Diachronic change in procedural semantic content

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Résumé

Saussure (2011) has claimed that procedural expressions facilitate the search for a relevant inference and therefore tend not to be elided. Nicolle (1998, 2011) similarly argues that procedural expressions serve to reduce processing effort, with the result that, while conceptual information may be replaced by procedural information during grammaticalization, the reverse never happens. However, there is ample evidence that procedural expressions (such as tense and aspect markers) may undergo further semantic change or may be lost all together from a language. This paper investigates what motivates changes in – or loss of – procedural semantic content.

Mots clés: *procedural information, grammaticalization, tense and aspect markers*

1. Introduction

> « We need to discover and state the stable cores of linguistic signs. We need to specify the processes by which these are interpreted in context. And we need to know the causal processes – be they psychological, interpersonal, biographical, historical, or evolutionary – by which language and other meaning-bearing resources are shaped. Any other story would be unfinished. » (Enfield 2015, 176)

No language – so long as it continues to be used by speakers for communicative purposes – remains static. Over time, each living language undergoes changes which affect its structure as well as the ways in which linguistic elements are interpreted and contribute to the recognition of the speaker's intended meaning. In this paper I shall focus on changes affecting procedural expressions, as understood within the framework of relevance theory (Sperber & Wilson 1986/1995). I shall argue that both the origin and the eventual loss of procedural semantic content are motivated by pragmatic factors.

Saussure (2011) has claimed that procedural expressions encode instructions to perform complex inferences which cannot be derived according to general pragmatic principles. Procedural expressions

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[1] This paper is dedicated to the memory of Regina Blass (1943–2015).

thereby facilitate the search for a relevant inference, and therefore tend not to be elided. Nicolle (1998, 2011) similarly argues that by constraining inferential computations, procedural expressions reduce processing effort and thereby increase relevance. This explains why conceptual content is replaced by procedural content during grammaticalization, but the reverse never happens. However, there is ample evidence that procedural expressions may undergo further (or 'secondary') grammaticalization, in which their semantic content changes, giving rise to new functional categories. Eventually, such expressions may be lost all together. This prompts the following question: If procedural semantic content cannot be replaced by general pragmatic principles and if procedural expressions are guaranteed to increase relevance, what motivates changes in the meaning of such expressions, including changes that result ultimately in the loss of procedural semantic content? In other words, if procedural content is such a good thing, why should it ever be lost from a language?

As I attempt to answer this question, I shall proceed as follows. In section 2 I shall summarize how procedural meaning is understood within relevance theory, including whether mixed conceptual–procedural expressions are possible; I shall then consider the role of procedural meaning in utterance interpretation. In section 3 I shall discuss the relationship between procedural semantics and diachronic linguistic change, and in particular the place of procedural semantics in an account of (primary) grammaticalization. Then in section 4 I shall investigate what happens when procedural expressions undergo further diachronic change (secondary grammaticalization), looking in particular at the development of demonstratives into definite articles. Finally, I shall conclude by summarizing my arguments in section 5.

2. Procedural semantic content

According to relevance theory, utterance interpretation is, in part, an inferential process.[2] Inferential processing yields explicatures (through enrichment of the logical form of an utterance) plus higher-level explicatures and implicatures (meaning that departs from the logical form). Whilst some linguistic expressions encode concepts that form part of these conceptual representations, other expressions encode constraints on inferential computations performed over those

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[2] Inferential processes involved in utterance interpretation are in general intuitive and not subject to conscious awareness, according to Sperber & Wilson (2002). The issue of what constitutes an inferential process in the context of utterance interpretation is a complex one, which I am not able to address in full here. For a detailed discussion, see Mazzarella (2014).

conceptual representations. This is the basis of the distinction between conceptual and procedural semantic content in relevance theory.

The idea that certain linguistic expressions encode processing instructions rather than provide direct access to concepts is not unique to relevance theory, and indeed predates relevance theory (see for example Hawkins 1978, Ducrot 1980, 1985, Ariel 1988). Certain scholars working within the framework of cognitive linguistics (e.g. Evans 2006, Harder 2010; Hansen 2012) also make a distinction that is very similar to that between conceptual and procedural meaning, but what is distinctive to relevance theory is the underlying motivation for the conceptual–procedural distinction. In relevance theory, utterance interpretation is subject to the expectation of optimal relevance, that is, each utterance is expected to yield adequate cognitive effects for minimal processing effort (Sperber & Wilson 1986/1995, 108–117). Cognitive effects contribute to the relevance of the utterance, but the processing effort required to derive them decreases relevance. Given this approach, it is to be expected that natural languages will have evolved features which contribute to both aspects of optimal relevance. Thus, conceptual semantics contributes directly to the derivation of cognitive effects whilst procedural semantics reduces the processing effort required of an addressee.

2.1. Mixed conceptual–procedural expressions

Although there is a strict dichotomy between conceptual semantic content and procedural semantic content, it does not follow that linguistic expressions necessarily encode one type of content to the exclusion of the other. Many relevance theorists who have addressed the issue allow that certain expressions may encode both conceptual and procedural semantic content (see for example Nicolle 1997, Hall 2004, 209, Wilson 2011, Moeschler, Grisot & Cartoni 2012 and references therein). However, this view is not universal; Saussure (2011) argues for the following principles: First, that a given expression should only be analyzed as procedural if a conceptual analysis proves inadequate. For example, Saussure (2011, 69) argues that the various interpretations associated with French *parce que* can be derived through the concept of cause plus general pragmatic principles, including narrowing and loosening. Saussure's second principle is that once an expression has been determined to encode procedural content, then any apparent (residual) conceptual content is either "embedded under the dependence of the procedure itself" (ibid. 58), i.e. subsumed as part of the specific procedural content, or "is just a relic of ancient versions of that word" (ibid. 65).

Although I endorse Saussure's first principle, that an expression should only be analyzed as procedural if a conceptual analysis fails, I

do not endorse his second principle, that procedural meaning subsumes any apparent conceptual meaning or that such meaning is "just a relic". As we will see shortly, detailed analysis of diachronic changes indicates that procedural semantic content is added to existing conceptual semantic content rather than instantaneously replacing it, and that conceptual content may continue to be accessible and to play a role in communication for some time (Nicolle 1998, 23-29). Nonetheless, positing a mixed conceptual–procedural characterization of an expression should happen only when a more economical monosymous analysis fails. As Hansen (2012, 598) states, "if a particular reading of a given item is straightforwardly derived from another reading using features of the context and pragmatic principles of general application, then the assumption should be that those two readings instantiate one and the same coded meaning."

2.2.   *The role of procedural expressions in utterance interpretation*

Procedural content can contribute to the identification of various levels of meaning, including implicatures (Blakemore 1987), specific types of interpretive use (Blass 1989; 1990), and explicatures (see Wilson & Sperber 1993 on referring expressions, and Moeschler et al. 1998 and Saussure 2003 on tense markers). Procedural expressions can also range from those which encode very specific inferential constraints on interpretation through those which encode more general constraints (Nicolle 2000). The range of different types of procedural content falls out naturally from the fact that various levels of meaning (entailment, presupposition, explicature and implicature) are conveyed simultaneously when utterances are produced, as noted by Moeschler (2012, 56):

> « Nous ferons l'hypothèse que plusieurs informations sont communiquées simultanément, mais qu'elles n'appartiennent pas au même niveau. [...] Notre hypothèse est que le sens est structuré et que chaque niveau de sens correspond à une strate informationnelle, chacune renvoyant à des propriétés différentes des énoncés. Le point crucial est qu'elles n'ont pas besoin d'être activées en permanence. »

These elements may originate in various ways in any given utterance, and any of them may constitute the main point of an utterance. This insight was also noted by Ariel (2008), who argues that the goal of utterance interpretation – and hence what a theory of pragmatics should aim to describe – is the identification of the speaker's communicative intention. This she terms the privileged interactional interpretation (PII), defined as:

> «the meaning which the speaker is seen as minimally and necessarily committed to, i.e. the one by which she is judged as telling the truth or

being sincere. It is also the meaning which contains the message that the addressee should take to be the relevant contribution made by the speaker. » (Ariel 2008, 299)

It is the PII which constitutes the basis for cognitive effects. Nicolle & Clark (1999) demonstrated that in different utterances either an implicature or an explicature (a proposition derived from an enriched logical form) can serve as the basis for cognitive effects, that is, as the PII. In light of this, Ariel (2008: 302) notes that a PII may be based on either an implicature or an explicature, and may be derived through metaphorical and metonymical inferences, broadening, narrowing, and so forth. She also claims that any of these can potentially lead to grammaticalization, as we will discuss in the following section.

Adopting the notion of a PII as central to utterance interpretation has implications for the role of procedural expressions in a theory of language comprehension. Since an utterance may contain a number of procedural expressions, and procedural semantic content may operate at various levels, it follows that procedural expressions perform different functions in different utterances, depending on the nature of the PII in any given case. If the PII were to be found in – or derived from – an explicature, a procedural expression that helped to constrain the identification of that explicature would play a more important role in the utterance than if the primary intended meaning were to be found in an implicature. If, on the other hand, the PII were to be found in an implicature, a procedural expression that helped to constrain the identification of the implicature would play a more important role in that utterance.

3.   Procedural semantic content in diachronic perspective

So far I have sketched what I believe to be the motivations for procedural semantics in relevance theory, I have argued that mixed conceptual–procedural expressions are not only possible but necessary, and I have noted the various roles that procedural expressions play in utterance interpretation, suggesting that the goal of such interpretation is not necessarily to identify the propositional form of an utterance but rather to recover the primary intended meaning of the speaker (the PII). In this section I will attempt to draw these considerations together in an account of the diachronic development of procedural expressions.

Procedural expressions often develop from conceptual expressions (or rather, out of constructions containing conceptual expressions in particular kinds of supportive contexts), but they can also develop from other procedural expressions (again, in specific constructions and particular kinds of contexts). When a new procedural expression

belongs to a functional category such as discourse marker, connective, TAM marker, or article, this development is a case of grammaticalization. When the source construction is lexical, the process is termed "primary grammaticalization", and when the source construction is already grammaticalized, the process is termed "secondary grammaticalization" (Traugott & Dasher 2002, 81). In the following sub-sections, I shall briefly note examples of primary grammaticalization that do not result in procedural expressions before describing a number of pragmatic mechanisms that underlie primary grammaticalization resulting in procedural expressions. In section 4, I shall address the issue of secondary grammaticalization as this affects both the development and loss of procedural semantic content.

3.1.   Non-procedural primary grammaticalization

In this sub-section, I shall briefly show that not all cases of grammaticalization involve the addition of procedural semantic content to an expression. Other factors can come into play; Traugott & Dasher (2002) – reflecting earlier work by Traugott – argue that lexical items which develop into markers of modality, discourse marking, performativity and social deixis (all instances of grammaticalization) are subject to one or more of the following four pragmatic-semantic tendencies[3]:

(1)   non-subjective meaning > subjective meaning > intersubjective meaning;
(2)   content meaning > content/procedural meaning > procedural meaning;
(3)   scope within proposition > scope over proposition > scope over discourse;
(4)   truth-conditional meaning > non-truth-conditional meaning.

These are all sufficient but not necessary conditions for grammaticalization to occur. One or more of these tendencies may be manifest during any particular case of grammaticalization, but there is no requirement that more than one occur. For example, it is well established that the conceptual–procedural distinction is orthogonal to the distinction between truth-conditional and non-truth-conditional meaning.

As an example of subjectification without the addition of procedural semantic content, consider the development of the grammaticalized forms of the English deictic verbs *go* and *come* (Nicolle 2007; 2009). Nicolle (2009) uses diachronic corpus analysis to

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[3] Nine tendencies or diachronic clines are discussed, but these four appear to be the most important. The number of such tendencies is not important for our purposes; what is noteworthy is that the development of procedural meaning is only one tendency among many.

argue that *go*-V constructions, as exemplified in (5)[4], developed out of *go-and*-V constructions used in imperative clauses. Whilst *go-and*-V can be inflected as in (6), only 'bare' forms of *go* with no overt morphological marking can be used in the *go*-V construction (as the ungrammaticality of (7) indicates), although these may be either non-finite (8) or finite (9).

(5)   Go put those away please.
(6)   She goes and visits friends throughout the year
(7)   * She goes visits friends throughout the year
(8)   Shall I go let her in?
(9)   And then we go turn around and beat a league division three side

The *go*-V construction exhibits a number of features typical of grammaticalization: it is phonologically reduced relative to the *go-and*-V construction, it need no longer express physical movement (as in (5)), and it exhibits scope expansion (*go* is no longer within a VP but takes scope over a VP[5]). There is no reason to assume that procedural semantic content has been added to *go*, and it is unclear what such procedural content could consist of. Instead, Nicolle (2009) argues that the motivation for the grammaticalization of *go*-V is due to subjectification. Deictic expressions are inherently subjective in that the deictic centre is typically the notional location of the speaker. When a deictic verb combines with another verb to express a single event (hendiadys) this subjective component of meaning is incorporated into the representation of the whole event. Hendiadys is stronger when verbs are juxtaposed rather than conjoined (Wulff 2006: 120-121), and so the event expressed in a *go*-V clause is more subjectively construed than the event in a *go-and*-V clause.

Another example of grammaticalization without the addition of procedural semantic content is the development of quotative markers from speech verbs (Güldemann 2008). A common grammaticalization path starts with an optional but frequent speech introducing clause, typically containing a speech verb meaning 'say'. This loses its syntactic independence, becomes obligatory, and eventually occurs redundantly in conjunction with (new) speech introducing clauses. At this point, the construction has become a quotative marker. A quotative marker may undergo further development to become a complementizer with non-speech verbs, starting with verbs of

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[4] The following examples (except those marked as being ungrammatical) are taken from BYU-BNC: The British National Corpus (available online at http://corpus.byu.edu/bnc).

[5] Nicolle (2007) argues that in finite clauses such as (5), *go* (or *come*) occupies the syntactic position otherwise occupied by tense or agreement features. Since English only has one such position per clause, when it is occupied by *go* the occurrence of other tense or agreement features is blocked and hence there can be no overt morphological inflection in finite clauses.

perception and cognition and generalizing to any complement-taking verb. This process is illustrated for Akkadian in Deutscher (2011, 651–655) and for Bantu languages in Nicolle (2015, 64–68). The function of introducing reported speech is compatible with the conceptual semantic content of the verb 'say', and a complementizer is a syntactic operator that indicates that an associated clause is a complement of the matrix verb, and so I see no need to posit a procedural semantics for such expressions. (It is also possible for quotative markers to develop into markers of interpretive use or evidentiality, in which case they may encode procedural semantic content, but this does not entail that quotative markers or complementizers must also have procedural semantics.)

I shall now address primary grammaticalization involving the development of new procedural semantic content.

3.2.   *Pragmatic mechanisms underlying grammaticalization*

The dominant pragmatic theory of grammaticalization for some years was Traugott's Invited Inference Theory of semantic change (Traugott 1999; Traugott & Dasher 2002). According to this theory, grammaticalization begins when a construction, used in a specific context, gives rise to a particularized conversational implicature (or Invited Inference[6]) which then becomes a Generalized Invited Inference (GIIN). This GIIN in turn becomes conventionalized and is reanalyzed as a semantic component of meaning.

Recently, a number of studies have suggested alternative pragmatically motivated causes of grammaticalization. Eckardt (2009) describes communicative situations in which hearers accommodate presupposition failures through a principle she calls "avoid pragmatic overload". She argues that presupposition failures occurred when the scalar term *even* (which originally meant 'exactly' and modified non-scalar predicates) was used with scalar predicates, and when German *fast* 'almost' (which originally meant 'very much' and modified gradable predicates) was used with non-gradable predicates. Accommodating these presupposition failures resulted in changes to the way these expressions were interpreted. A similar process is described by Schwenter & Waltereit (2010, cited in Hansen 2012, 600) in which counter-argumentative uses of the additive particle 'too' in English, Spanish and German overrode the additive presupposition, resulting in reanalysis of the particle as primarily adversative.

Another alternative to Traugott's Invited Inference Theory of semantic change is outlined in Nicolle (2011) building on Nicolle (1998) and Ariel (2008), discussed above. In this account, the identi-

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[6] This term is taken from Geis & Zwicky (1971).

fication of a privileged interactional interpretation (PII) may depend on various types of "ad hoc inferences in supportive contexts" (Ariel 2008: 166), and not only on the identification of a particularized conversational implicature. When such inferences are associated frequently with a given construction, they may eventually occur even in the absence of an accompanying linguistic context and become conventionalized. This results in procedural semantic content being added to the existing conceptual content encoded in the construction.

Nicolle (2011) outlines three specific consequences of this account. First, grammaticalization is semantically immediate rather than gradual, since conceptual and procedural semantic content are discrete categories (an expression cannot be slightly procedural or become more procedural and less conceptual). Second, when procedural content is added to an expression, the conceptual content it formerly encoded need not instantaneously disappear. As a result, a newly grammaticalized construction with procedural semantics may at first be a mixed conceptual–procedural expression.

Procedural semantic content will always be recovered since it constrains the inferential processing which an addressee would perform in any case, thereby reducing processing effort, whereas conceptual semantic content will only be recovered if the addressee fails to derive adequate cognitive effects from the procedural information alone (depending on the nature of the PII in any given utterance). Third, a mixed conceptual–procedural expression may lose its conceptual semantic content and become purely procedural, but it will not lose its procedural semantic content and revert to being a conceptual expression. The reason for this goes back to the fact that procedural semantics serves to reduce processing effort and therefore always contributes to optimal relevance.

However, this is not to say that procedural content is never lost; a procedural expression may form part of the source construction for a process of secondary grammaticalization. This brings us back to our original question: Given that procedural expressions provide specific constraints on inferential processing and that they come with a guarantee of relevance, what could motivate change in, or loss of, procedural semantic content? In the following section I shall argue that such changes come about when procedural expressions are used in communicative situations where they contribute to the identification of a PII that is not dependent on the particular inferential process which the procedural expression constrains. That is, a procedural expression may be semantically redundant but contribute pragmatically to the identification of the primary intended interpretation. This may result in this pragmatic function becoming conventionalized as new procedural content. In other cases,

procedural expressions may become redundant as new procedural expressions are recruited into the linguistic system.

4. Secondary grammaticalization and procedural semantics

Deo (2015, 187) provides the following description of what we are calling secondary grammaticalization:

> «In grammaticalization paths, we also observe patterns of reanalysis in which functional expressions that instantiate a particular category at one stage are diachronically reanalyzed as instantiating a broader, more general functional category at a later stage. In such cases, each successive functional stage involves a systematic expansion in the domain of application of a given expression.»

Where secondary grammaticalization involves changes in procedural semantic content, "expansion in the domain of application" entails that the new content should subsume the content encoded by the source expression. That is, the new meaning should contain the old meaning. Deo (ibid.) cites the example of the range of readings available as the Vedic resultative (derived from a deverbal stative adjective) developed into the perfect (anterior) and then into the Middle Indo-Aryan perfective. The perfect marker allowed the earlier resultative reading plus existential and universal perfect readings; the later perfective marker allowed all of these readings plus an eventive/past reading.

In the rest of this section I will discuss the grammaticalization of definite articles from demonstratives. I will do this in three stages: first, I will summarize procedural semantic accounts of demonstratives and definite articles from the literature; second, I will describe the grammaticalization path from demonstrative to definite article and provide examples of demonstratives in Bantu languages that exhibit the kinds of functions that are characteristic of emergent definite articles; finally, I will describe the changes in procedural semantic content that correlate with the change from demonstrative to definite article.

4.1.   *Procedural accounts of demonstratives and definite articles*

Procedural accounts of referring expressions predate such analyses within relevance theory (such as Wilson & Sperber 1993 and Nicolle 1997); for example, Ariel (1988, 68) proposed that,

> «Instead of claiming that an expression of type x is processed in a certain way... we view the processing procedure associated with each form as its inherent definition. In other words, referring expressions are no more than guidelines for retrievals.»

Similarly, Hawkins (1978, 17, cited in Matsui 2000, 4) suggested that the use of the definite article acts as "an instruction to the hearer to locate the referent of the definite NP" by searching for it in "the appropriate, pragmatically identifiable, set". Within the relevance theoretic framework, Lucas (2011, 168) develops Hawkin's (1978) account of definite articles by specifying this set as "a subset of the set of assumptions and entities MM [mutually manifest] to speaker and addressee at the moment of a given utterance." The definite article indicates that the referent of the modified NP is unique within this subset of assumptions and entities (ibid. 171), whilst the construction of this subset is determined by the search for optimal relevance following general inferential processes.

For demonstratives, Zaki (2011, 104) suggests the following procedural characterization of demonstratives in English and Arabic:

«Demonstratives trigger a cognitive procedure directing the hearer to create or maintain a shared level of attention to the intended referent. This cognitive procedure has scope[7] over the concept of distance encoded by the demonstrative, therefore it gives rise to the contrastive aspect represented by the implication of other referential candidates. In other words, since the cognitive procedure of attention-directing has scope over the concept of proximity/distance on a distance scale, the implication of the existence of other entities on this scale falls out naturally.»

Scott (2013) – independently of Zaki (2011) – also argues that demonstratives encode procedural information about proximity relative to a deictic centre, and that this can result in a contrast effect. Scott (2013: 64) concludes:

«The underlying, conventional meaning encoded by the demonstratives is procedural, and all functions are derived by interaction between this procedural meaning and the discourse context, guided by the search for optimal relevance.»

4.2.   From demonstrative to definite article

Demonstratives are a component in source constructions of a number of grammatical categories (Heine & Kuteva 2002 list complementizers, subordinators, copulas, connectives, focus markers, relative markers, third person pronouns, and definite articles). Definite articles are derived from (usually distal) adnominal demonstratives used attributively (that is, modifying a noun phrase). De Mulder & Carlier (2011: 527) note that in addition to this syntactic context,

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[7] The notion of scope is taken from Nicolle (1997, 54) where procedural meaning is specified as containing two components: information about the manipulation of a conceptual representation within its scope, and the precise extent of that scope plus the kind of conceptual representation within it.

grammaticalization of demonstratives into definite articles often occurs in a specific type of discourse context:

> «The emergent definite article derived from the demonstrative is not merely a neutral tool for taking up previously mentioned referents, but has a strong textual function: it is used exclusively for important participants of a narrative, in particular when they are not currently in the focus of attention.»

This kind of discourse context is found in narrative texts in a number of eastern Bantu languages (Nicolle 2014). These languages do not have definite articles but make extensive use of demonstratives in narratives. The languages in question all have at least three demonstrative 'series': distal, proximal and 'referential' (the latter used in spatial deixis to refer to entities near to the addressee but not to the speaker); in narratives, the distal and referential series are far more common than the proximal series. Typically, demonstratives in narrative texts modify NPs referring to important participants when there is a change of reference (typically a change of subject) or a discontinuity in the narrative (such as a new paragraph or episode). In terms of reference assignment, such demonstratives are redundant since the NP alone usually describes the intended referent unambiguously. The following translation of an extract from a Kwaya text (Odom 2015) illustrates this. The only two participants currently active in the narrative are a girl and her servant; direct speech has been omitted:

> (1)   ...that servant asked that girl for clothes. [...] That girl gave her those clothes and she tried them on.

The demonstratives translated *that* belong to the referential series. In Kwaya, referential demonstratives are used to refer to major participants that are currently active in the narrative (explicitly mentioned or understood to be involved in the previous event). If a major participant is reactivated after an absence, a distal demonstrative is always used. This pattern is consistent with the instruction "to create or maintain a shared level of attention to the intended referent" proposed by Zaki (2011, 104) but does not result in a contrast effect.

In other Bantu languages, referential and distal demonstratives have different functions in narratives. In Bena, distal demonstratives are used to refer to agents and referential demonstratives are used to refer to non-agents (experiencers and patients) regardless of activation status or importance. In Digo, the choice of demonstrative correlates with the start and end of the main event line, and with the importance of participants within a narrative, for example distinguishing protagonists and antagonists. In Fuliiru, referential demonstratives

indicate regular developments in a story, and distal demonstratives indicate major developments. These functions are not obviously connected to information about proximity and distance, and neither are they used to help the addressee to identify the intended referent relative to alternatives since the identity of the referent is already clear. It is also worth noting that these various uses are tendencies rather than absolute requirements, suggesting that they are pragmatic functions rather than encoded meanings.

4.3.   Weakening of procedural semantic content

Recall that Scott (2013, 64) claimed that all functions of demonstratives result from the interaction of their procedural semantic content and the discourse context. However, the uses of demonstratives in Bantu narratives described above need not make reference to their procedural semantic content. In cases where there are no alternative referents, and hence no contrast effects, demonstratives are redundant with respect to reference assignment; however, they are available to narrators as a potential communicative resource. That is, reference assignment can be achieved through the use of the associated NP alone, and so the demonstrative is recruited to make some other contribution to the speaker's communicative goals. This is in line with the earlier claim that procedural expressions perform different functions in different utterances, depending on the speaker's primary intended meaning (the PII). Such redundant uses of demonstratives constitute the initial step towards the development of new definite articles, according to De Mulder & Carlier (2011, 531):

> «The distal demonstrative becomes a definite article when the anchorage in the speech situation is lost and the use of [the] article no longer requires specific knowledge shared by speaker and hearer to be activated in order to identify the referent of the noun phrase. Rather, the definite article conveys the instruction that the descriptive content of the NP allows the identification of the referent in a univocal way, by virtue of its structural links with a frame of accessible knowledge…»

This is not to say that distal or referential demonstratives will necessarily develop into definite articles in any of the eastern Bantu languages. Hardly anything is known about how persistent such narrative discourse functions of demonstratives are, nor of the effect that such functions may have on the eventual development of demonstratives. What is clear, however, is that in eastern Bantu narratives, procedural semantic content (which has been assumed to contribute specific, effort-reducing information that is relevant to the utterance interpretation process) need not be recovered and used in the utterance interpretation process at all. This situation occurs when

the referent to which a demonstrative refers is identified uniquely by the associated NP, making the demonstrative redundant and leaving it available for some other communicative function. The requirement that the intended referent be unique within the discourse context may then become associated with the use of demonstratives in such contexts and eventually become encoded as new procedural semantic content in an emergent definite article. At this point, the emergent definite article could be used in contexts where the uniqueness of its referent is not fully determined by the associated linguistic context alone. Once the expression is used to instruct the addressee to identify the referent by finding an entity which is unique within "a subset of mutually manifest assumptions and entities", it will have become a definite article.

5. Conclusion

I have characterized procedural semantic content as specific and effort-reducing, and yet subject to change. Such change has been associated with grammaticalization, but not all grammaticalization gives rise to procedural semantic content. Where procedural content is created, I have argued that this can best be explained with reference to holistic notions of utterance interpretation, such as Ariel's privileged interactional interpretation (Ariel 2008). I have further argued that the same holistic approaches that best explain the genesis of procedural semantic content also explain the transformation and loss of procedural semantic content when procedural expressions undergo secondary grammaticalization.

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