whatever possible world. Its meaning is close to that of the English construction *be to + INF*.

(18) *J'aurais dû fuir, je n'osais pas.*

'I *should have* run away, (but) I did not dare to.'

(G. Bernanos, 20th century)

A closer examination of the synchronic data confirms what van der Auwera and Van Alsenoy (2011b, 2013) and Larrivée (2011) recommend for the mapping of grammatical variation, i.e., that it should primarily rely on functional variation and not on syntactic contexts. Notably, we may observe that the two epistemic interpretations of the *conditionnel passé* (hypotheticality and counterfactuality) share common syntactic contexts: they may both occur in conditional sentences but also in combination with modal verbs. Indeed, the hypothetical reading is also possible with a modal verb, like epistemic *pouvoir* in (20), in contexts where the speaker ignores the reality status of the situation.

(20) *Cet œil n'appartenait pas non plus à Alain Kernoul, comme Hervé aurait pu le croire.*

'This eye does not belong either to Alain Kernoul, as Hervé *might have thought*.'

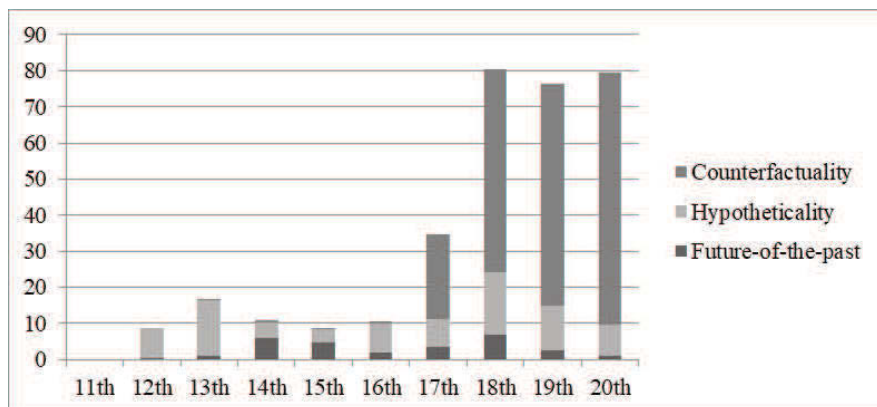
(F. Du Boisgobey, 19th century)

These facts suggest that syntactic contexts are not always relevant to map grammatical variation. If we were to draw the semantic map of the *conditionnel passé*, the distinction between the use in conditional sentences, the use with modal verbs and the use in other contexts would not be discriminative. The map would rather rely on semantic functions: future-of-the-past, hypotheticality and counterfactuality.

The evolution of the *conditionnel passé* further raises the question of diachronic variation: how can a perfect (conditional) tense turn into a counterfactual marker? Was this evolution conditioned by bridging contexts? A quantitative study of a diachronic corpus (Patard, Grabar and De Mulder 2015) allows us to trace the semantic evolution of the *conditionnel passé*, as in Figure 3.<sup>3</sup>

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<sup>3</sup> The corpus covers the period from the 11th century to the 20th century and is composed of 152 texts (literary for the most part) distributed into ten sub-corpora representing each century. The whole corpus numbers almost 9.8 million words (see Patard, Grabar and De Mulder 2015 for more details).



**Fig. 3:** Evolution of the semantic functions of the *conditionnel passé* (normalized frequency per million words)

The data show that the counterfactual reading was possible in quite an early period, from the 13th century, only one century after the first attestations of the *conditionnel passé*. At that time, the counterfactual reading was extremely rare, though, the main interpretations being those of anterior future-of-the-past and anterior hypothetical marker – see (16) and (17). The counterfactual interpretation only expanded from the 17th century, yielding a sweeping rise in frequency (from around ten occurrences per 100,000 words to more than 75 occurrences per 100,000 words after the 17th century).

We may consider that bridging contexts exist since the 13th century when the hypothetical *conditionnel passé* starts licensing a counterfactual interpretation (even if this is sporadic until the 17th century, as mentioned before).<sup>4</sup> In these bridging contexts, the *conditionnel passé* is a hypothetical marker – it says nothing about the reality status of the hypothesized situation (‘neither p nor non-p’) – which gives a perfect viewpoint that usually gives rise to an anteriority interpretation – the situation is anterior to another situation given in the context. Counterfactuality may then be expressed by contextual items which specify the epistemic status of the hypothetical situation as being contrary-to-facts (‘non-p’). Thus, in earlier texts, we typically find the use of pluperfect subjunctives in the protasis, such as *eust été* in (21).

<sup>4</sup> The future-of-the-past *conditionnel passé* found in indirect speech contexts is not concerned by the semantic change.



- (21) *Si lui dirent li pluseurs que, SE il eust esté au païs, que cil de l'Escorta n'auroient fait ce que il firent.*

'Thus, most of them told him that IF he *had been* in the country, men from Escorta *would not have done* what they did.'

(Anonymous, *Chroniques de la Morée*, 14th century)

But, crucially, counterfactuality is the result of a reinterpretation of the *conditionnel passé* that is induced by the context. This reading is brought by two successive inferences: (i) a past entailment and (ii) a counterfactual implicature.

First, the perfect aspect of the *conditionnel passé* entails past when it refers to situations that are anterior to other past situations described in the contexts. For instance, in (21), the state of affairs described by the *conditionnel passé* ('would not have done') is anterior to the past situation denoted by *dirent* 'told'. The perfect aspect of the *conditionnel passé* consequently entails that the hypothesized situation is past. The past entailment will conventionalize from the 17th century and overshadow the perfect aspect in certain contexts one may associate to Heine's (2002) switch contexts, thus following the evolution pathway of perfect forms suggested by Bybee, Perkins and Pagliuca (1994: 105): resultative > anterior > past.

Then, the past interpretation joined together with the hypothetical meaning implicates counterfactuality due to our experience and conception of time. Time is perceived and conceived (at least in Western cultures) as asymmetrical: past is the domain of the irrevocable and the known, as opposed to the future, which is the domain of the possible and the unknown. As a consequence, when a speaker talks about a hypothetical situation that is past, he suggests, by default, that the situation was not the case, because we usually know what happened. In short, making a hypothesis about the past implicates counterfactuality. That is how the *conditionnel passé* allows for the interpretation of the counterfactual meaning that will conventionalize in the 17th century.

To sum up, the bridging contexts of the *conditionnel passé* are contexts where (i) the denoted hypothetical situation is anterior to a past situation, as in (21), and (ii) the speaker knows what happened in the past (this is the case by default). Thus, in the case of the *conditionnel passé*, critical contexts do not correspond to a specific morphosyntactic environment but to a functional type of context, in which anteriority to the past is expressed in a context of known past. This seems to give further confirmation to the fact that a functional mapping of grammatical variation and evolution may be more appropriate. Moreover, it is interesting to note that, a century before the increase of counterfactual contexts, namely in the

16th century, the contexts where the *conditionnel passé* serves to denote past situations have also increased by comparison with the previous period. This is part of the general aorist drift that affects French perfects from Old French following Bybee, Perkins and Pagliuca's (1994) evolution pathway: resultative > anterior > past. This trend is illustrated in Figure 4, adapted from Patard, Grabar and De Mulder et al. (2015).

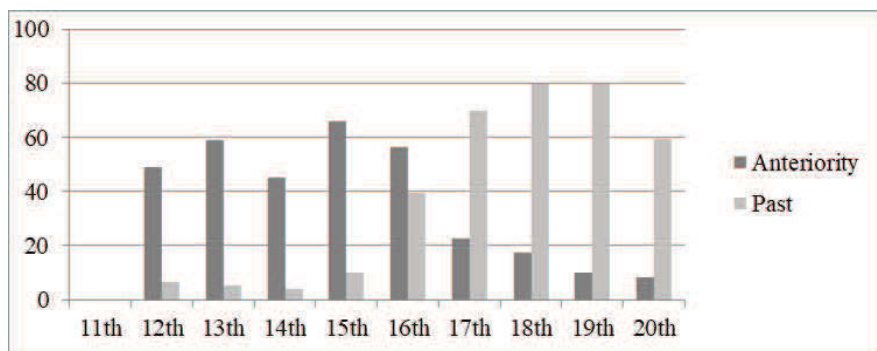


Fig. 4: Evolution of anterior and past interpretations (percentages)<sup>5</sup>

In other words, the *conditional passé* tends more to entail past from the 16th century, thus paving the way for the swiping rise of counterfactual contexts in the following century. Notice, however, that these past contexts do not necessarily correspond to bridging contexts – far from it – since the counterfactual implicature remains very marginal at that time (compare with Figure 3). Indeed, most cases correspond to contexts of ignorance, where the speaker does not know what happened in the past. Hence, the epistemic status of the past hypothetical situation remains indeterminate ('neither p nor non-p'). This is the case for instance in interrogative contexts.<sup>6</sup> So bridging contexts are not only contexts inducing past entailment but also contexts of epistemic ignorance.

<sup>5</sup> Anteriority was coded for cases where the denoted situation is anterior to another situation described in the same sentence. Past is coded for cases where the situation precedes the time of utterance. As a consequence, the same token could be coded for both anteriority and past (see Patard, Grabar and De Mulder 2015 for more details).

<sup>6</sup> An example is *ce mauvais vent, qui court, t'aurait il bien poulé hors de la Court?* (Marot, *L'Adolescence Clémentine*, 16th century) 'this ill wind, which blows, would it have indeed pushed you outside the Court?'.

One may finally point out that the bridging contexts we have just described do not exactly follow the mainstream definition according to which both the source meaning and the target meaning are available. In the case of the *conditionnel passé*, bridging contexts are not ambiguous because the hypothetical meaning and the counterfactual meaning cannot be interpreted at the same time: either the reality status of the situation is unspecified ('neither p nor non-p') or it is specified as counterfactual ('non-p') but it cannot be both. This suggests that bridging contexts have more to do with the interpretation of pragmatic inferences than with semantic ambiguity.

To conclude, the inference of counterfactuality in bridging contexts implies that the semantic evolution of the *conditionnel passé* follows a pathway from perfect to past and, ultimately, to counterfactuality. This shows that the conjunction of these functions across languages is not random but that they are historically connected by the conventionalization of pragmatic inferences. The evidence for bridging contexts further involves that the connections between these functions are strictly oriented, from aspect to tense and to modality (and not the other way round).

Furthermore, we may note that the inference of new meaning in bridging contexts is not a sufficient condition for semantic change. It is only during the following stage of switch contexts that the new grammatical interpretation expands and conventionalizes as an effect of its increased frequency. In the case of the *conditionnel passé*, the multiplication of contexts allowing for the counterfactual inference is clearly caused by systemic changes occurring in the same period, namely the decline of the competing subjunctive forms (imperfect and pluperfect subjunctives), the generalization of the non-perfect conditional tense in hypotheticals and the development of the aorist interpretation of perfect forms (see Patard, Grabar and De Mulder 2015 for a detailed analysis). Bridging contexts thus appear to be a necessary condition rather than a causal factor.

## 5 Conclusion

In this paper, we have revisited the issue of language-internal grammatical change in connection with semantic maps, by examining two diachronic evolutions in French: that of NPIs into n-words and that of the *conditionnel passé* from hypothetical perfect to counterfactual past.

Semantic maps define pathways of evolution by a series of contiguous cells. These cells, we have insisted, represent functions rather than contexts. Moves between contiguous functions thus shape diachronic evolution. This raises the

question why such a contiguity condition should constrain grammatical change in the way it does. We have brought together evidence to support the claim that the contiguity condition is a consequence of the way change occurs. The modality of change is through use in contexts that, at least in some cases, allow ambiguity between two functions. A bridging context allows for items with an established function to acquire a new function. This explains why evolution is mapped by an orderly pattern of functions that are related by bridging contexts. There are no jumps across functions because there are no bridging contexts between non-contiguous functions. Thus, this paper has empirically substantiated the idea that evolution is constrained by bridging contexts. It has also highlighted the role of frequency in grammatical change by showing that, in both cases, the proportion of potentially critical contexts – i.e., strong negative polarity contexts and past contexts – has increased during the period immediately preceding the functional change.

With a view to future work, we note that the identity and role of bridging contexts will vary according to the evolution under consideration. It should be clear from our discussion that, while the evolution of NPIs and the *conditionnel passé* relate to bridging contexts, they do so in a slightly different way. The status of an item as NPI or n-word is ambiguous in bridging contexts (strong negative polarity environments) because an NPI is indistinguishable from an n-word in such contexts. By contrast, the reading of the *conditionnel passé* in bridging contexts (contexts with anteriority to past situations and epistemic ignorance) is not ambiguous but unequivocally counterfactual, the new meaning being crucially inferred from contextual information. In other terms, semantic ambiguity seems crucial in one case while bridging contexts rely more on pragmatic inferences in the other. This raises the issue of the nature and definition of bridging contexts, which seem to vary as to the way they allow for reanalysis – an issue that remains to be explored in future research.

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