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Alors* between discourse and grammar: the role of syntactic position

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Abstract

This paper presents an in-depth study of the semantics of the French discourse marker *alors* ‘at that time, then, so’. Its evolution from temporal adverbial with local anaphoric meaning to polysemous marker including conversation management uses in spoken French is traced through a systematic diachronic corpus analysis. Of particular interest in this perspective is the relationship between the different meanings of *alors* and the position it occupies in the sentence. Our main hypothesis is that the semantic evolution of *alors* goes hand in hand with grammatical and functional changes leading to new discourse functions, *viz.* from sentence adverbial to discourse structuring marker. We show that semantic meaning is driven by syntactic position changes which gradually evolve over time.

1 Introduction

French *alors* ‘at that time, then, so’ has recently been the topic of quite some research (Franckel 1989; Gerecht 1987; Hansen 1197; Hybertie 1996; Jayez 1988; Le Draoulec & Bras 2007). These authors give a good account of the uses of *alors* in Present Day French (PDF), but there still is no thorough diachronic analysis. One of the key issues that have been left undiscussed so far concerns the evolution of *alors* from temporal adverbial with local anaphoric meaning to polysemous marker including conversation management uses in spoken French. A systematic diachronic corpus study should help us reveal how and when the different uses of *alors* arose. Of particular interest in this perspective is the relationship between the different meanings of *alors* and the position it occupies in the sentence. Indeed, our main hypothesis is that the semantic evolution of *alors* goes hand in hand with grammatical and functional changes leading to new discourse functions, i.e. from sentence adverbial to discourse-structuring marker. In our view, *alors* is thus illustrative of the way sentence grammar and discourse grammar interact: changes at the sentence level lead to changes at the discourse level. This idea is of course not new. It links up with the idea dear to functional linguists that there is a determining relationship between the form and the function of a linguistic element. Lambrecht (1988:138), for instance, states that “there is a relationship between the form of a sentence and its function in discourse”. Evers-Vermeul (2005:chap.3) reviews a number of studies that posit an interaction between the positioning and the function of connectives and adverbials, her general claim being that the speaker, when using “a multifunctional word ‘exploits’ its syntactic possibilities in order to differentiate between its functions” (2005:32). In line with these studies, our analysis aims to unravel

how *alors* has come to “exploit” its syntactic possibilities in a diversity of meanings.

Two specific research questions will help us reach our goal:

- What is the evolution of the semantic distribution of *alors* from Old French (OF) to Present Day French (PDF)?
- To what extent is there a relationship between the semantic and functional evolution of *alors* and its position in the sentence?

The paper is structured as follows. Section 2 reviews the literature on the semantics of *alors* and distinguishes three main uses: temporal, causal, and metadiscursive. Section 3 outlines how the position and meaning of *alors* have been handled in these studies. Section 4 describes the data used in the present study. Section 5 gives the results of our diachronic corpus analysis from Old to Classical French, and from Classical French to PDF, both written and spoken. Section 6 couples this semantic evolution to the evolution of the position of *alors* in the sentence. Section 7 contains a number of conclusions and perspectives for future research.

2 Semantic distribution of *alors*

Alors in PDF shows a wide variety of semantic uses. Among these, three **primary** meanings can be distinguished: temporal, causal, and discourse-structuring (Franckel 1989; Gerecht 1987; Hansen 1197; Hybertie 1996; Jayez 1988; Le Draoulec & Bras 2007). Two main constraints seem to hold throughout all uses of *alors* (Franckel 1989:134): there is a semantic relationship between the connected elements which amounts to more than a relationship of simple succession, and the connected elements must be genuinely different from one another. We will come back to these constraints in the description of the different uses of *alors*.

2.1 Temporal *alors*

From a historical point of view, the primary meaning of *alors* is temporal, as in example (1) below. It is a compound of the preposition and prefix *à* ‘at’ and *lors* ‘then’, which in turn originates in Latin *ILLA HORA*, an ablative¹ meaning *at that hour*. Its original meaning – and the only one attested in Old French, at least in our corpus, cf. Section 4 – is that of temporal simultaneity, sometimes, but not invariably, with a sense of duration, (cf. Hansen 1997). *Alors* retains a temporal meaning in PDF, as in examples (2-3) below. This use has been described in detail by Gerecht (1987) and Hybertie (1996). Both authors have inspired a number of follow-up studies (Le Draoulec & Bras 2007; Paillet-Gruth 1996).

(1) ... selonc la costume romaine. Et sachiés que c'estoit une feste qu'il coltivoient *alors* mout hautement. (*Tristan en prose*, 13th c. – novel)

‘... according to Roman customs. And you should know that this celebration was *alors* held in the highest regards.’

(2) il était rentré en cinq jours de Valladolid à Saint-Cloud, crevant au galop on ne sait combien de chevaux. Lui qui dormait *alors* dix heures par nuit et deux heures dans son bain, grâce à ses revers en Espagne et à cette nouvelle équipée, il retrouvait d'un coup son endurance et sa force. (20th c. – novel)

‘It took him five days to come back from Valladolid to Saint-Cloud, running who knows how many horses to death on the way. He who *alors* slept ten hours a night and two more in his bath, all of sudden, thanks to his setbacks in Spain and to this new adventure, recovered his endurance and his strength.’

(3) Mais le soir tomba sans que la pluie eût cessé. *Alors*, la Comtesse commit une imprudence: sans rien dire à personne, au moment où tout le monde montait se coucher elle enfila ses bottes sous sa chemise de nuit ... (20th c. – novel)

‘But the night fell and the rain still hadn’t stopped. *Alors*, the countess got careless: without telling anyone anything, when everyone went up to bed she put on her boots under her nightgown ...’

According to Gerecht (1987:71), in the construction *p alors q*, temporal *alors* establishes the reference time of *p* as the temporal landmark (*repère temporel*) of *q*. Accordingly, in the examples above, *alors* signals that the reference time of [holding the celebration *t2*] in (1) is temporally dependent on [according to Roman customs *t1*]; the reference time of [his sleeping ten hours a night etc. *t2*] in (2) is dependent on the time of [his coming home from Valladolid to Saint-Cloud *t1*]; the time of [the countess getting careless *t2*] is dependent on the reference time of [the evening falling *t1*]. The relationship between *t1* and *t2* can be one of plain or partial temporal concomitance, succession, or anteriority. The propositional content of *p* and *q* alone determines which of these temporal meanings is expressed. According to Hybertie (1998:23-44), temporal concomitance between *p* and *q* can be glossed by *à cette époque-là, à ce moment-là* ‘at that time’ and is triggered by an explicit temporal reference in *p*, such as *en 1968* in example (4):

(4) J’ai commencé mes études de Lettres en 1968. Il n’y avait *alors* qu’une seule faculté de Lettres et Sciences humaines à Paris. (Hybertie 1998:24)

‘I started studying Arts in 1968. There was *alors* only one Faculty of Arts and Human Sciences in Paris.’

However, as we will show, the concomitant reading does not always require the presence of an explicit temporal reference. Following Jayez (1988) and Franckel (1989), Hybertie distinguishes a second temporal use of *alors* that has no explicit temporal landmark in p.² In those cases, there is no strict concomitance between the states of affairs described in p and q, but rather temporal succession: “*alors* builds a sequence of temporally ordered events ... a temporally ordered succession that is linked to a logical order of events taking place, the first event being presented as the condition for the realization of the second [our translation]”³ (Hybertie 1998:25). Such a context can be found in example (5), where *alors* forces a reading in which my seeing him arrive is conditioned by my arrival at the village square:

(5) Je suis allé jusqu’à la place du village, je l’ai *alors* vu arriver. (Hybertie 1998:24)

‘I walked up to the village square, I *alors* saw him arrive.’

This dependency between p and q corresponds to Franckel’s (1989) “disjunctive resumption” (*reprise disjunctive*) according to which *alors* requires two distinct states of affairs, which are validated, or more precisely acknowledged and accepted by the hearer (hereafter simply *validated*), successively after setting p’s temporal reference to q, p and q being ordered according to the natural order of things (“selon l’ordre des

choses”); Hybertie 1987:28). Thus, for a temporal succession reading of *alors*, a temporally logic dependency relation is required.

Summing up Hybertie’s view, either temporal *alors* cues an explicit concomitant reference time in q, or it establishes a successive temporal relationship between p and q, where q is conditioned by p, and where p does not contain an explicit temporal landmark.

Interesting as it might seem, we will not follow Hybertie’s distinction according to which it is the presence or absence of an explicit temporal landmark that determines the temporal value of *alors*. Rather, in line with Le Draoulec & Bras (2007:85), we believe that the temporal value of concomitance is not due to the presence of a temporal adverbial *en 1968* in the above example, but to the imperfective aspect of q. This makes it possible to account for (6), an example that resists straightforward explanation by Hybertie.

(6) Nous sommes sortis du cinéma. Il pleuvait *alors* sur Nantes. (Le Draoulec & Bras 2007:86)

‘We came out of the movie theater. It was raining *alors* on Nantes.’

Nevertheless, aspect alone cannot account for temporal concomitance. On the contrary, we believe that Franckel’s notion of disjunctive resumption also holds for these cases. Once p’s state of affairs [our leaving the movie theatre] is validated, the temporal landmark of p [the moment we left the movie theatre] is picked up by q, which is then validated as being concomitant with p because of the imperfective aspect of *pleuvoir*. If p is not validated, its temporal landmark cannot be picked up by q and the relationship

between p and q cannot be interpreted temporally, as illustrated in our constructed example (7):

(7) Il se pourrait qu'ils soient sortis du cinéma. ?#Il pleuvait *alors* sur Nantes.

'They might have left the cinema. It was raining *alors* on Nantes.'

For our corpus analyses, the following parameters were used for the identification of temporal *alors*:

- p and q are two independent states of affairs
- p contains an explicit or implicit reference time that serves as landmark to q
- q is posterior to or concomitant with p
- *alors* can be glossed by *à ce moment-là* 'at that time', *ensuite* 'then'
- if *alors* is deleted from the sentence, there is no argumentative relation causal, conditional, or other, between p and q.

2.2 Causal *alors*

According to the literature, *alors* can also be used to mark consequential or resultative relations with an argumentative rather than a strictly temporal meaning (Forget 1986; Franckel 1989; Gerecht 1987; Hybertie 1996; Hansen 1997; Jayez 1988; Zénone 1982). According to Zénone (1982:136) these temporal and consequential meanings are closely linked, leading to a subjective conclusion granted by the speaker. This means that the information conveyed by q may not be presupposed or pre-asserted (Forget 1986:32). Examples from our corpus illustrate this close relationship between temporal and causal

meanings, with (8) having the conclusive gloss *donc* ‘so’ and (9) the more conditional gloss *dans ce cas* ‘in that case’. In both cases, the cause-consequence relation expressed by *alors* is contingent, i.e. context-dependent (Hybertie 1996:30).

(8) L1: ah il adore ça / *alors* ben tu penses bien avec moi euh il était aux aux anges hein // (20th c. – spoken)

‘well he loves it / *alors* well you’ll guess that with me he was in seventh heaven //’

(9) Qu’on leur donne de quoi manger et ils seront tous pro-allemands! Maman d’insister: il fallait être logique. Non-juifs? *Alors* non-juifs jusqu’au bout. (20th c. – novels)

‘Simply give them something to eat and they’ll all be pro-German! Mother insisted: one had to be consistent. Non-Jewish? *Alors* Non-Jewish all the way.’

As to the conditional uses, the question arises whether they should be treated as a subcategory of the causal uses or as a separate category. Hansen (1997:181) notes that it “is not clear from the literature whether the extension from temporal to conditional uses of *alors* preceded, followed, or was perhaps simultaneous with the extension to resultative structures.” Both options seem equally plausible. The extension to conditional contexts could be explained by the existence of certain fundamental patterns of inference: “when one state of affairs is seen as forming the background for another, the assumption will frequently be made that the former is also the cause of the latter”

Hansen (1997:181; see also Vogl 2007). Hybertie (1998) adds that the ambiguity between temporal and causal readings is due to the fact that a causal reading is inferred as soon as S1 *can* be interpreted as the cause of S2 in a temporally natural sequence S1 *alors* S2, even if no consequential reading is intended. This ambiguity explains the historical extension from temporal to consequential. Example (10) below, where [her admitting her mistake] follows/is caused by [you getting angry], illustrates our point:

(10) Contrefais fort le jaloux d'elle, Et te courrouce de plus belle,
Quant à nul homme parlera; *Alors* son grant tort congnoistra, Et lairra ceste
jalousie. (*Conseil du Nouveau marié*, 15th-early 16th c. – comedy)

‘Let on clearly that you are jealous, and get more angry yet whenever she speaks to a man; *alors* she will admit her mistake, and stop being so jealous.’

In our diachronic corpus analysis, we tried to disentangle this evolution from a temporal use to various subcategories of causal uses, see Section 5. The following parameters for causal *alors* were used:

- p and q are two independent states of affairs (SoA) or utterances
- *alors* can be paraphrased by *par conséquent*, *du coup*, *donc* ‘consequently, therefore, so’ and/or *si bien que* ‘so that’
- the causal reading remains in the absence of *alors*
- the SoA described in q is not possible without the SoA described in p.

We distinguish two further uses close to causal *alors*: temporal uses in causal contexts, and conditional uses. In the first case,

- *alors* can be glossed by both temporal and causal markers (see above), but
- the causal reading does not remain in the absence of *alors*

For the conditional uses:

- p and q are two independent inferential states (Hybertie 1996:31)
- *alors* can be glossed by *dans ces conditions, dans ce cas* ‘in that case’
- in the absence of (*si*) *alors* the conditional meaning does not remain
- the SoA in q depends on the occurrence/existence of the SoA in p.

A special case of conditional use seems to be the construction *ou alors* ‘or else’. According to Hybertie, *ou alors* contains an underlying “*si ... alors*” ‘if ... then’, as in example 11:

11 Je te l’apporterai, *ou alors* [*ou si je ne te l’apporte pas alors*] je te l’enverrai par la poste. (constructed example)

‘I will bring it to you, or else [or if I don’t bring it] I will send it by mail.’

If the two propositions are related by *ou* ‘or’ only, both of them are presented as equally valid. In the case of *ou alors*, however, the choice between the two propositions is not equivalent anymore: first P1, and if not, then P2. This close relation between the *ou*

alors-construction and the conditional *si...alors* construction has led us to count the former among the conditional uses of *alors*.

2.3 Metadiscursive *alors*

Several authors attribute a number of additional functions to *alors* which we will group here under the label of *metadiscourse marker*. According to Zénone (1982), *alors* is used as a *conversation-structuring marker* ('marqueur de structuration conversationnelle'), introducing new discourse units and hinting to the relevance of upcoming discourse. Hybertie (1996) speaks of *alors* as a *structuring marker* ('marqueur de structuration') in this context, which in her view is restricted to spoken language with the purpose of maintaining discourse coherence. Typically, this use of *alors* occurs when speakers are retelling a past experience linking together different pieces of discourse. A rather extreme example from our corpus of spontaneous conversation is given in (12):

(12) mais *alors* ce qui était marrant c'est que euh / tout à coup il s'arrêtait / et
alors euh / assez vite *alors* xx se disait maintenant vous vous dirigez vers telle
porte // mais *alors* (20th c. – spoken)

but *alors* the funny thing was that er / suddenly he stopped / and *alors* er
/ quite quickly *alors* xx was saying now you go towards the door // but *alors*

Hansen (1997:172) pursues the same idea when she states that *alors* "is not infrequently used to mark shifts to new topics, particularly subtopics or digressions." (13) is an illustrative example from our corpus where *alors* is used to introduce a subtopic about the kind of language used by the speaker's baby daughter.

(13) et puis après elle m'a plus lâché (rire) / et euh / elle a grandi et puis elle commence un/ elle commence un petit peu à parler // *alors* elle dit euh // elle dit doudou pour tout ce qu'elle aime comme chose / et elle dit maman pour tout ce qu'elle aime comme / personne (20th c. – spoken)

'and then she stayed stuck on me (laughter) / and er / she grew up and then she starts a / she starts to talk a little // *alors* she says er / she says 'doudou' for all the things she likes / and she says 'maman' for all the persons she / likes'

More generally, *alors* is used in these contexts to re-frame or re-perspectivize the discourse so that the addressee remains “able to construct a mental representation of the discourse with a minimum of effort” (Hansen 1997:180) notwithstanding perspective and frame shifts. Closely related to this function of shift marker is what Franckel (1989) describes as a *turn-taking signal* ('signal de prise de parole'),⁴ although the latter is restricted to initial position, as in example (14) from our corpus:

(14) L1 oui ça m'embête (rire) -|

L2 *alors* quelles photos est-ce que je dois agrandir maintenant (silence)
m // pas le / Vimanmek ah oui la trente-cinq A (silence) m // la treize A elle ne donnera pas hein? (20th c. – spoken)

'L1 yes that annoys me laughter –

L2 *alors* which photos shall I enlarge now (silence) ...'

In our corpus analysis, the following parameters for metadiscursive *alors* were used:

- *alors* does not establish a temporal or argumentative relation
- *alors* can be left out without changing the semantic content
- *alors* can be glossed by other topic shifters, such as *bon* ‘well’, or transition markers, such as *et puis* ‘and then’.

3 Position of *alors* in the sentence

Most studies of *alors* try to show that there is a relation between the position of initial, medial, final *alors* and its meaning, although this relation is neither univocal nor deterministic. Le Draoulec & Bras (2007), for instance, try to establish a link between temporal *alors*, its position, and connective function. On the basis of Creissels’ (1995) observation that a range of adverbials in fact have a syntactic function that is close to coordinators because they establish a relationship between their host and another sentential structure, the authors hypothesize that initial *alors* necessarily expresses a dependency link between S1 and S2, while medial or final *alors* does not.

The specificity of initial *alors* is stated in various ways by different authors: *deductive* and *intrasubjective*⁵ for Franckel (1987), but mostly *consecutive* for Hybertie (1996:25). Le Draoulec & Bras put it more strongly: for them, “[o]nly initial *alors*, implying a dependency link between the utterances, licences the relation of temporal succession with a temporal gap between the events described” (2007:7). This is, according to them, a “strong constraint, which does not depend on semantic or pragmatic conditions” (2007:7), to the point that *alors* can be said to function, in this position, as a *connective*.

The fact that medial *alors* is mostly temporal is noted by Le Draoulec & Bras and by Hybertie; medial *alors* can also describe a relationship of cause to consequence according to Hybertie. In any case, it cannot be considered as a connective in this

internal position. Hybertie states this strongly, Le Draoulec & Bras less so. In final position, *alors* is exclamative according to Hybertie and intersubjective (cf. Franckel's *Tu viens, alors?! "Are you coming, [alors]?"*, where *alors* denotes the urgency of the invitation). Hansen (1997:182) furthermore notes that whenever resultative *alors* is utterance-final it is "found with statements made on the basis of inference from prior discourse by the interlocutor, and which therefore usually function[s] pragmatically as requests for confirmation". This suggests to her that "utterance-final *alors* may be a candidate for grammaticalization as a modal particle". Her data are however not sufficient to draw any generalizations.

The relationship between sentence position and grammaticalization has been hypothesized specifically by Traugott (1997) in her grammaticalization cline of discourse markers, according to which clause-internal adverbials move to sentence adverbials which can in turn develop to discourse particles. We would like to suggest that *alors* is a plausible candidate for analysis in terms of this cline. A close analysis of both position and meaning in our diachronic data should help us take a firmer position on this idea.

In our corpus analyses, the position of *alors* has been defined as follows:

- initial *alors* is located in the left periphery of the sentence/utterance, that is, outside the argument structure of the verb; occurrences of *et alors*, *puis alors*, *mais alors*, etc. are counted as initial;
- medial *alors* is internal to the argument structure, mostly after the finite verb and before the non-finite verb, if present;
- final *alors* is located in the right periphery, after the non-finite verb, if present.

Sentence/Utterance has been operationalized in clausal terms. S1 is the clausal segment (predicate-argument structure with adjuncts) preceding the *alors*-segment (S2). Mostly, in writing, the clause corresponds to an orthographic sentence, in speech to a turn construction unit (Selting 2000).

4 Presentation of the data

We designed a specific corpus for this study, using texts from various databases. Our goal was to have comparable texts over a very large period of time, ranging from the appearance of *alors* in the 12th c. to PDF, with a focus on two periods: the emergence of *alors* from the 12th to 17th c., and the contrast between spoken and written language in PDF at the end of the 20th c.

We included texts from the following databases: BFM Database for Medieval French, Champion Electronique,⁶ Frantext and VALIBEL Spoken French. In order to ensure comparability over different periods, we selected the novels and short stories present in each database except, of course, for the spoken data, and excluded technical texts, essays and so on.

For the first part of the corpus, i.e. the emergence of *alors*, we distinguished three periods, based on the relative frequency of *alors*, see Table 1 below, and studied all occurrences: 34 for the first period (12th to 14th c.), where its frequency is extremely low (0.2/10,000 words), 146 for the second period (15th c.), where its relative frequency is five times higher (1.07/10,000 words), and 276 for the third period (16th to 17th c.), where its relative frequency (3.62/10,000 words) is three times higher than in the second period.

For PDF we took both written and spoken data into account. The written data come from the Frantext database (<http://www.frantext.fr>), from which we extracted all *alors* items occurring in 20th c. novels (1990-2000). This resulted in a subcorpus of 3,245,366 words with 3348 occurrences of *alors*. Thus, our item appears to have a very high frequency of 10.32 occurrences per 10,000 words. We then made a random selection of 100 items for our parameter analysis.

The spoken data are extracted from the VALIBEL database⁷ (Francard, Geron, & Wilmet 2002; Dister, Francard, Hambye, Simon 2009). We worked only with the subcomponent of spontaneous face-to-face conversations, which totals 3 hours and 48 minutes of speech with 50,668 words and 3373 turns, with 199 occurrences of *alors*. In terms of frequency, it turns out that *alors* is four times more frequent in spoken language than in writing, since it occurs 39.28 times per 10,000 words. Here again, we made a random selection of 100 items for our parameter analysis.

Table 1 summarizes the data used for our analysis⁸ and demonstrates the tremendous rise in frequency of *alors* through the different periods under investigation. In regard to this high frequency, it is interesting to keep in mind that Mair (2004) considers high frequency as going hand in hand with the grammaticalization of an item or construction (see also Bybee & Hopper 2001).

[insert Table 1 here]

Our selection thus includes over six hundred occurrences of *alors*, as shown in Table 2.

[insert Table 2 here]

Our parameter analysis includes the following variables:

- modality: written, spoken

- language period: Old French 12-14th c., Middle French 15th c., Classical French 16th-17th c., Modern French late 20th c.
- semantic meaning of *alors*: temporal, causal, conditional, metadiscursive
- position of *alors*: initial, medial, final

5 Evolution of *alors*

5.1 Diachronic evolution of *alors* from Old to Classical French

According to dictionaries (e.g. *Trésor de la langue française*), *alors* appears in 12th-century Old French as a prefixed variant of *lors* ‘then’, which appeared in Old French at the end of the 11th century (*Roland*) with temporal uses. In our corpus, which is composed of literary texts ranging from the 11th to the 17th centuries, *alors* indeed appears in the 12th century. Its frequency, nevertheless, is very low until the 15th, as was shown in Table 1 above.

5.1.1 Temporal uses: *alors*₁

At first view, the semantic evolution of *alors* from Old to Classical French appears to be fairly limited. In any case, it contrasts greatly with the polysemy of *alors* in PDF, which we described above. In Old French, as Hansen (1997) and Hybertie (1996) pointed out, *alors* only has temporal uses. In our corpus too, most occurrences are purely temporal, as in example (15):

- (15) Vos en iroiz a Kamaalot et demorroiz illuec jusqu’a mardi, car *alors* est li jorz a ma dame (*La mort le roi Artu*, 1230, p. 97)

‘You will go to Camelot and stay there until Tuesday, for [alors] is the day of my Lady’

This use of *alors* will be referred to as *alors*₁.

5.1.2 Temporal uses in causal context: *alors*₂

However, at the end of the 13th century *alors* already appears in a new type of context. According to Hybertie, it then expresses a logical relationship of cause to consequence. We would prefer to state that *alors* retains a temporal meaning, but appears in contexts in which it can take on a causal meaning. Example (16) below illustrates our point:

(16) “Si m’äit Diex! ce dist li rois, dans chevaliers, si feroie ausi hardiement com vous feriés.” Et Dynadans se conmenche *alors* a seignier, ausi com s’il tenist cheste cose a grant merveille (*Roman de Tristan en prose*, 13th century, 1st ed. 1963, t. IV/III/22, p. 89)

“‘God help me!’ said the king, ‘lord knight, I would do as bravely as you’. And Dynadans started *alors* to make the sign of the cross, as if he took this to be a great marvel.’

As illustrated in this example, in Medieval French the interpretation of *alors* as a marker of causal relationship is generally subordinated to a temporal interpretation: in (16), *Dynadans* necessarily makes the sign of the cross right after the king’s utterance. *Alors* is thus still temporal, even if it already takes on a causal meaning. This use of *alors* will be referred to as *alors*₂.

Even in example (17), in which the temporal relationship seems secondary, the temporal interpretation is not excluded: the king of arms (*je* in this excerpt) repeats what he said earlier *because* of the other king's order; but this necessarily happens *right after* that order. Thus, the temporal meaning of *alors* is not yet absent.

(17) En disant ces parolles, le roy, qui tres fort me regardoit, me dist en moy touchant la main que je fusse le tresbien venu, puis me dist que je deisse ce que j'avoie dit a messire Enguerrant de Servillon. *Alors* je deiz de mot a mot tout ce que lui avoie dit, pour abregier. (*Jehan de Saintré*, Antoine de La Sale, 1456, p.103)

‘When he said this, the king, who looked at me intently, shook my hand and told me I was most welcome, then asked me to tell him what I had told Sir Enguerrant de Servillon. *Alors* I repeated word for word all I had said to him, to cut it short.’

In our view examples (16-17) are crucial traces of an ongoing evolution from temporal to causal uses. It is important to recognize such an ‘in between’ category which we regard as indicative of semantic evolution.

At any rate, an important point is that this use of *alors* increases with time: it is quite marginal in OF but less so in Middle French (MF), with less than 5% in OF, but close to 30 % in MF (see Figure 1 below).

5.1.3 Temporal uses in hypothetical context: *alors*₃

A second step in the evolution of *alors* is that, from the 14th century on, *alors* appears in conditional/hypothetical contexts, with constructions such as “if X does this, *alors*...”.

In this type of context, *alors* can be glossed as “in that case”, even though it can still be interpreted as a temporal marker. However, in example (18), the use of *or* ‘now’ in the same sentence, just after *alors*, seems to exclude a temporal interpretation, because the temporal meanings of *alors* ‘then’ and *or* ‘now’ are mutually exclusive:

(18) “Or attendez, monseigneur, ce dit elle. Et maintenant vous me voyez bien, faictes pas? – Par Dieu! m’amey, nenny, dit monseigneur, comment vous verroie je? vous avez bouché mon dextre oeil, et l’autre est crevé passé a dix ans. – *Alors*, dist elle, or voy je bien que c’estoit songe voirement qui ce rapport m’a fait.”

““Wait a minute now, my Lord, she said. Now you can see me well, can’t you? – By God! My dear, no, said his Lordship, how could I see you? You have blocked my right eye, and the other one has been dead for ten years now. – *Alors*, she said, now I can see that it was really all a dream.””

This use of *alors*, which we call *alors*₃, appears more sporadically than the temporal use in causal context *alors*₂.

5.1.4 Semantic evolution of *alors*

Our data show that the semantic evolution of *alors* is fairly rapid, even though its polysemy is limited. Figure 1 below illustrates this point:

[insert Figure 1 here]

Causal contexts appear as soon as the 13th century, and conditional contexts in the 14th. From the 15th century on, the proportion of *purely* temporal uses drops to approximately

65 % of the cases and remains stable until the 17th century. It seems that we can exclude, at least for *alors*, the idea that *causal* uses appeared after or grew out of *conditional* uses, *contra* Vogl (2007).

5.2 From Classical to Present Day French: the rise of polysemy

Present Day French *alors* presents a rich semantic distribution that is strikingly different from Classical French and earlier periods. While temporal uses remain frequent in writing, with 35 % of the occurrences, metadiscursive (26 %), causal (22 %; including temporal uses in a causal context) and conditional (17 %) uses have taken an important place in the overall picture. Figure 2 illustrates the evolution from Classical to Modern French writing.

[insert Figure 2 here]

The semantic evolution of *alors* from Classical French to PDF shows statistically significant divergences ($X^2(3) = 90.52$; $p < .0001$; Cramer's V: 0.491).⁹ This shows up especially in the drop in temporal uses ($Z = -2.9$), and the rise of conditional uses ($Z = +2.17$) and even more of metadiscursive uses ($Z = +7.26$).¹⁰ In the light of these results, we can only agree with Hansen's (1997:164) observation "that the general evolution of the two markers [*alors* and *donc*], away from the temporal sense, in which they contribute to truth-conditional meaning, and towards a metadiscursive function, provides support for Traugott's (1982:256) hypothesis that '[i]f there occurs a meaning-shift which, in the process of grammaticalization, entails shifts from one functional-semantic component to another, then such a shift is more likely to be from propositional through textual to expressive than in reverse direction.'" A comparison of written and spoken data in PDF confirms and strengthens this evolution from temporal to metadiscursive, and is illustrated in Figure 3.

[insert Figure 3 here]

The variation between written and spoken PDF is highly significant ($X^2(3) = 45.03$, $p < 0.0001$; Cramer's V: 0.475): writing clearly favors temporal use ($Z = +3.84$) while speech favors metadiscursive use ($Z = +2.77$). Note furthermore that the written data include direct speech, which is supposed to mirror natural spoken behavior. If we exclude all cases of quoted speech from the written data, the contrast in the *alors* distribution becomes even stronger ($X^2(3) = 86.578$, $p < 0.0001$; Cramer's V: 0.760). The determining factors for this contrast stay the same: temporal use in narrative writing ($Z = +5.8$) vs. metadiscursive use in spontaneous conversation ($Z = +3.1$). It is interesting to note that such variation in speech and writing also occurs in other French connectives (see e.g., Simon & Degand (2007) on *car* and *parce que* 'because'). It remains to be investigated whether this variation is indicative of an ongoing grammaticalization (Degand & Fagard 2008; Fagard & Degand 2008). Let us now address the issue of syntactic position. Is it the case that semantic evolution and syntactic variation go hand in hand?

6 The evolution of *alors* and syntactic position

The syntactic position of *alors* in the sentence undergoes a stepwise evolution from Old French to spoken PDF. In Old French, *alors* is found mainly in medial position, but from Middle French on right up to both spoken and written PDF, a majority of cases is found in initial position, with a slow rise of *alors* occurrences in final position from Classical French onwards ($X^2(8)=81.457$; $p < .0001$; Cramer's V: .249). A closer analysis of the data reveals that the significant divergences in syntactic position are caused by the higher proportion of medial *alors* in Old French ($Z = +5.2$), on the one hand, and by the lower proportion of medial position in PDF speech ($Z = -3.9$), on the

other. In other words, *alors* jumps from medial position in Old French to initial position from Middle French onwards, and ends up nearly exclusively in the periphery of the sentence in PDF speech.

[insert Figure 4 here]

So far, this evolution seems to confirm Traugott's (1997) hypothesis that discourse particles find their origin in clause-internal adverbials that develop into sentence adverbials before they eventually reach the stage of being a discourse particle characterized by syntactic freedom and increased scope. So, the question at stake now is whether the evolution in the syntactic position of *alors* goes hand in hand with the semantic evolution described in Section 5. We will postulate here that clause-internal medial *alors* typically expresses temporal concomitance; initial *alors* can function as a connective (cf. Le Draoulec & Bras 2007) expressing temporal succession, causal or conditional relations, or a metadiscursive meaning, especially topic shift. Final *alors* should express a metadiscursive meaning, especially intersubjectivity.

Let us first have a look at the relationship between semantic function and syntactic position in PDF. From this synchronic picture, we will then move backwards in time to try to trace the evolution of this supposed relationship.

6.1 Syntactic position and meaning of *alors* in Present Day French

6.1.1 Syntactic position and meaning of *alors* in PDF writing

Figure 5 gives an overview of the semantic distribution of *alors* as a function of its position in the clause/sentence in PDF writing.

[insert Figure 5 here]

Most strikingly, it appears that medial position is used exclusively for temporal *alors*, while initial position is where we find most occurrences of all types (59% of the data), and final position is only poorly used (12%). Statistically, this distribution is significantly divergent¹¹ ($X^2(4) = .0001$, Cramer's V: .499), and is of course due to the overrepresentation of temporal uses in medial position ($Z = +4$), and the overrepresentation and underrepresentation respectively of cause-conditional ($Z = +2.4$) and temporal uses ($Z = -2.4$) in final position. These first results come close to our hypotheses regarding the relationship between the meaning of *alors* and its syntactic position: we find connective-like causal, conditional and temporal meanings in initial position as well as metadiscursive uses; temporal uses in medial position, and a restricted number of other uses in final position, namely causal, conditional, and metadiscursive. These results do however need some fine-tuning. We would for instance like to know what kind of temporal uses are found in initial vs. medial position. To this end, we need to have a look at temporal uses only. We distinguished temporal succession from temporal concomitance in Section 2.1. Recall that we expect concomitant *alors* ('at that time') to occur primarily in medial position, functioning as a clause-internal adverbial, while *alors* expressing temporal succession ('then, thereafter') should function primarily as a connective in initial position. This hypothesis appears to be borne out, at least partially. Figure 6 shows that concomitant *alors* indeed hardly ever occurs in initial position, while successive *alors* occurs both in initial and medial position ($X^2(1) = 5.776$; $p < .05$, Cramer's V: .351).

[insert Figure 6 here]

The metadiscursive uses also show a clear divide between their function and their syntactic position. All 16 instances of topic shift markers are found in initial position,

while interjection uses (*et alors?*; *ça alors?*) are almost equally divided over initial (3 instances) and final position (4 instances). These observations are too low to draw any statistical conclusions, but they speak for themselves. The metadiscursive uses in these written data call for an additional observation: all 23 occurrences are found in quoted speech, which leads to the conclusion that metadiscursive *alors* is typical of spoken language.

6.1.2 Syntactic position and meaning of *alors* in PDF speech

In view of the divergent semantic distribution of *alors* in the spoken and written data (cf. Section 5.2), we expect a different overall picture with respect to the relationship between the semantics and the position of *alors*. Figure 7 confirms this hypothesis. The rise of metadiscursive use from 26 % in the written data to 63 % in the spoken data seems to go hand in hand with a kind of monopolization of topic shift and topic transition markers in initial position, together with causal (12 %) and conditional (9 %) connective uses. Temporal use having disappeared (2 %), the medial position is left almost empty (3 %), while the final position best mirrors the written situation, with only 13 % of the *alors* occurrences, mainly causal and conditional. Since the data present too few observations in medial and final position, no statistical conclusions can be drawn. The data, however, speak for themselves, showing that in the spoken data, too, there is a relationship between the semantic function of *alors* and the position it occupies in the sentence/clause: 84% of the data are in initial position where *alors* either marks topic shifts or smoother topic transitions in metadiscursive function, or marks a causal/conditional relation to the prior segment in connective function. A final word needs to be said about the occurrences in final position. In contrast to what we found in the written quoted speech data, we do not find any metadiscursive uses in the form of

interjections in final position. What we do find are causal and conditional uses in the form of conclusions and/or requests for confirmation. A typical example is given in (19):

- (19) L1 ben oui je pense bien
L2 ah il y avait des chambres inoccupées *alors*
L1 ouais ouais
'L1 well yes I think so
L2 oh there were unoccupied rooms *alors*
L1 yeah yeah'

As already mentioned, Hansen (1997) considers that such utterance-final intersubjective uses belong to the epistemic level in Sweetser's (1990) terms, fulfilling a pragmatic function. This intersubjective use, together with its quasi-systematic occurrence in interrogative clauses and peripheral position in the clause, leads us to follow her suggestion that these occurrences of *alors* could be involved in a grammaticalization process into modal particles, which could in turn function as turn-transition devices (Selting 2000). However, we do not have enough data to investigate this issue further, and will leave it for future research.

[insert Figure 7 here]

The final step in this investigation consists in relating the evolution of syntactic positioning (cf. Section 6, Figure 4) to the evolution of the semantics of *alors* (Section 5.1.4, Figure 1).

6.2 Evolution of syntactic position and meaning of *alors*

We have seen that together with a steady rise in frequency, *alors* presents a stepwise evolution from mainly medial position to initial position and eventually to peripheral position (initial and final). Thus, in Old French, *alors* presents 29 % (10) of its occurrences in initial position, 62 % (21) in medial position, and 9 % (3) in final position. In Middle French, *alors* presents 85 % (124) of its occurrences in initial position, 14 % (20) in medial position, and 1 % (2) in final position. And, in Classical French, *alors* presents 70 % (191) of its occurrences in initial position, 24 % (66) in medial position, and 7 % (19) in final position. Finally, as mentioned before, PDF writing presents 59 % of occurrences in initial position, 29 % in medial position, and 12 % in final position.¹²

At the same time, the meaning of *alors* evolves from purely temporal uses to temporal uses with causal and conditional connotations – since the latter present low frequencies we have grouped them together into one category – and eventually to metadiscursive uses. The evolution can be described as follows: In Old French, 88% (30) of the *alors* occurrences are purely temporal, and 12% (4) are temporal in a causal or conditional context. In Middle French, 66% (96) are temporal and 34% (50) have an added causal or conditional meaning. In Classical French, this proportion stays the same: 65% (179) are temporal, and 35% (97) are used in a causal or conditional context. Finally, in PDF writing, 35% are temporal, 49% are causal or conditional, and 26% are metadiscursive in use. An approximate representation of this evolution is given in Figure 8, in which the squared bars represent the total percentage of occurrences in the given position, while the dark and light bars display the internal semantic distribution for each position.

[insert Figure 8 here]

The observation of these data leads us to the preliminary conclusion that meaning change seems to *follow* syntactic change: *alors* first moves into a new predominant initial position and then takes on new meanings over time with a decrease of temporal uses and an increase of causal and metadiscursive uses. More generally, variety in syntactic position would open up possibilities for semantic meaning change. Put more strongly, syntactic change would be a prerequisite for semantic change.

To put this hypothesis to the test we performed a loglinear analysis¹³ with the factors period, meaning, and position. A few words of caution are in place on how we performed the analysis. For lack of data for certain variables and in order to ensure comparability of the different time periods, we collapsed a number of variables in the following way: the category ‘position’ covers two variables: peripheral (initial + final) and clause-internal (medial); the category ‘meaning’ also comprises two variables: purely temporal (temporal) and other meanings (causal, conditional, metadiscursive). The three-way interaction thus concerns Period (Old French, Middle French, Classical French, PDF) x Meaning (purely temporal, other) x Position (peripheral, clause-internal).

The three-way loglinear analysis produced a final model that retained all effects. The likelihood ratio of this model was $X^2(0) = 0, P=1$. This indicates that the highest-order interaction, i.e. the period x position x meaning interaction, was highly significant ($X^2(3) = 35.135, p < .0001$). In other words, the interaction between position and meaning differs per period. To break down this effect, separate chi-square tests were performed on the period and meaning variable for each position; the period and position variable for each meaning; and the position and meaning variable for each period. This

leads to the following results. There was a significant association between the meaning expressed by *alors* and the period of time, both in peripheral position ($X^2(3) = 34.625$; $p < .0001$; Cramer's V: .287) and in clause-internal position ($X^2(3) = 12.673$; $p < .005$; Cramer's V: .305). This effect is explained in the first place by the low frequency of other meanings for *alors* in peripheral position in Old French ($Z = -2.0$) vs. a high frequency in PDF ($Z = +3.7$); and the high frequency of other meanings in Classical French in clause-internal position ($Z = +2.1$) vs. a low frequency in PDF ($Z = -2.0$). There was also a highly significant association between the position of *alors* in the sentence and time period, both for temporal *alors* ($X^2(3) = 34.033$; $p < .0001$; Cramer's V: .310) and other types of meanings expressed by *alors* ($X^2(3) = 36.798$; $p < .0001$; Cramer's V: .426). This accounts for the fact that temporal *alors* occurs mainly in clause-internal position in Old French ($Z = +2.5$) and PDF writing ($Z = +3.2$), while it occurs significantly less frequently in clause-internal position in Middle French ($Z = -2.1$) and in peripheral position in PDF writing ($Z = -2.3$). On the other hand, other meanings of *alors* appear more in clause internal position in Old French ($Z = +4.4$) and Classical French ($Z = +2.2$), and less so in Middle French ($Z = -2.1$) and PDF writing ($Z = -2.1$). Finally, there was no significant association between the meaning expressed by *alors* and the position of *alors* in the sentence in Old French. For all other periods, such a significant association did exist. In Middle French, the significant association ($X^2(1) = 12.07$; $p < .001$; Cramer's V: .288) can be explained mainly by the fact that clause-internal position does not favor non-temporal meanings ($Z = -2.6$), while peripheral position does. In Classical French, the association is significant but rather weak ($X^2(1) = 5.868$; $p < .05$; Cramer's V: .146). The association is strongest in PDF writing ($X^2(1)$

= 44.249; $p < .0001$; Cramer's V : .665), which mainly favors temporal *alors* in clause-internal position ($Z = +4$) and other meanings in peripheral position ($Z = +2.5$).

The analysis reveals a number of interesting outcomes, some more clear-cut than others. First of all, time period does favor peripheral position: the later the period, the more occurrences of *alors* are found in peripheral position or more exactly, the fewer *alors* occurrences are found in clause-internal position. This is not totally true of PDF writing, which sees an increase of *alors* occurrences in clause-internal position, but this seems to be linked to a specialization of the meaning of *alors* ('at that time') in this position (cf. Section 6.1.1). Furthermore, the analysis confirms that the meaning changes over time, with a steady increase of other meanings for *alors* at the expense of its purely temporal meaning. With respect to the question whether it is syntactic change that favors new other meanings, or whether new meanings call for syntactic innovation, the analysis seems to reveal that the appearance of new syntactic positions precedes the occurrence of new meanings. In Old French, few *other* meanings are found for *alors* in peripheral new position, and in Middle French and in Classical French this tendency for underuse persists although not significantly anymore, while PDF writing clearly demonstrates a massive use of other meanings in peripheral position together with an underrepresentation of purely temporal uses in this position. As for clause-internal position, the divide between temporal and other meanings for *alors* remains stable throughout Old and Middle French. This conforms to the grammaticalization parameter of "layering" (Hopper 1991), i.e. the persistence of older forms or meanings alongside new ones. In PDF writing, the *other* non-temporal meanings seem to have chosen their side and do not occur anymore in clause-internal position. However, in between, in

Classical French, clause-internal position sees a rise of *other* meanings for *alors* which we cannot readily explain.

In our view, the evolution of *alors* from clause-internal temporal adverbial to peripheral connective or discourse markers exemplifies Heine's (2002:86-87) scenario for how a linguistic expression acquires a new grammatical meaning. In the initial stage, the context is unconstrained, resulting in the source meaning. This corresponds to the situation of *alors*₁ in Old French. The next step, called the bridging context, corresponds to the appearance of a new context giving rise to an inference in favor of a new meaning. This is what happens to *alors* in Middle and Classical French when it receives causal and conditional meanings in peripheral position (*alors*₂ and *alors*₃) – but also in clause-internal position for Classical French! The “switch context” is the third step: the new context is incompatible with the source meaning. This is what happens with temporal concomitant *alors*₁ ‘at that time’, which has become incompatible with peripheral position in Present Day French. “Conventionalization” is the final stage of Heine's scenario, where the “target meaning no longer needs to be supported by the context that gave rise to it [and] may be used in new contexts” (2002:86). We would like to suggest that this is what is happening to *alors* in spoken PDF, where the source meaning temporal *alors* has nearly disappeared to leave room for the mainly metadiscursive uses of *alors*.

7 Conclusions

The aim of this study was to unravel the relationship between the evolution of the meaning of *alors* from Old French to Present Day French and the position it occupies in the clause/sentence. The underlying hypothesis was that this meaning evolution goes

hand in hand with a move from a sentence-internal function to a discourse-structuring function.

Our diachronic corpus study adduced evidence for the progressive diversification of the meanings of *alors*, from purely temporal in Old French to broad polysemy in PDF. We also showed that *alors* does indeed evolve from an adverbial, clause-internal use to a discourse-structuring, peripheral (clause-initial and clause-final) use in Spoken PDF. Our data suggest that the movement to clause-initial position was either a trigger or a precondition of the semantic and functional change of *alors*. There is indeed a clear link between position and meaning, for all periods where *alors* is polysemous. Besides, the rise of polysemy follows at least a few centuries after its shift in sentence position. It remains to be seen, however, if this link between position and Discourse Marker function is specific to French and English (cf. Traugott 1982), or is a more general linguistic trend. A promising path of investigation could be to look at this relationship between meaning and syntactic position in terms of context-dependent constructions (see, for example, Bergs & Diewald 2008; Noël 2007).

A corollary question is whether this evolution should be interpreted in terms of a grammaticalization path from objective temporal meaning to subjective metadiscursive meaning in the line of Traugott's clines from propositional to textual meaning (1982) and from clause-internal adverbial to discourse marker (1997). We believe it should. First, there is the impressive rise in frequency through the centuries which appears at least to interact with the grammaticalization of an item or construction. Second, we have shown that as far as the evolution from propositional meaning to discourse meaning is a case of grammaticalization, *alors* clearly follows this path (but see e.g. Waltereit 2006 for arguments against this view). Finally, *alors* fits very well into the scenario of

grammatical change depicted by Heine (2002), and seems to have reached the stage of conventionalization in Spoken PDF. This grammaticalization hypothesis, however, will need further perspectivization within the vast debate on grammaticalization.

Finally, there is the prominent variation between speech and writing in the semantic distribution of *alors*, which raises the issue of the role of speech in language evolution overall. In our view, speech plays a driving role in the evolution of language and therefore deserves a prominent place in grammaticalization research. Unraveling this specific role must, however, remain the topic of ongoing and future research.

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1. In Latin, one use of the ablative case is to express time meaning ‘from that time on’; it also inherited some locative uses, and as such is used to localize temporally meaning ‘at that time’.

2. Hybertie’s formulation is stronger than ours. She speaks of “absence de repère temporel donné dans l’énoncé antérieur” (absence of any temporal landmark given in the prior clause; 1998:24).

3. « *alors* construit une séquence d'événements temporellement ordonnés ... un ordre de succession temporelle qui est lié à un ordre logique de déroulement des faits, faisant apparaître le premier comme la condition de réalisation du second. »
4. Bouacha (1981) subsumes these uses under the header “discourse starter” (‘attaque de discours’).
5. Such as *Alors, tu viens!* “[alors], are you coming?”, where *alors* denotes impatience and a call to order.
6. This database was used to complement the BFM database for OF, because few occurrences of *alors* were found for this period. Its design, however, does not make it a very useful database, and we therefore decided to use it only sporadically, to fill in the gaps.
7. VALIBEL is a database of spoken data. It currently contains more than 400 hours of transcribed speech. It comprises a variety of genres and registers; sociolinguistic interviews, spontaneous conversation, elicited conversation, media broadcasting, professional meetings, lectures, and read-aloud data. More information on conditions for distribution etc. can be found at URL: <http://www.uclouvain.be/valibel>
8. These numbers include data from the BTMF database (Textual Database for Middle French), which we used only for statistical purposes; this explains why there are more occurrences than those we studied in our parameter analysis.
9. Cramer’s V is a correlation coefficient used to measure effect size: .10 represents a small effect, with 1% of the variance explained, .30 represents a medium effect with 10% variance explained, .50 represents a large effect, with 25% variance explained.

10. The Z-score gives the probability that a particular score will occur. A Z-score from +/- 1.96 is significant at the 0.05 level, +/- 2.58 at the 0.01 level, and +/-3.29 at the 0.001 level.
11. For reasons of statistical strength we have grouped causal and conditional uses together.
12. In order to keep the genre comparable, we will not include the spoken data in this diachronic overview.
13. A loglinear analysis is a statistical test that enables “to test the relationship between more than two categorical variables. Loglinear analysis is hierarchical: the initial model contains all main effects and interactions. Starting with the highest order interaction, terms are removed to see whether their removal significantly affects the fit of the model. If it does then this term is not removed and all lower-level effects are ignored.” (Field 2005).

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Period	Number of words	Occurrences of <i>alors</i>	Frequency per 10,000 words
12 th -14 th	4,683,890	95	0.2
15 th	3,432,481	369	1.07
16 th -17 th	10,796,086	3908	3.62
20 th written	3,245,366	3348	10.32
20 th spoken	50,668	199	39.28

Table 1: Increasing frequency of *alors* over time

Period	Occurrences of <i>alors</i>
Old French 12 th -14 th	34
Middle French 15 th	146
Classical French 16 th -17 th	276
Present Day French, written 20 th	100
Present Day French, spoken 20 th	100
Total	656

Table 2: Occurrences of *alors* in our corpus, for each period

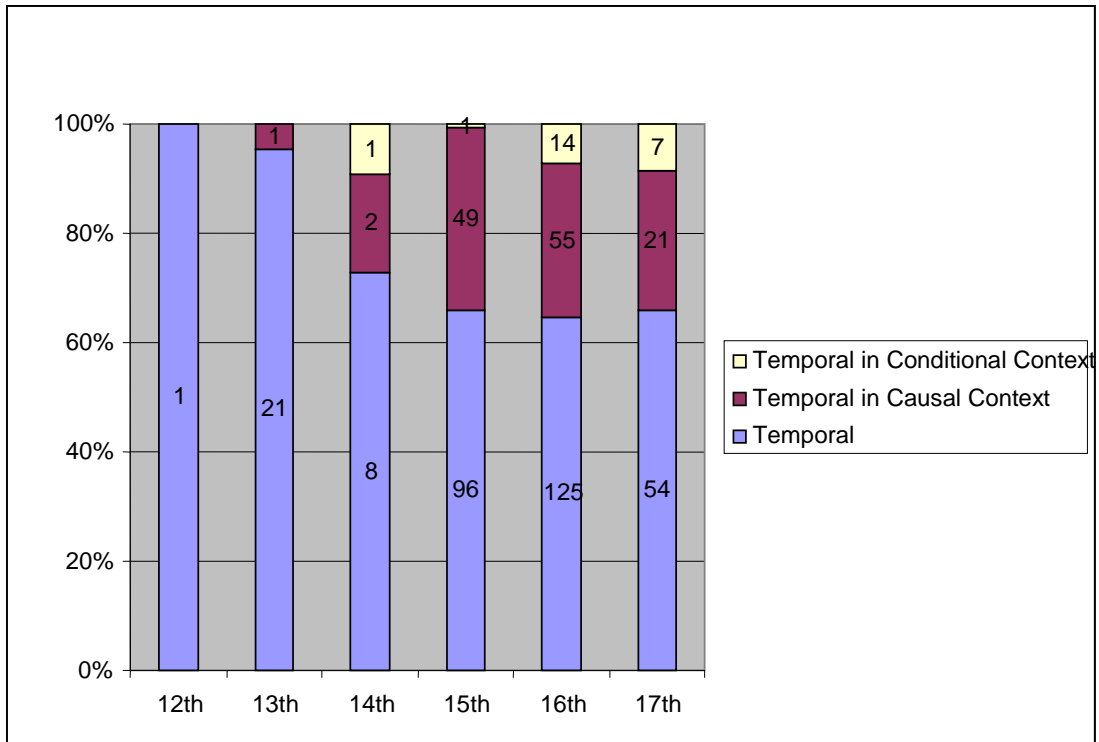


Figure 1: Semantic evolution of *alors* from the 12th to the 17th century

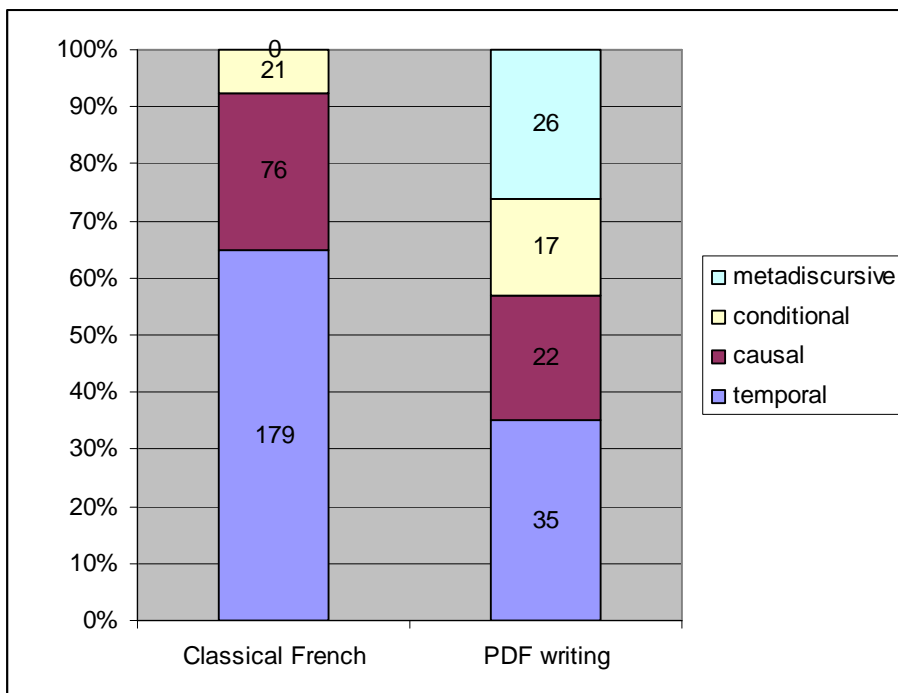


Figure 2: Semantic distribution of *alors* in Classical and Present Day French

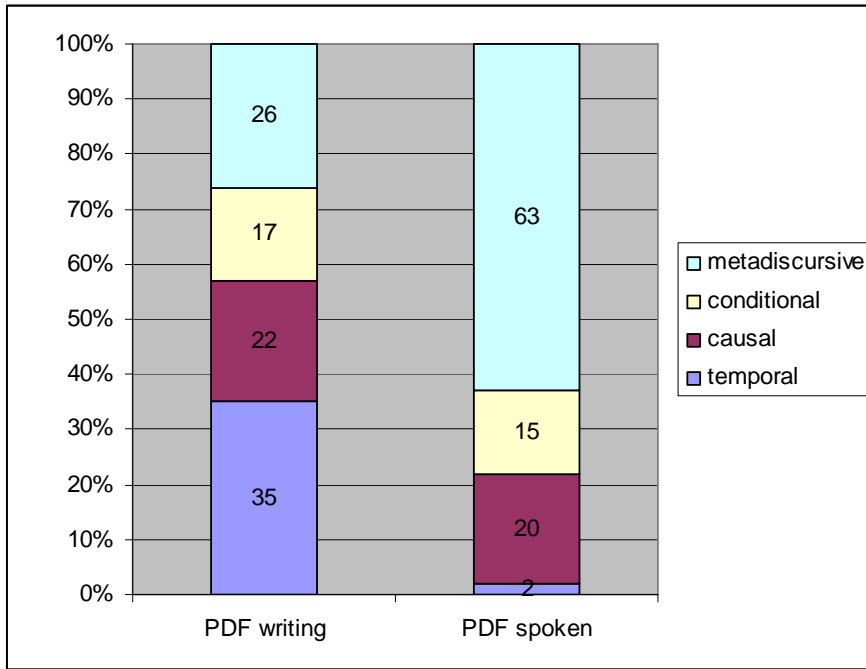


Figure 3: Semantic distribution of *alors* in spoken and written PDF

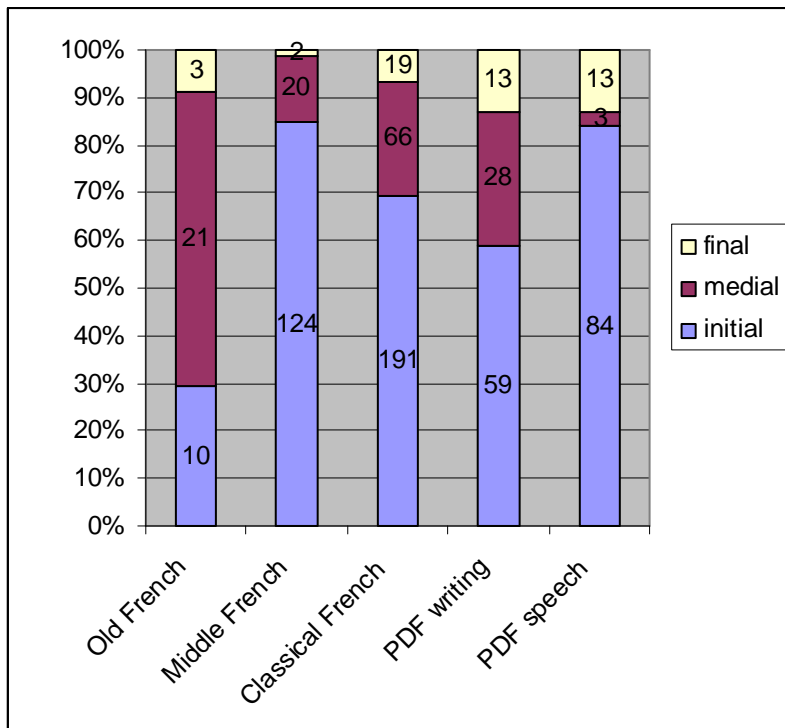


Figure 4: Evolution of the syntactic position of *alors* in the sentence

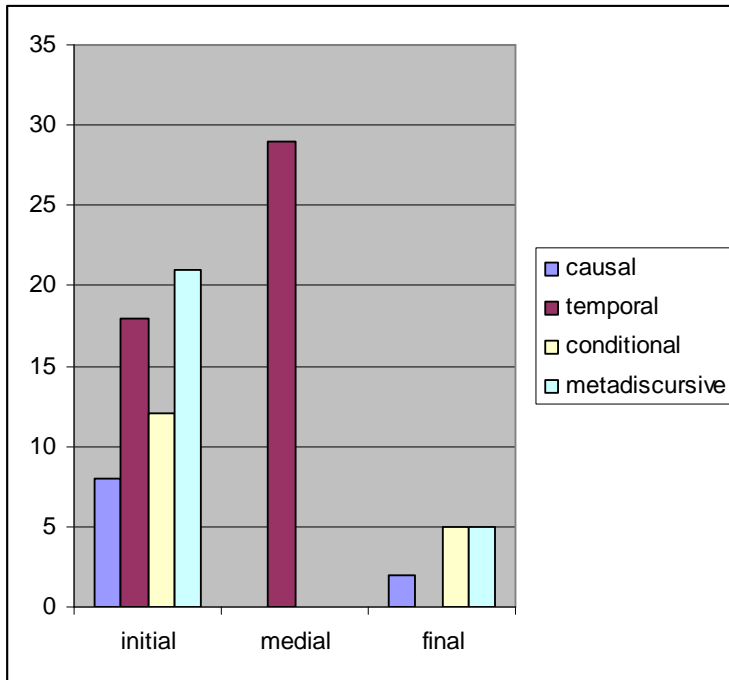


Figure 5: Semantic distribution of *alors* as a function of syntactic position in PDF writing

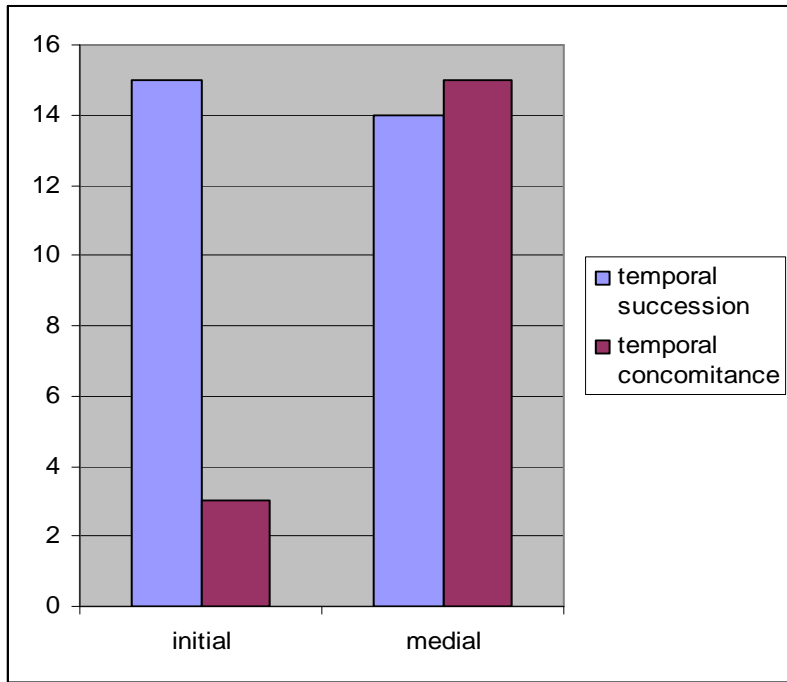


Figure 6: Temporal use of *alors* as a function of syntactic position

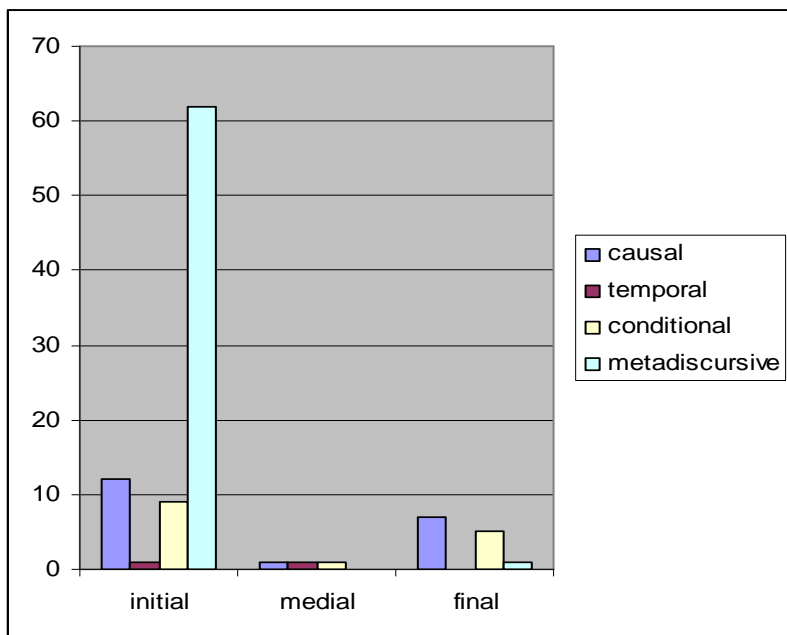


Figure 7: Semantic distribution of *alors* in spoken PDF as a function of syntactic position

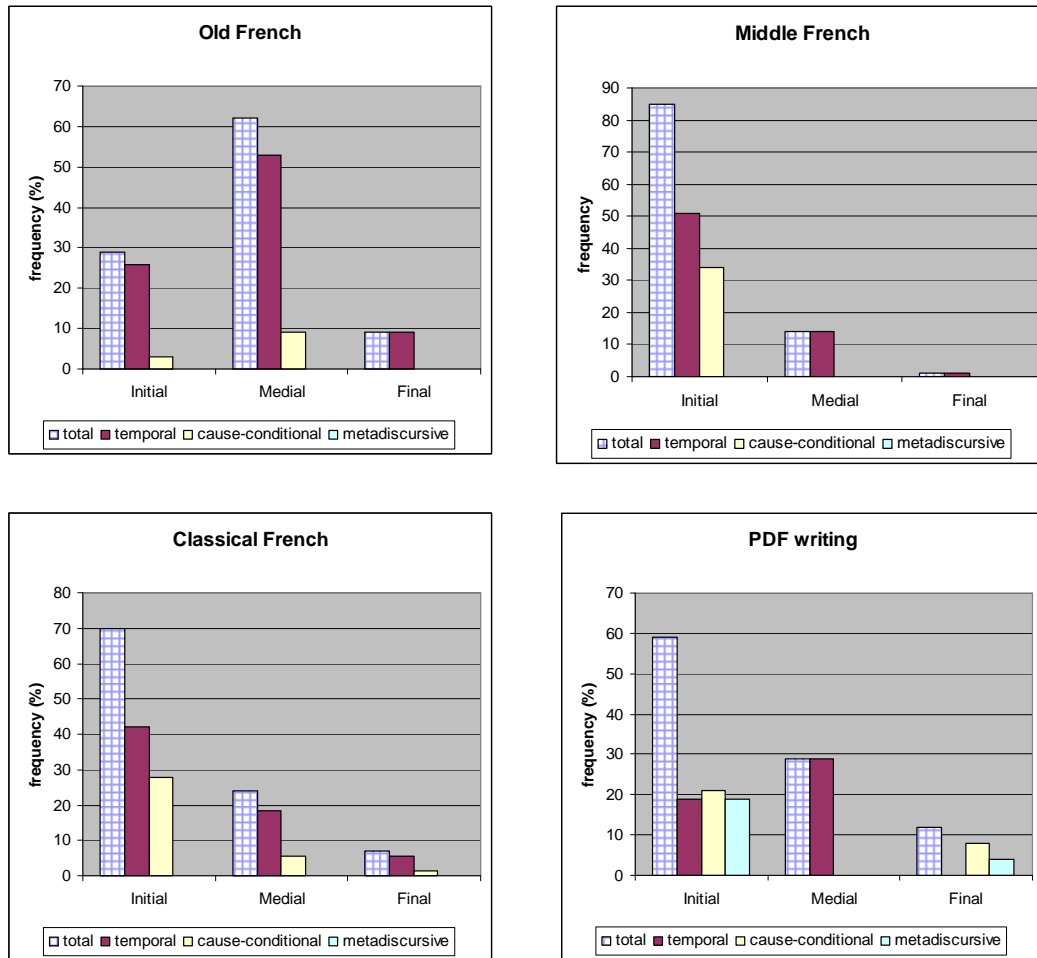


Figure 8: Evolution of the relationship between position and meaning of *alors*