Grammaticalization, Complementization and the Development of an Epistemic Parenthetical: A Diachronic Analysis of the Verb *Feel*.

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Abstract

This paper utilizes a corpus based methodology to explore the diachronic development of the matrix verb feel in the construction [feel + that/zero + clausal complement].and the emergence of the collocation I feel in present day English as a grammaticalized 'epistemic parenthetical' (Thompson and Mulac, 1991). A total of 8357 tokens from 1351-2009 were analyzed. The effect of the following factors on the grammaticalization and (inter) subjectification of the matrix verb feel, and its current use as an epistemic parenthetical, were investigated: (i) the effect of the variation in use of the complementizer that vs. zero in (n= 1757) examples from 1351-2009; (ii) the diachronic statistical significance via a multivariate regression analysis of four structural factors which favour the zero-complementizer form and (iii) within the (n = 558) zero-complementizer constructions the presence and position (n=163) examples of feel being utilized as an 'epistemic parenthetical' (EP/EPAR). The analysis shows that the increased frequency of I feel zero-complementizer (vs. I feel that) correlates with increased subjectification. The analysis suggests that theI feel (MSP) subject-matrix collocation is undergoing grammaticalization via decategoralization, with the original matrix clause now functioning as a parenthetical disjunct much like I think/know/believe etc. (Nuyts, 2001; Thompson and Mulac, 1991).

Key Words: Corpus-based, Regression Analysis, Grammaticalization, Complementizer, Epistemic parenthetical.

1. Introduction

In cognitive-functional approaches to language, grammatical forms/constructions are increasingly seen as emergent (Hopper 1987, Hopper & Traugott 2003). Against this background, this paper explores the diachronic development of the matrix verb *feel* in the construction [*feel* + *that*/zero + clausal complement] and the grammaticalized development of *feel* as an 'epistemicparenthetical' (Thompson and Mulac, 1991) in Present-day English. Our objective is to investigate *feel*'s pathway of grammaticalization and (inter) subjectification from (1)a tactile/perception verb and (2)a mental state predicate (MSPs), (3,4) to its use in the complement taking [pronoun + verb] sequence I *feel* as an expression of epistemic probability (5) and, finally, to the emergence (6) of the collocation I *feel* in present day English as a grammaticalized 'epistemic parenthetical' (Thompson and Mulac, 1991).

1) *I felt that my pistols were free in the holsters.* (OED, 1847)
2) *She felt in her body that she was healed of the plage.* (OED, 1534)
3) *Ech of these men felid weel in himself that he hadde need for to have help and reuling.*(OED, 1449)
4) *I feel that all you assert is true--that my present position is hazardous.*(CLMETEV, 1710-1780)
5) *and I feel I have only won her in my quality of king.*(CLMETEV, 1780-1850)
6) *That, I feel, was gone forever*. (CLMETEV, 1780-1850)

A comprehensive diachronic corpus based framework is utilized to first examine the development of the matrix verb *feel* in the construction [feel + *that*/zero + clausal complement] from Middle English (ME) to Present-day English (PDE) and the historical variation of the/zero choice in complementation.

Once the constructions which contain either a *that*-clause or a zero-complementizer form have been identified a multivariate statistical analysis is used to test the significance of four proposed clausal factors (summarized in Kaltenböck, 2004:50-52) which have been claimed to facilitate the use / presence of the zero-complementizer in MSPs such as *think* and *know*. Finally, we examine the zero-complementizer *feel* subset for the presence of epistemic parentheticals which, according to Thompson & Mulac (as paraphrased in Brinton, 2009) "begin as main clauses with a *that*-complement; the rise of the parenthetical involves reversal of the syntactic status of the matrix and the complement clause following the loss of *that*."

Our analysis will present diachronic evidence that a progressive increase in subjectified usage I *feel* zero-complementizer contexts (vs. I *feel* + *that*-clause contexts) has occurred between 1351 and 2009 and that the I *feel* zero-complementizer context is the locus of the subjectified epistemic parenthetical usage. We will use our findings to provide further insight into the question of to what extent this proposed grammaticalization process of the matrix verb *feel* effectuates a structural shift at clausal level, i.e., a shift from a bi-clausal [matrix + COMP + complement] structure to a monoclausal structure. Finally, our diachronic analysis will also allow us to address the question of whether this process of clause fusion (which holds for all epistemic parenthetical formation regardless of the matrix verb) can be seen as a type of grammaticalization at clausal level (cf. Hopper & Traugott, 2003; Brinton, 2009).

2. Review of Literature

The increase in structural / clausal flexibility that emerged in English starting in the late ME and EModE periods had a profound impact on many facets of early English syntax; especially in regards to the fixation of SVO word order, clause combining and complementation patterns. One of more important shifts, especially in regards to grammaticalization research, has concerned the observed decrease in the frequency of the *that*-complementizer and corresponding increase in the *zero*-complementizer form (Rissanen, 1991: Hopper & Traugott, 1993; Finegan & Biber, 1995). One of the first corpus based paper to address this issue was Rissanen (1991) who used the Helsinki corpus to examine the development and use of the *that*/zero alternation in *think, know, say,* and *tell* constructions with object clauses in Late Middle and Early Modern English. His analysis revealed a steady increase in the deletion of *that* as an object clause link in *think* constructions from 14% in the years 1350 to 1420 up to nearly 70% by the period of 1640-1710. Subsequent work by other researchers such as Finegan & Biber (1995) have supported and expanded upon Rissanen's claims regarding the *that/*zero-alternation by demonstrating the roles that variables such as genre play in retaining (i.e. sermons medical articles etc.) the *that*-complementizer form.

Following the use of early corpus based methodologies to document the diachronic increase in the zero complementizer in a number of different verbs (e.g. *say*, *tell*, *think*, *know*), from ME through PDE, researchers then turned their attention to trying to understand the factors that might be motivating the observed and ongoing structural/clausal changes. Elsness (1984), using a corpus based approach and a chi-square analysis, demonstrated that an absence of additional element between the matrix verb and object clause and a greater degree of informality in either text type or language all contributed to an increase in the presence of the zero-complementizer. Conversely, he also found that a "*that* connective is more likely to be chosen of either the matrix clause or the object clause deviates from the most common weight-distributional pattern in English , characterized by light elementsininitial position and heavier elements towards the end" (pg 532). Thompson & Mulac (1991) also utilized a similar chi-square analysis to also demonstrate the impact that the higher relative frequency of a verb (e.g. *think* and *guess*) and the presence of *I* or *You* (versus other subject forms) as the subject of the matrix verb also facilities the presence of the zero-complementizer.

Their finding were also complemented and built upon by Rissanen (1991) and Biber & Finegan (1995) who showed, via a simple proportional contrastive analysis, that subject type (i.e. pronominal subjects), the person of the subject governing the object clause (specially 1st person), and again text type (especially in regards to informality) also contributed to a define in the frequency of the *that*-clause.

Finally, it has been proposed that the historically consistent and sustained increase in the zero complementizer form, specifically with the mental state oriented verbs (MSPs) (Nyuts, 2001) *think* and *guess*, and the resulting increase syntactic / clausal flexibility have established conditions in which further change via grammaticalization can take place – specifically in regards to the grammatical zed development of epistemically oriented parenthetical type uses.

'Epistemic parenthetical' constructions are small phrases such as *I think or I guess* which are used as a hedging devices and can occur in any position of a sentence. They explicitly mark the propositional content of the clause they attach to as the speaker's own opinion, "permitting for example, extensions of meaning involving the speaker's attitudes to the hearer or to the message" (Aijmer, 1997:3).

Thompson & Mulac (1991) in particular have argued through their analysis of synchronic PDE spoken data that the increase in the *zero*-complementizer has also created an environment conducive to other changes – especially in regards to the nature and scope of the matrix verb itself. Their theory, which is described in Brinton (2009) as the "Matrix Clause Hypothesis" holds that "the shift from matrix clause to pragmatic marker generally begins with deletion of the complementizer of the dependent clause. The loss leads to structural indeterminacy; that is, in a structure such as "I think *that* it is a good idea", the *I think*may be understood either as a main clause or as a *parenthetical*. The structural indeterminacy allows a reversal in syntactic hierarchy: the original matrix clause is reanalyzed as a parenthetical and the original complement clause as the matrix clause. The parenthetical acquires positional mobility and may be moved to sentence medial or final position It also undergoes a change in scope: the original main clause had a scope over a proposition (the *that*-complement) but the parenthetical now has scope over the clause and ultimately over larger units of discourse." Brinton (2009: 246-247)

However Brinton (1996) has argued that on the basis of Old English and Middle English (Chaucerian) data the parenthetical use originates in relative constructions rather than complement constructions, which have the propositional content expressed by the previous clause as their antecedent. Fischer (2007) has also developed a competing account, having looked at Brinton's (1996) data and Present-day Dutch examples from the Internet. In her proposal, she does not include a stage in which the parenthetical is part of a complex clause (a complement construction cf. Thompson and Mulac (1991) or a relative clause construction cf. Brinton (1996). Rather, she argues that phrases such as *I think* "probably occurred both in independent clauses and with complement clauses from the beginning" (Fischer 2007: 112).

In addition to the actual diachronic development of parentheticals, opinions diverge on whether this change is an example of grammaticalization or lexicalization. Thompson and Mulac (1991) think that this development resembles lexicalization, with the phrases having become highly formulaic, but they reject the lexicalization analysis because the parenthetical is "still available for ordinary negation and questioning" (1991: 324). Brinton (1996), in turn, makes a case for grammaticalization and subjectification, based on pragmatic inferencing. Fischer (2007), however, argues in favor of a lexicalization analysis.

While there appears to be a robust debate as to the structural origins and processes by which epistemic parentheticals have developed, in this paper, we will present evidence via our diachronic corpus based analysis, that supports the position/argument that the development of the parenthetical use of *Ifeel* is due to increased subjectification and that the resulting epistemic use(s) of *fee*l (as a parenthetical) have developed as a result of grammaticalization processes.

3. Corpora, Data, and Methodology

Our analysis was based on tokens retrieved from the following corpora:

Sub-period of English	Time span	Corpus	Number of words (millions)
Middle English (ME)	1351–1500	*Leuven English Old to New (LEON)* *Penn-Helsinki Parsed Corpus of Middle English, Second Edition* (PPCME) *CEECS I Corpus*	2.81
Early Modern English (EModE)	1500–1710	*Penn-Helsinki Parsed Corpus of Early Modern English* (PPCEME) *CEECS II Corpus* *Corpus of English Dialogues (CED)* *Corpus of Early Modern English Texts (CMET)* *Lampeter Corpus (Early Modern English portion)*	6.00
Late Modern English (LModE)	1710–1920	*Corpus of Late Modern English texts Extended Version* (CLMETEV) *Lampeter Corpus (Early Modern English portion)*	15.83
Present-Day English (PDE)	1920–2009	*The Time Corpus (Time)* *The Corpus of Contemporary American English (COCA)*[*] *American National Corpus (ANC)** *Brown Corpus*	412.70

Table 1: Corpora

Wordsmith was also used extract a proportionally balanced sample of all the inflected forms of *feel* (i.e. *feel*, *feels*, *feeling* and *felt*) from each of the 12 time-periods presented below in Table 1. Due to the relatively low frequency of occurrence the verb, *feel* in most of our corpora every single example from 1351 until 1920 was extracted and analyzed. In addition, all examples from the ANC and Brown corpora were also included. With the larger TIME and COCA corpora (n>10,000,000) the website's native search syntax was first used to identify the total number of inflected verbal forms of *feel* (i.e. *feel*, *feels*, *feeling*, and *felt*) in each corpus. These results were then used to calculate the overall percentage of each inflected form relative to one another. The percentages were then applied to the extracted subsets (a minimum of (n= 1000) randomized hits in order to ensure that the final subsets, extracted from the (n=1000) samples, would be proportionally similar in terms of inflected forms to the larger corpora from which they were taken. This extraction process resulted in a dataset of (n=**8357**) verbal *feel* tokens.

date	**Total # of verbal forms**
1351-1420	(n=100)
1421-1500	(n=162)
1501-1579	(n= 15)
1580-1639	(n= 24)
1640-1710	(n=195)
1710-1780	(n=779)
1780 -1850	(n=1462)
1850-1920	(n=1837)
1920-1959	(n=353)
1960-1970	(n=316)
1990-2004	(n=1558)
2004-2009	(n=1595)
Total	**(n=8357)**

Table 2: Total number of tokens for *feels* retrieved from the corpora

∗Written component only. Spoken data was not included.

The matrix and complement clausesfor all (n=8357) verbal tokens were then coded using the following categories:

Coding category	**Example**
Vb	*That is what he felt.*
Vb+np	*I felt a strong breeze.*
Vb+adjp	*He felt drowsy.*
Vb+advp	*I don't feel much like laughing.*
Vb+pp	*He felt on the floor for his key.*
Vb (parenthetical)	*This, I feel, probably is going to turn out badly.*
Vb+S (*zero* comp + finite declarative clause)	*I feel I have a good chance at winning.*
Vb+SubC+S (*comp* + finite declarative clause)	*I feel <u>that</u> I have a good chance at winning.*
Vb+SubC+S (*othercomp* + finite declarative clause)	Complementizers other than *that* (e.g. *as if, as though*, and *like*)
Vb+vp	*I play what I feel is needed.*
Vbg [matrix +-ing]	*I want you to realize what I am feeling.*
Vbg+np	*I am feeling the energy.*
Vbg+adjp	*I am feeling happy.*
Vbg+advp	*And when he starts feeling too strongly along such lines.*
Vbg+pp	*Borden cowered, feeling for a grip on the bunk.*
Vbg+S (*zero* comp + finite declarative clause)	*He was feeling he had little to offer.*
Vbg+SubC+S (comp + finite declarative clause)	*Sophia concurred, feeling <u>that</u> she herself was even younger.*
Vbg+vp	*Garrett (James Coburn), older, feeling threatened by age*
***if* -clause**	*Come near/closer, dear son, and let me feel if you are him in life/love?*

Table 3: Predicate coding categories

The full set (n=8357) set of tokens were found to contain (n= 1757) examples with either a *that*-clause or a zero-complementizer. The distribution of these (n= 1757) tokens is presented in Table 4.

	***feel* - that**		***feel* - zero**	
Period	n	N	n	N
1351-1420	(n=9)	19.33	(n=0)	0.00
1421-1500	(n=7)	15.26	(n=3)	6.54
1501-1579	(n=1)	5.17	(n=1)	5.17
1580-1639	(n=0)	0.00	(n=1)	3.19
1640-1710	(n=5)	3.57	(n=4)	3.05
1710-1780	(n=23)	7.89	(n=5)	1.79
1780 -1850	(n=340)	154.24	(n=68)	32.18
1850-1920	(n=558)	261.48	(n=159)	72.66
1920-1959	(n=69)	64.53	(n=42)	29.95
1960-1970	(n=35)	70.90	(n=26)	52.77
1990-2004	(n=93)	35.47	(n=140)	56.90
2004-2009	(n=59)	25.63	(n=108)	49.60
	(n=1199)		**(n=558)**	

Table 4: Distribution of *that*-clauses and zero-complementizer clauses from ME to PDE.
(n: absolute frequency, N: normalized frequency)

The (n= 1757) sentences were then coded for 26 features within three categories: corpus information, matrix clause features, and complement clause features. The corpus information features included information such as the time-period of the corpus (e.g. 1710-1780), the inflected form of the token and the full context in which it appeared. The matrix and complement clauses of each extracted tokens were also coded for features such as person, tense, polarity, the length of the subject (*pronoun* / *np-short* for 1-2 words / *np-long*for 3+ words), and core ferentiality (or lack thereof). In addition, the type of complementizer (i.e.*that* versus *like*, *as if*, *as though*) was also noted along with the presence (or absence) of additional elements within the matrix clause (elements between the subject and the matrix verb), intervening elements (between the matrix clause and the complementizer) and the location of the intervening elements (either pre / *before* or post / *after* the complementizer and before the complement clause subject). Finally, within the sentences that contained a zero-complementizer we coded for the presence and position of epistemic phrases (EPs) and epistemic parentheticals (EPARs), as defined by Thompson and Mulac (1991). This included EPs / EPARs in Initial[1] and Medial position[2]. Examples of both positions are provided below.

7) (Initial, EP) *I feel I am justified in bringing this to your attention* (CLMETEV, 1780-1850)
8) (Medial, EPAR) *It's much better I feel from the public's point of view.*(ANC, 1990-2003)

4. Results

The results of our analysis and discussion will be presented in the following order. We will begin by looking at the distribution of *that* versus zero complementizer forms, both in terms of relative frequency and ratio, within the 13aforementioned periods from 1351 to 2009. Once we have confirmed that a diachronic increase in both the *that*-clause and zero-complementizer forms is indeed present we will then utilize a multivariate statistical analysis process to analyze the impact (and potential statistical significance) of four factors which have been proposed to facilitate the use and/or presence of the zero-complementizer form. Following this analysis and discussion we will then examine in Section 5.0 the zero-complementizer subset (n= 558) for the development and use of *feel* as an epistemic parenthetical (i.e. EPAR). Finally, we will conclude in Section 6.0 with a discussion of our finding and implications as they pertain to the issue of the observed semantic and syntactic change as being a case of grammaticalization.

4.1 The development of the zero-complementizer clause

The initial token extraction process generated (n= 1757)instances of *that*-clause and *zero* complementizer clause constructions between 1351 and 2009. This included (n= 1199) instances of the *that*-complementizer (e.g. '*They felt that certain people were contemptuous of them* (TIME, 1920-1959) and (n= 558) of the zero-complementizer (e.g. '*we feel it will open up the process to everyone*' (ANC, 1990-2004). A full diachronic distribution of relative frequency of the *that*-clauses versus zero-complementizer clauses is graphically presented in Figure 1.

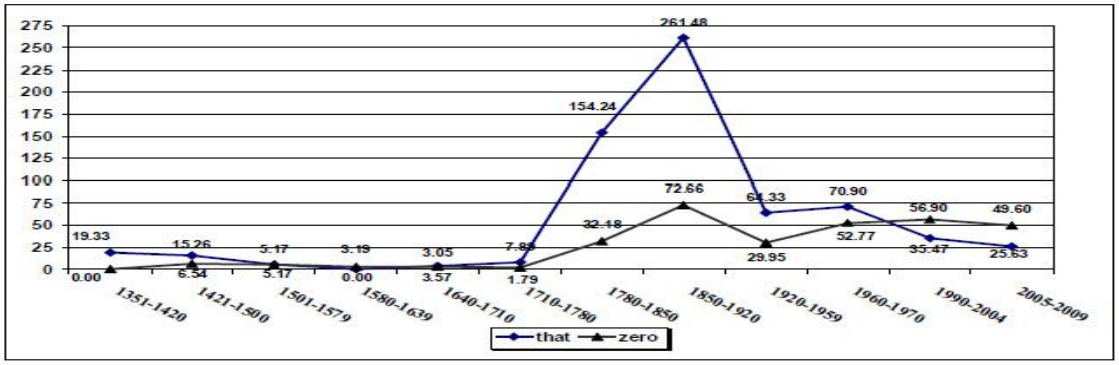

Figure 1: The frequency (per million words) of *that* vs. zero choice in clausal complements with *feel*

1 Thompson & Mulac (1991) and others have noted the difficulty of determining whether an EP in initial position is truly an epistemic phrase or part of the matrix clause. We have therefore categorized all initial [pronoun + verb collocations] as EPs, or potential EPs (cf. below), as they can all be situated on a cline between matrix status and full EP status.

2 Thompson & Mulac (1991) analysis of *think* reveals that that epistemic parenthetical forms (EPARs) of *I* or *you* + *think* appear in Initial, Medial and Final positions. However, as we shall demonstratein Section 4.3, our analysis of *feel* reveals that EPAR constructions only appear in a Medial position therefore a Final position EPAR example has not been included.

The analysis reveals that the relative frequency of the verb *feel* in the corpus database as well as the use of the zero-complementizer form was quite low until the early 1700's. Starting in the late Modern English period (i.e. 1710), however, when we start to find larger sample sizes per period (n<30)we also begin to seea steady increase in both the overall relative frequency of occurrence and the ratio of the *that*-clauses to the zero-complementizer forms. From 1710-1780 we see a ratio of 4.40 to 1.00, by 1850-1920, the ratio decreases to 3.59 to 1.00 and finally from 1990-2009 wecan see that the *zero*-complementizer has actually become the most frequent form and the ratio changes to 1.76zero-complementizerforms for every 1.00*that*-clause. The steady increase in the frequency of the zero-complementizer, especially from EModE though PDE has also been documented with other MSPs such as *realize*, *believe*, and *guess* (Shank, 2012; Shank, Van Bogaert & Plevoets, 2016).

4.2. **Testing potential variable/factors favoring the zero-complementizer in object clauses.**

The observed diachronic increase in the zero-complementizer form also presents an opportunity to test a number of factors which have been claimed to favor the zero-form in verbs such as *think*, *guess*, *say* and *tell* (see Section 2.0). A review of many of these studies however does reveal a number of potential methodological limitations or concerns. For example, the ability to confidently extrapolate historical patterns (Rissanen, 1991; Finegan & Biber, 1995) is hampered by limited sample sizes (n< 40) for some of their verb sets and the explanatory power achieved by using a simple contrast of the percentage of occurrence one feature (versus the absence of that feature) in their datasets is inherently limited. This type of approach can highlight a numerical / percentage based difference but it says nothing about the actual significance of the observed contrast upon the effect under observation (i.e. the zero form).

The synchronic studies conducted by Elsness (1984) and Thompson & Mulac (1991) on the other hand use substantially larger samples sizes and a statistically orientated analysis (i.e. chi-square) so their results are more empirically grounded, reliable and informative; however a chi-square analysis itself is limited in that it indicates the presence of a relationship (factors A and B are somehow related) but not the significance of that relationship (the observed relationship between factor A and B is not the result of random chance). A chi-square analysis indicates that a relationship exists but it takes a more advance multivariate regression analysis to determine if that relationship is actually statistically meaningful. In addition, when discussing a cumulative diachronic process and outcomes the variables should be tested for an effect over time in order to assess the proposed impact and resulting effect (i.e. favoring the presence / absence of the zero-complementizer).

To address these issues a multivariate logistical regression analysis[3] was utilized to statistically test the (n= 1757) tokens containing either *that*-clauses or a zero-complementizer[4] for the significance of the following four factors (as summarized in Kaltenböck 2004: 52) which favor the presence zero-complementizer .

9) Matrix clause subjects are *I* or *You*.
10) The absence of extra elements in the matrix clause (viz. auxiliaries, indirect objects, adverbials) which reduce the ability of the matrix to function as an epistemic phrase by additional semantic content (cf. Thompson & Mulac 1991: 246).
11) Pronominal subject of the complement clause, co-referential with the matrix clause subject
12) The absence of intervening elements between the matrix and complement clause, making explicit boundary marking (disambiguation) with *that* unnecessary.

In addition, to remain consistent with previous literature and approaches, and to present a baseline for analysis, we first analyzed the effect of the individual four factors on the presence of the zero form over time. The first factor subjected to a regression analysis was the following: 'The zero form is favored when the matrix clause subjects are either *I* or *You*'. The results are presented below in Table 5.

3 Using the statistical software package 'R'.

4In order to achieve significant sample sizes (n> 30) data from 1351-1780 was combined prior to analysis.

Matrix / clause subject is either *I* or *You*			
date	**p-value (actual)**	(p<0.05) Significance?	
1350-1780	0.5272	(p>0.05)	no
1780-1850	0.15065	(p>0.05)	no
1850-1920	0.92299	(p>0.05)	no
1920-1959	0.01460 *	**(p<0.05)**	**yes**
1960-1970	0.00782 **	**(p<0.05)**	**yes**
1990-2004	2.77e-07 ***	**(p<0.05)**	**yes**
2005-2009	8.059 7.6e-16 ***	**(p<0.05)**	**yes**
I or You	3.31e-12 ***	**(p<0.05)**	**yes**

Table 5: Matrix / clause subject is either *I* or *You*

The analysis reveals that when the matrix clause subject is either *I* or *You* it is diachronically significant from 1920-2009. This factor is gaining significance (note the steady increase in the p-value (actual) in Table 5) but this is clearly a modern phenomena. Finally, in the bottom row which is labeled '*I* or *You*' we can see that independently of time (as a variable) the presence of *I* or *you* (as a general effect) is a statistically significant factor for the presence of the zero form. The next factor tested was 'the absence of extra elements in the matrix clause (viz. auxiliaries, indirect objects, and adverbials) favors the zero form'.

Absence of extra elements in the matrix clause			
date	**p-value (actual)**	(p<0.05) Significance?	
1350-1780	0.334415	(p>0.05)	no
1780-1850	0.107876	(p>0.05)	no
1850-1920	0.561368	(p>0.05)	no
1920-1959	0.106022	(p>0.05)	no
1960-1970	0.050763 .	(p>0.05)	no
1990-2004	4.29e-06 ***	**(p<0.05)**	**yes**
2005-2009	1.54e-13 ***	**(p<0.05)**	**yes**
Matrix internal	3.99e-11 ***	**(p<0.05)**	**yes**

Table 6: The absence of extra elements in the matrix clause

In this case, we find an even more limited effect over time. The absence of extra elements in the matrix clause is only truly significant from 1990-2009. The effect is robust in these periods; however, once again we can see that in the bottom row, when this factor is examined independently from time as a variable, the absence of extra elements is also a statistically significant factor for the presence of the zero form The third factor tested was the claim that 'core ferentiality of matrix / predicate and complement clause favors the zero form'.

Core ferentiality of matrix / predicate and complement clause subjects			
date	**p-value (actual)**	(p<0.05) Significance?	
1350-1780	0.63715	(p>0.05)	no
1780-1850	0.32743	(p>0.05)	no
1850-1920	0.82946	(p>0.05)	no
1920-1959	0.00452 **	**(p<0.05)**	**yes**
1960-1970	0.00547 **	**(p<0.05)**	**yes**
1990-2004	3.61e-08 ***	**(p<0.05)**	**yes**
2005-2009	< 2e-16 ***	**(p<0.05)**	**yes**
Co-ref	< 2e-16 ***	**(p<0.05)**	**yes**

Table 7: Core ferentiality of matrix / predicate and complement clause subjects

Once again, an effect similar to the results of the *You or I* factor was found. The core ferentiality of matrix / predicate and complement clause subjects is significant but only from 1920-2009. It is also gaining in significance over time and again it appears to be modern development. The results in the bottom row also indicate that independently of time the presence of conferential subject is once again a statistically significant factor for the presence of the zero form.

The final factor that tested was the claim that the 'absence of intervening elements between the matrix and complement clause' favors the zero form

Absence of intervening elements between the matrix and complement clause			
date	**p-value (actual)**	(p<0.05) Significance?	
1350-1780	0.23581	(p>0.05)	no
1780-1850	0.06939.	(p>0.05)	no
1850-1920	0.36822	(p>0.05)	no
1920-1959	0.22897	(p>0.05)	no
1960-1970	0.08753.	(p>0.05)	no
1990-2004	3.61e-05 ***	**(p<0.05)**	**yes**
2005-2009	5.27e-12 ***	**(p<0.05)**	**yes**
Interv elements	4.80e-11 ***	**(p<0.05)**	**yes**

Table 8: Absence of intervening elements between the matrix and complement clause

Much like the absence of extra elements in the matrix clause this factor is only truly significant from 1990-2009. The effect is once again robust in these periods; however, when examined independently from time as a variable, the absence of extra elements is also a statistically significant factor for the presence of the zero form By remaining consistent with the previous methodological approaches we have demonstrated that these four factors, when analyzed individually, do significantly favor the zero complementizer in the most modern periods.

This approach, however, is inherently limited in its explanatory power in that it fails to consider the effect that the individual factors also have upon themselves over time. Previous attempts to diachronically gauge the significance of such factors have not, to our knowledge, addressed this issue. Therefore using a regression analysis model we can now measure the significance of each of these factors against each other and over time – in relation to facilitating the zero-complementizer. The results of this combined analysis are presented in Table 9.

I or *you*, Co-referentiality, Absence of extra elements in matrix and Absence of intervening elements – combined effect measured against each other and over time			
date	**p-value (actual)**	(p<0.05) Significance?	
1350-1780	0.17991	(p>0.05)	no
1780-1850	0.04025 *	**(p<0.05)**	**yes**
1850-1920	0.42962	(p>0.05)	no
1920-1959	0.03681 *	**(p<0.05)**	**yes**
1960-1970	0.03348 *	**(p<0.05)**	**yes**
1990-2004	1.07e-05 ***	**(p<0.05)**	**yes**
2005-2009	9.96e-13 ***	**(p<0.05)**	**yes**
I or You	2.44e-10 ***	**(p<0.05)**	**yes**
Matrix internal	9.14e-10 ***	**(p<0.05)**	**yes**
Interv elements	2.99e-11 ***	**(p<0.05)**	**yes**
Coref of Subj	4.40e-14 ***	**(p<0.05)**	**yes**

Table 9: All four factors – combined effect measured against each other and over time

Our final statistical analysis reveals that the factors remain largely significant over time and even extending to an earlier period (1780-1850) than was previous observed. By examining the p-value scores we also note only a slight decrease in the overall statistical significance in 3 out of four factors, the exception being the absence of matrix internal elements which actually increased, but all results are well below our (p<0.05) threshold and therefore significant nevertheless.

The use of the regression analysis has shown that these four factors, which were developed out of the analysis of more frequently occurring mental state and locutionary type verbs (i.e. *think*, *know*, *say* and *tell*) also appear to have a significant impact on the selection of the zero form in a less frequent verbs such as *feel*. In addition, by approaching the data diachronically we have been able to demonstrate that a gradual increase in the overall significance for each factor has in fact occurred and that one also one finds more zero forms being utilized by speakers of PDE. The implications of this diachronic development, as we shall demonstrate in Section 4.3 are the gradual emergence and subsequent use of '*feel*' as an epistemic parenthetical construction.

4.3 The Development of EP / EPARs with *Feel* (1351-2009)

We now turn our focus to the (n= 558) zero-complementizer clauses subset and examine it for examples of *feel* being utilized as an epistemic parenthetical. The (n=558) zero-complementizer clauses were first resorted according to the person expressed as the subject of the matrix clause and by tense, only those tokens with a present tense form of *feel* and containing a 1st or 2nd person pronominal subject in the matrix clause were retained. The remaining tokens (n= 163) were then re-divided according to the position of the parenthetical construction within the sentence in either initial or medial position. Finally, it should be noted the tokens that occurred in the initial position were not considered as EPARs but EPs and retained to provide a point of comparison / contrast. The results of this analysis are presented in Figure 2.

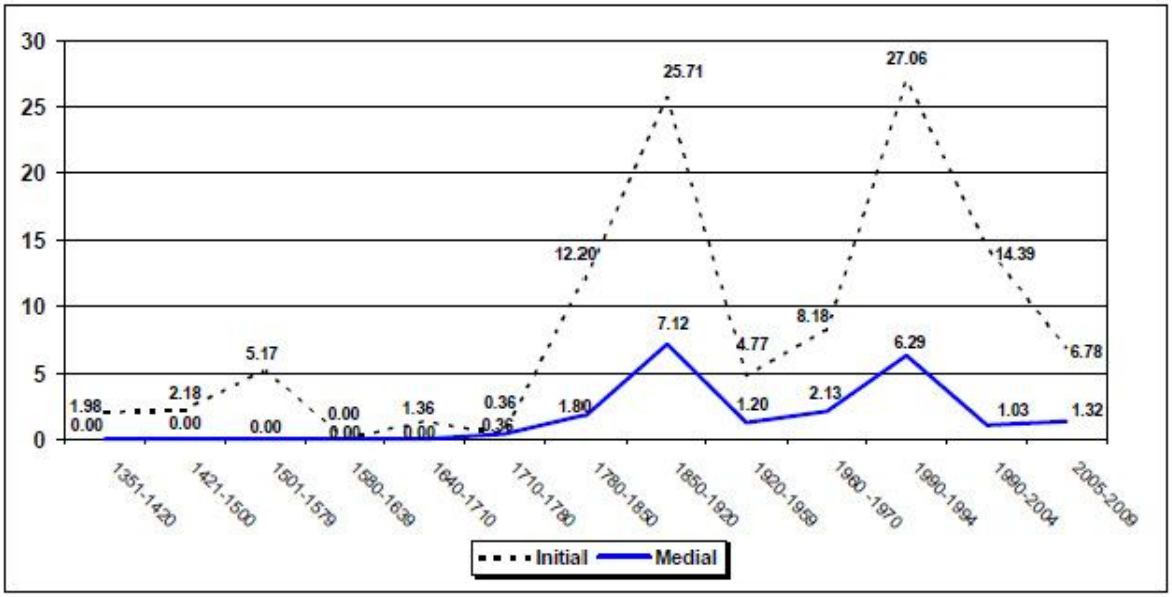

Figure 2: Feel EP/EPAR from 1351-2009: Absolute and normalized frequencies per 1,000,000 words.

In Figure 2 we can observe a steady increase in the use of feel as an EPAR in a medial position from .36 per million words in 1710 to an average of 1.32 per million words by 2005-2009. These patterns indicate that, while a relatively infrequent construction, *feel* is gradually being utilized by speakers as way to express epistemic perspectives.

Furthermore, as we noted at the end of Section 3.0, our data revealed that *feel* was only being utilized as an epistemic parenthetical construction in the sentence medial and never in sentence final position. This is in contrast with the EPAR usage patterns seen with more the more frequently occurring MSP verbs such as *think*, *know* and *believe* where one finds EPAR constructions occurring in a sentence final position, albeit at much lower frequencies than in initial and medial positions. This could be due in part to *feel*'s etymological origins as a verb of tactile/perception and its semantic and conceptual link to the physical domain, a dynamic that may persist even when *feel* is fully emancipated from these physical origins and being used as a mental state predicate (MSP). The tactile/physical nature of *feel* may well continue to influence or govern its relationship to a predicate by syntactically favoring a traditional position of control or dominance via a standard matrix position (i.e. initial) but over time some 'loosening' has occurred and thus we see the emergence of a medial EPAR construction. An *I* or *you* + *feel* EPAR in final position may sufficiently challenge or disrupt these underlying conceptual, semantic and syntactic constraints inherent to the verb *feel*'s etymological origins and thus it has never been considered as 'an option' and thus appropriated by speakers.

Finally, by applying our coding parameters and analytical framework to the corpus data we were able to reveal important diachronic patterns and/or evidence that support our hypothesis (see Section 1.0) concerning the structural changes that need to occur within the scope of the matrix clause to permit the use of MSPs as full-fledged epistemic parentheticals. Our analysis has shown a long period of exclusively *that*-complementizer clause constructions preceded the initial appearance of the zero-complementizer clauses; the latter then being followed, quite recently, by the further transformation of a small number of *feel* constructions into independent epistemic parenthetical.

5.2 Conclusion

By examining the larger historical record we believe we have found consistent diachronic evidence that shows the matrix verb *feel* has: a) developed a parenthetical usage which can be used to express epistemic perspectives and b) followed a that>zero>par>EP>EPAR developmental pathway which is consistent with our expectations which were developed and inferred via previous synchronically based studies.

The increasingly epistemic use of feel into an EPAR has also been diachronically documented, using a similar methodological approach in other similarly less frequent MSPs such as *realize* (Shank 2012), *guess* and *understand* (Shank, Van Bogaert, Plevoets to appear), *believe*, *suppose*, and *imagine*(Shank & Plevoets in preparation), as well in more frequent MSPs such as *think* (Thomson & Mulac 1991, Scheibman 2002) and *know* (Shank, Van Bogaert, Plevoets, 2012). All of these MSPs, regardless of their relative frequencies, have appeared to follow the developmental path outlined above. What is motivating these observed changes (i.e.lexicalization or grammaticalization) will be explored in the final section.

6.0 *I feel*: A case of grammaticalization?

Much of the previous synchronic and diachronic research on the development of pragmatic markers and/or epistemic parenthetical has been presented within a grammaticalization framework (e.g. Kärkkäinen 2003, Brinton 1996, 2009;Van Bogaert, 2009; etc.). In this final section, we will examine our data in regards to both processes to assessif the development of *feel*as an EPAR also warrants being categorized as a case of grammaticalization.

The process of grammaticalization, as described by Hopper and Traugott (2003:18) is "the change whereby lexical items and constructions come in certain contexts to serve grammatical functions and, once grammaticalize, continue to develop new grammatical functions." By utilizing this framework, Thompson& Mulac (1991), Scheibman(2002), Van Bogaert (2006) and others have argued that the development of the epistemic parenthetical / pragmatic marker in verbs such as *think*, *guess* and *believe*is due to a blurring of the distinction between the main and complement clauses (which is facilitated by the loss of the *that*-clause) and an increase in the subjectified meaning(s) of the matrix verb(s). The end result is usually referred to as a case of 'grammaticalization via reanalysis'.

The diachronic patterns that we have presented and discussed in Section 4.0 strongly suggest that reanalysis are also playing a significant role in the grammaticalization of *feel* especially in that that observed use of *feel* as an epistemic parenthetical starting in 1710 mirrors that of the epistemic parenthetical forms seen with both the more frequent MSPs *think* and *guess*. Furthermore the syntactic flexibility of the parenthetical form and its appearance in sentence medial position (see Figure 2) suggests that I *feel* has also been reanalyzed as an 'adverbial like particle' and (again like *think* and *guess* EPARs) it has subsequently become a dependent constituent of the new main clause.

While the arguments for viewing the development of epistemic parentheticals as a case of grammaticalization is strong Thompson & Mulac's (1991) hypothesis concerning the source construction for the epistemic parentheticals has come under some criticism by researchers who have looked for, and failed to find, diachronic evidence to support Thompson & Mulac's synchronically based claims. Brinton argues that the *that*-clause complement, which is the Thompson and Mulac's postulated source construction, simply is not frequent enough in her historical data to diachronically motivate the proposed reanalysis process. She writes that the "diachronic sources of complement clauses more varied than previously assumed and that the syntactic developments are considerably more complex and less clear historically than might be expected from a straightforward extension of the Matrix Clause Hypothesis" (Brinton, 2009: 249).

Brinton's (2009) claims, however, regarding the frequency of the *that*-clauses, the *zero*-complementizer forms and the apparent significance of the increase in complement clause(outside of *that* and zero) variation do not appear to be entirely applicable and/or valid in the case of the development of EPARs with *feel*. A reexamination of the data presented in Table 2 and the diachronic distribution of the complement clauses with *feel* reveals distribution (presented below in Table 10) reveals that indeed prior to 1780 the overall frequency of the that-clause forms was substantially lower than that of other complement clauses. However, this pattern, as our analysis reveals, does change over time.

	1351-1420	1421-1500	1501–1579	1580–1639	1640–1710	1710–1780	1780–1850	1850-1920	1929-1959	1960-1970	1990–2004	2005–2009
Vb	21.48	32.20	67.25	46.24	24.89	39.19	35.87	33.42	17.92	20.27	12.53	25.36
Vb+adjp	2.15	2.18	-	-	-	6.88	85.22	121.10	78.82	149.01	161.77	244.34
Vb+advp	4.30	6.54	-	-	5.66	10.02	25.30	27.00	13.76	36.62	12.05	20.70
Vb+np	156.78	409.88	-	-	73.96	151.90	208.66	159.88	67.07	221.71	90.50	155.93
Vb+pp	10.74	19.62	-	-	18.92	48.37	54.40	47.97	23.88	83.56	70.21	43.77
Vb (parenthetical)	-	-	-	-	-	-	0.51	1.01	-	-	-	-
Vb+S (*zero* comp + finite declarative clause)	-	6.54	5.17	3.19	3.05	1.79	32.18	72.66	25.95	52.77	56.90	49.60
Vb+SubC+S (*comp* + finite declarative clause)	19.33	15.26	5.17	-	3.57	7.89	154.24	261.48	64.33	70.90	35.47	25.63
Vb+SubC+S (*other comp* + finite declarative clause)	-	2.18	-	-	-	1.42	45.89	75.65	2.39	5.88	68.20	46.49
Vb+vp	-	6.54	-	-	2.84	6.41	16.80	14.00	11.61	19.55	30.59	52.18
Vbg [matrix +-ing]	-	-	-	-	1.48	-	2.18	3.60	3.61	10.48	6.33	6.27
Vbg+adjp	-	-	-	-	-	-	3.05	13.04	3.61	41.90	59.85	36.18
Vbg+advp	-	-	-	-	-	0.88	-	2.70	3.61	-	2.30	5.92
Vbg+np	-	-	-	-	4.43	3.06	5.24	9.00	18.06	52.38	31.08	18.21
Vbg+pp	-	-	-	-	2.21	1.31	2.18	4.95	-	10.48	5.18	3.92
Vbg+S (*zero* comp + non-fin declarative clause)	-	-	-	-	-	-	-	-	3.61	-	0.58	-
Vbg+SubC+S (*comp* + finite declarative clause)	-	-	-	-	-	0.44	1.75	6.74	-	-	1.15	4.70
Vbg+vp	-	-	-	-	-	-	-	-	3.61	-	4.03	5.49
Total	**214.78**	**500.94**	**77.59**	**49.43**	**139.53**	**279.56**	**668.24**	**837.56**	**334.62**	**723.13**	**582.54**	**702.24**

Table 10: Diachronic distribution of complement clauses occurring with feel (1351-2009)

The 'Vb+np' form was most frequent from 1351-1500, followed by a 140 year period marked by the frequency of just the Vb and this was then followed by the return to the more frequency 'Vb+np' combination up to (n= 780). These six periods which span 400 years however are ones in which we have a limited number of tokens[5] to work with (n=100, n=162,n= 15, n=24, n=195 and n=779) and the paucity of the available tokens may have obscured larger complement clause patterns and/or historical developments. Once we reach a period where we are able to consistently obtain over (n = 1400) tokens per period from our corpus database, starting in 1780, we see a steady increase in the frequency of the zero-complementizer. The end result is a period of growth, over nearly 400 years, whereby the frequency of the zero complementizer increases from 6.54 to 49.60 per million occurrences.

We believe the presence of this pattern and resulting frequency should be sufficient (cf. Brinton, 2008) to motivate the reanalysis observed in the zero-complementizer constructions. Finally, in the 1990-2009 periods, we see a reversal of the earlier trends; the *that*-clause becomes a minority form again relative to vb+adjp, vb+advp, vb+np and even vb+pp forms. However, it is precisely within this period that we also observe the first instance zero-complementizer form surpassing in frequency the *that*-clause form. We believe this is an example of what DeSmet (2008) refers to as "self-feeding" whereby the occurrence of the zero-form in and of itself is sufficient to spontaneously generate and subsequently increase its own frequency of occurrence – irrespective of the frequency of the *that*-clause. The frequency of the zero-form by 1990-2009 may be sufficient for the zero-form to serve as its own catalyst for continued grammaticalization.

Furthermore, the loss of the "'deictic or anaphoric nature' (Bolinger, 1972:10) or what Langacker (2008) refers to as the more "subjective marking of the proposition as an object of conception" (pg 444) expressed by the zero-complementizer (as a result of its increased frequency relative to the *that*-form) may also have the effect of encouraging speakers to more freely utilize other complement clause combinations – the increase in the less syntactically bound zero-form may stimulate more diversity on complement clause combinations. This increase in syntactic freedom may be the motivation for the clear redistribution wesee in Table 10from 1990-2009, acrossthe other complement clause categories. Finally, it is in this last period that we also see the EPAR usage holding steady and increasing to an average of 1.32 EPARs per million (see Figure 2) and when this is viewed relative to the patterns from 1960 forward it suggests that the zero-form is growing in effect.

5For more details, see Table 4.

We believe that these findings parallel (and support) Thompson and Mulac's (1991) proposed framework for EPAR development with *think* and therefore help us to understand the diachronic development of *feel* and its use in PDE as an epistemic parenthetical

Our proposal regarding the epistemic development of *feel* is further supported when one examines the ratio of *that*-clause to zero-complementizer to all other complementizer forms. The full diachronic distribution of *that*-clauses, zero-complementizer forms and other complement clause constructions from 1351 -2009 is presented in below Table 11.

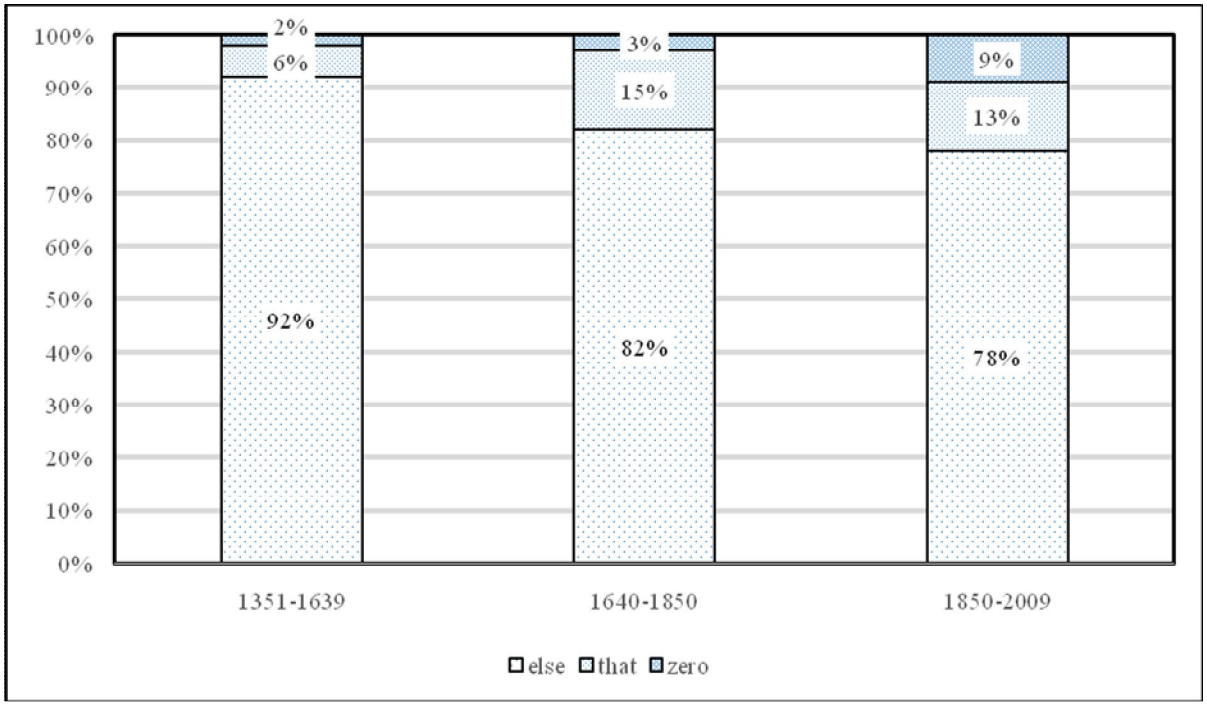

Table11: The distribution of *that*-clause construction, zero-complementizer constructions, and all other types of complement clause constructions from 750-2009

In Table 10, we observed a steady increase in the zero-complementizer forms relative to other complement clauses. The zero-form occurs in our earliest ME data, it is initially infrequent in terms of frequency relative to other MSPs; however we believe that this may be a consequence being far less frequent in discourse compared to other MSPs such as *think* and *guess*. In Table 11, we see that from 1351 to 16409 and 1640-1850 we see the emergence of zero-complementizer coincided with an increase in the overall percentage (i.e. 6% to 15%) of the clauses containing a *that*-clause form. However, from 1850-2009 we observe and continued increase in the zero-form and a corresponding decrease in the frequency of *that*-clause We make no claims in regards to the minimum threshold of *that*-clauses required to facilitate the zero-form but it is interesting to see that the zero-form is first recorded during a period when we also begin to note a concurrent decrease on theoverall percentage of the *that*-clauses. What implications this may have in terms of the frequency needed for reanalysis will be the topic of future research but we feel the results of this study supports Thompson and Mulac's (1991) framework regarding the development of epistemic parentheticals with MSPs.

7.0 Conclusion

In this paper we have shown that the verb *feel* has begun to grammaticalize, much like more frequent MSPs such as *think*, *guess*, and *believe*, into an epistemic parenthetical. By diachronically tracking and examining the increasing frequency of the zero-complementizer and the subsequent development in LModE of *feel* being used as an epistemic parenthetical, we have presented what we believe is evidence that the zero-complementizer context is indeed the locus of the subjectified usage and it from this environment that we see the emergence of the grammaticalized EP and EPARs. As a result of this process, we believe we have also provided important empirical support for the following developmental path for epistemic parentheticals: *that*>zero>par>EP>EPAR and that these developments result from grammaticalization and not lexicalization processes.

Finally, we have demonstrated that the development of *feel* into an EP/EPAR is concurrent with what others have claimed has happened higher frequency MSPs such as *think* and *know*. In spite of its inherently lower overall frequency of use, relative to other mental state predicates, the construction *I*or *you*+ *feel* shows every indication of having diachronically developed the syntactic and pragmatic functions of a full-fledged epistemic parenthetical within the past two centuries.

References

Aijmer, K. (1997). *I think* – an English modal particle. In Toril Swan and Olaf Jansen Westvik. eds., *Modality in Germanic Languages: Historical and Comparative Perspectives*, 1-47. (Trends in Linguistics, Studies and Monographs, 99.) Berlin and New York: Mouton de Gruyter. ANC= *American National Corpus 1st release*2003. Linguistic Data Consortium, University of Pennsylvania.

Bolinger, D. (1972). That's that. (*Janua linguarum. Series Minor, 155*). The Hauge: Mouton de Gruyter.

Brinton, L. J. (2008). *The Comment Clause in English: Syntactic Origins and Pragmatic Development* (Studies in English Language). Cambridge: Cambridge University Press

Brinton, L.J. (2006). *Pragmatic markers in English: Grammaticalization and Discourse Functions*. (Topics in English Linguistics, 19.) Berlin and New York: Mouton de Gruyter.

Brinton, L.J. & Closs Traugott, E. (2005). *Lexicalization and Language Change*. (Research Surveys in Linguistics.) Cambridge: Cambridge University Press.

BROWN= Francis, W. N. and Kucera, Henry.1979. *The Brown Corpus*. Department of Linguistics, Brown University.

Bybee, J. (2002). Cognitive Processes in Grammaticalization. In Tomasello, M (Eds.) *The New Psychology of Language Volume II*. Lawrence Erlbaum

CEECS I & II= *Corpus of Early English Correspondence Sampler* (CEECS) <http://khnt.hit.uib.no/icame/manuals/ceecs/>

CEMET = *Corpus of Early Modern English texts (Extended version)*. See De Smet (2008).

CLMETEV = *Corpus of Late Modern English texts (Extended version)*. See De Smet (2005, 2008).

COCA= Davies, M. (2008). *The Corpus of Contemporary American English (COCA)*: 1990- present. <http://www.americancorpus.org>

Cuyckens, H. & Shank, C. (2009). Diachronic Perspective on the Grammaticalization of zero-complement clauses in English: The Case of Think, Feel, and Realize. In Slembrouck, S., Taverniers, M., Van Herreweghe, M. (Eds.), *From Will to Well: Studies in Linguistics offered to Anne-Marie Simon Vandenbergen*: Academia Press, Gent, Belgium.

De Smet, H. (2009). *Diffusional change in the English system of complementization*. Unpublished Ph.D. manuscript. Katholieke Universiteit Leuven, Belgium

De Smet, H. (2005). A corpus of Late Modern English. *ICAME-Journal* 29: 69-82.

Elsness, J. (1984). "That or zero" A look at the choice of the object clause connective in a corpus of American English". *English Studies* 65:519-533

Finnegan, E. & Biber, D. (1995).. "That and Zero complementizers in Late Modern English: exploring Archer from 1650-1990, in Aarts, Bas; Meyer, Charles, M. (Eds.) *The verb in contemporary English. Theory and description*. Cambridge: Cambridge University Press.

Fischer, O. (2007a). The development of English parentheticals: A case of grammaticalization? In Ute Smit, et al., eds. Tracing English through Time: Explorations in Language Variation. *A Festschrift for Herbert Schendal on the Occasion of his 65th Birthday*, 103-188. (Austrian studies in English 85). Vienna, Braumüller.

Himmelmann, N. (2004). Lexicalization and Grammaticalization: Opposite or orthogonal? In Walter Bisang, Nikolaus P. Himmelman, and Björn Wiemer, eds., *What makesGrammaticalization? A Look from its Fringes and its Components*, 21-42. (Trends in Linguistics, Studies and Monographs, 158.) Berlin and New York: Mouton de Gruyter.

Hoffman, S. (2004). "Are frequency complex prepositions grammaticalized? On the limits of corpus data - and importance of intuition". In Lindquist, Hans and Mair, Christian. (eds.), *Corpus Approaches to Grammaticalization in English*. Amsterdam: Benjamins. 171-210

Kaltenböck, G. (2004). "That or no that – that is the question. On subordinator suppression in extraposed subject clauses", *Vienna English Working Papers* 13 (1): 49-68.

Kärkkäinen, E. (2003). *Epistemic Stance in English Conversation: A Description of its Interactional Functions, with a Focus on I think*. (Pragmatics and beyond, New Series, 115.) Amsterdam and Philadelphia: John Benjamins.

LAMPETER= *Lampeter Corpus of Early Modern English Tracts* (1641-1732). < http://khnt.hit.uib.no/icame/manuals/LAMPETER/LAMPHOME.HTM>

Langacker, R. (2008). *Cognitive Grammar: A Basic Introduction*. Oxford: Oxford University Press

LEON= *Toronto-Helsinki Parsed Corpus of Old English Prose*. Taylor, A., Anthony, W., Susan, P&Frank, B., (2003). The York-Toronto-Helsinki Parsed Corpus of Old English Prose. York: University of York. <http://www-users.york.ac.uk/~lang22/YCOE/YcoeHome.htm>.

Nuyts, J. (2001).*Epistemic Modality, Language and Conceptualization: A Cognitive-Pragmatic Perspective.* (Human Cognitive Processing 5.) Amsterdam and Philadelphia: John Benjamins.

PPCEME = *Penn-Helsinki Parsed Corpus of Early Modern English*. Kroch, Anthony, Beatrice Santorini & Lauren Delfs. 2004. Penn-Helsinki Parsed Corpus of Early Modern English. <http://www.ling.upenn.edu/hist-corpora/PPCEME-RELEASE-2/index.html>.

Quirk, R., Greenbaum, S., Leech, G. & Svartvik, J. (1972). *A Grammar of Contemporary English*.London: Longman.

Rissanen, M. (1991). On the history of *that*/zero as clause object links in English. In Aijmer, K. &B. Altenberg (eds.), *English Corpus Linguistics; Studies in Honor of Jan Svartvik*. London and New York: Longman. 272-289

Shank, C. (2012). The grammaticalization of the verb '*realize*': A diachronic corpus- based study. *The Proceedings of the 2nd Central European Cognitive Linguistics Conference (CECLC2) Between Universality and Variation Conference*, Dubrovnik, Croatia.

Shank, C., Plevoets, K., & Cuyckens, H. (2014). A Diachronic Corpus based

Multivariate Analysis of "I think that" versus "I think zero" *Polysemy and Synonymy. Corpus Methods and Applications in Cognitive Linguistics*. Glynn, D & Robinson, J. (Eds). John Benjamins Publishing Co.

Shank, C., Van Bogaert, J. & Plevoets, K. (2016). That/zero alternation and epistemic parentheticals: Using a diachronic multivariate constructional approach to examine the grammaticalization of *I think*, *I believe* and *I suppose*". *Journal of Corpus Linguistics and Linguistic Theory (CLLT)*. De Gruyter

Scheibman, J. (2002). *Point of View and Grammar: Structural Patterns of Subjectivity in American English conversation*. (Studies in Discourse and Grammar, 11.) Amsterdam and Philadelphia: John Benjamins.

Thompson, S. A.& Mulac, A. (1991a). A quantitative perspective on the grammaticalization of epistemic parentheticals in English. In Traugott, E. C. & Heine, B. (Eds.), *Approaches to Grammaticalization*. Amsterdam and Philadelphia: John Benjamins. 313-339.

TIME= Davies, M. (2007). *TIME Magazine Corpus* (1920s-2000s). <http://corpus.byu.edu/time>

Traugott, E. & Dasher, R. B. (2002). *Regularity in Semantic Chang*e. (Cambridge Studies in Linguistics, 96.) Cambridge: Cambridge University Press.

Traugott, E, & Ekkehard K., (1991). *The semantics and pragmatics of grammaticalization revisited*. In Traugott and Heine, eds., Vol 1, 189-218

Van Bogaert, J. (2006). *I guess, I suppose* and *I believe* as pragmatic markers: Grammaticalization and functions. *BELL (Belgian Journal of English Language and Literatures*) 4 (New Series: 129-149.

Wischer, I. (2000). Grammaticalization versus lexicalization: '*Methinks*' there is some confusion. In *Pathways of change: grammaticalization in English*, Olga Fischer, Anette Rosenbach and Dieter Stein (eds.), 355-370. Amsterdam: John Benjamins.

Ziv, Y. (1985). "Parentheticals and functional grammar" in: Bolkestein, A.M. *et al.* (Eds). *Syntax and pragmatics in functional grammar*. Dordrecht: Foris, 181-199