

Tense and Modality in Nominals

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Abstract It has been shown that, at least in certain languages, tense is represented in nominals (Lecarme, 1996, 2004). It is therefore important to consider whether the interplay between tense and modality which is commonly found in clauses exists in the nominal domain as well. This article investigates the non-temporal meanings of nominal tenses in Somali, an Afroasiatic language. It explores the conditions under which nominal past morphology is interpreted in the modal dimension, contributing either a quantificational reading of the past DP (comparable to English *-ever* in e.g., ‘whenever’) or an evidential reading focusing on the visible / non-visible distinction. It is argued that the common abstract feature underlying the various meanings of past morphology in nominals is a more primitive feature of “exclusion/dissociation” (Iatridou, 2000). To account for the link between direct evidentiality and visual perception in nominals, it is proposed to extend Kratzer’s (1981, 1991) theory of ‘doubly relative’ modality to include a perceptual component. In this revised framework, past morphology gives rise to ‘non-actual’, ‘unknown’ or ‘invisible’ modal meanings, depending on different choices of modal base and ordering source.

Key words: Tense, modality, evidentiality, definite articles, demonstratives, visual perception.

Introduction¹

The modal use of a past morphology (e.g., in conditional or hypothetical clauses) is a well attested phenomenon in natural language. Informal treatments suggest that

¹ This chapter develops ideas outlined in Lecarme (2003), and is based on material presented at the DIP Colloquium (University of Amsterdam, October 2003), the 27th GLOW Colloquium (Aristotle University of Thessaloniki, April 2004) and the International Round Table on Tense, Aspect and Modality (Universités Paris 7 and Paris 3, December 2005). I wish to thank the participants at those events. I am particularly indebted to Jacqueline Guéron for valuable written comments on an earlier version, and to Bascir Kenadid (Bashiir Nuur Keenadiid) for insightful discussion of the Somali data.

past tense does not receive a temporal interpretation, but rather expresses a modal ‘displacement’. Iatridou (2000) proposes that a unified account of temporal or modal displacement can formally be construed as a set-theoretic exclusion/dissociation relation between a topic time or world and a speaker time or world. In her terms, past morphology realizes an ‘exclusion’ feature whose meaning in the temporal domain is that the topic time (i.e., the time interval (set of times) we are talking about) excludes the utterance time, and whose meaning in the modal domain is that the topic worlds exclude the speaker’s actual world. Izvorski (1997) takes the same approach in her pioneering study of (indirect) evidentiality, suggesting that the ‘exclusion’ mechanism interacts with more specific domains of modality, such as the linguistic expression of a speaker’s source of knowledge (or information).

The purpose of this article is to support such accounts, by providing a new perspective. More concretely, I argue that the interaction of tense, modality and evidentiality has a natural parallel in the nominals domain. My study is based on Somali, an East Cushitic language where nominals display an elaborate tense system.² In the present article, I investigate more precisely the non-temporal meanings of nominal tenses, and show how a nominal past, in addition to being a temporal item, displays properties of a *modal* item (e.g., apparently contributing a quantificational reading of the past DP), or an *evidential* item (contributing the visible/non visible distinction).

I will approach the issue from two perspectives: (i) Under which conditions is a past nominal interpreted in the modal dimension? and (ii) Can we give a unified account of nominal pasts in their temporal, modal, and evidential meanings?

Our discussion will be in three parts. First, I introduce an account of the phenomenon, and discuss the sense in which it can be thought of meaningfully as deserving the designation ‘nominal *tense*’, that is, ‘grammaticalized location in time’ by Comrie’s (1985) definition. Second, I turn to a discussion of generic/habitual sentences, as well as adverbial and conditional clauses in the present tense, where the nominal past morphology is interpreted not along a temporal, but along a modal dimension. I show that the numerous instances of the interaction of the past tense with the modal domains, for which we have a wide crosslinguistic evidence, have systematic parallels in nominals. This will lead us to the third issue, the use of a nominal past as a direct (i.e., perceptual) evidential. I will explore the possibility that Kratzer’s (1991) notion of ‘doubly relative’ modality might lead to a unified analysis of the tense/direct evidentiality connection, offering, at the same time, a perspective to explain the core facts presented here in a consistent way.

² See Lecarme (1996, 1999b, 2003, 2004). ‘Nominal tense’ is a well attested morphological phenomenon (see Nordlinger and Sadler (2004) for typological investigation from a wide-ranging survey of languages where the phenomenon occurs). Further elaboration depends on a fine-grained syntactic analysis of the relevant structures and the sentences in which they occur. If the ‘temporal markers’ in some languages are actually nominal aspect, not nominal tense, as argued by Tonhauser (2006) for Guarani, then we might expect languages to allow tensed, aspectual, or tenseless nominals, a further parallel with clauses.

1 Tense in Nominals

1.1 Space and Time

To appreciate the role of nominal tense marking in Somali syntax and semantics, it is necessary to introduce some of the basic features of the determiner system (see Lecarme, 1996, 2004).

Both the definite article³ and the demonstrative enclitics appear suffixed to the noun (in both cases, the initial consonant *-k-/-t-* is a gender morpheme which agrees with the noun). Somali demonstratives mark distance in space relative to the speaker, encoding a four-way distinction in proximity with regard to the speech act (1).

- (1) *Spatial demonstratives:*
- k/t-án ‘this, these’
 - k/t-áas ‘that, those’
 - k/t-ээр ‘that, those’ (visible middle distance)
 - k/t-óo ‘that, those yonder’ (far away, still visible)

Besides this, Somali and the closely related East Cushitic languages have a morphology specific to the temporal domain (2). The Somali nominal tense system is, basically, the morphological encoding of past and nonpast (present or generic), which surfaces as a vocalic */a* opposition also found in the verbal system in most Afroasiatic languages. As discussed in Lecarme (1996), the relevant opposition has to be understood as *i/∅, a* being the unmarked, ‘default vowel’ in Afroasiatic.⁴

- (2) *Tensed definite article:*
- | | [–past] | [+past] |
|--------|---------|---------|
| [+nom] | -k/t-u | k/t-ii |
| [–nom] | -k/t-a | k/t-íi |

Demonstratives and definites can cooccur: *nín-kan-u*, ‘this man’, *baabúur-taas-i* ‘those trucks’ *shíl-kaas-i* ‘that accident’. As in other languages with complex determiners (e.g., Germanic), ‘double definiteness’ has the effect of an intensifier.⁵

³ In Standard Somali, no indefinite article appears on the surface: *a man* is expressed with the Somali equivalent of *man* (the indefinite form can mean either non-specific or specific indefinite).

⁴ In Lecarme (1996, 1999b), the suffixed definite forms are derived by syntactic N-to-D movement. A morphological merger analysis of the sort developed by Embick and Noyer (2001) would rather treat these cases as involving Lowering the entire D, which is internally complex, to the head of its NP complement, leading to a parallel morphological structure root- \emptyset -tense for both the tensed nominal and verbal forms. See Lecarme (2004, 343–344) for more details.

⁵ This distributional fact is generally not mentioned in the literature (but see Kirk, 1905, for a thorough description, based on the Isaaq dialect of Somali). Since the relevant DPs can occur in non-subject position, the past ending is not to be assimilated to the *-i* nominative morphology which is marked at the right edge of the phrase under certain conditions (see Anderson et al., 2006, for a recent analysis). Assuming that Somali D is \emptyset with gender agreement and tense incorporated

From the fact that both demonstratives and tensed definite articles can be used deictically, should we conclude that they belong to the same category, ‘deictics’? There are several important points worth noting here. First, Somali demonstratives, unlike English *this* and *that*, never lose their (deictic) spatial function. Even in their anaphoric uses (e.g., in texts), the demonstratives *-an* and *-aas* remain demonstrative in that they pick up a referent in a set whose salience is determined spatially. Second, demonstratives (universally) do not function in narrow syntax,⁶ only in interpretation of the information they provide: there are no locative elements corresponding to tenses. Somali tense morphology is inflectional, and determines crucial aspects of the narrow syntax of DP. Third, unlike English *that/those*-phrases, which can have narrow scope readings, Somali demonstratives are scopally inert. Past DPs are able to take narrow scope with regard to operators and quantifiers. I will examine the last two points in more details below.

1.2 The D-T Relation

Tense-marking on nominals is an inescapable feature of Somali grammar. Understanding the past/nonpast opposition marked on the definite articles is part of the basic linguistic competence of Somali speakers. As I discussed elsewhere (Lecarme, 1996, 1999b, 2003, 2004), nominal tense is independent of clausal tense, even if they generally coincide (or overlap). This effect is very sharp in relative clauses, where the tense of the antecedent DP need not be the same as the tense of the relative clause. For example, a nonpast DP is characteristically used, as in (3a), when the referent is a famous person, or when the speaker wants to discuss a person or thing in the context of the utterance (3b, c).⁷

to D (T-to-D), the relative order of the possessive and demonstrative enclitics suggests that demonstratives are merged higher than Spec,TP (presumably, Spec, DP). A full account of how this hierarchical structure is linearized is beyond the scope of this article.

⁶ Narrow syntax is taken here as the core recursive aspect of the language faculty (Chomsky, 1995, and subsequent work).

⁷ Here and below, the absence of explicit gloss indicates a nonpast morphology (whether interpretable or not as a present tense).

The examples in the article follow the national orthography with small modifications: the main tonal accent of a prosodic word is noted with an acute accent; hyphens are added for morpheme separation. Key to Somali gloss: C/F = complementizer/‘focus marker’ (I analyze the *baa/waa* morpheme as a declarative root complementizer); defF/M = definite feminine / masculine article, dem = demonstrative, dep. = dependent, dir. = directional particle, expl = expletive, gen = general/generic, Poss = possessive, prog. = progressive, neg. = negation, restr. = restrictive agreement. Pronominal clitics are identified by their person, gender, and number features (upper cases). Referential third object pronouns are Ø in Somali. Low cases = agreement features. Most examples in the text are from my previous papers, from *Shabeelnaagood* (a Somali play by Hassan Sheikh Mumin), from the BBC Somali Service, and from Google.

- (3) a. Nín-ka cáan-ka ah ee búug-gani qoray
 man-defM. fame-defM be and book-defM.dem.past wrote[+nom]
 (waa Shakespeare
 F/C Shákisbír)
 ‘The famous man who wrote this book (is Shakespeare)’
- b. Ma ógtahay qóf-ka aan ú codeeyay?
 Q know.2s person-defM 1S for vote.past
 ‘Do you know whom I voted for?’
- c. Arrín-ta Xámar i keentáy (baan ku shéegayaa)
 affair-defF Mogadishu 1S brought F.1S 2S tell.prog
 ‘(I am telling you/ going to tell you about) the affair which brought me to Mogadishu’

It appears, then, that both nominal and verbal/clausal tenses are computed in relation to the speech time. Thus, assuming that the definite article is a D(eterminer) heading a DP (determiner phrase), the domain of interpretation of the tense marked on D is the DP. In previous work, I proposed that parallel to the C-T relation expressing clausal finiteness, there is a D-T relation expressing ‘nominal finiteness’.⁸ For the purpose of the present article, I will assume that DPs have a structure (4), where D is formally parallel to C, n^* is parallel to v^* and selects the ‘external’ (possessor) argument, n is a light noun, and NP, n^*P and DP define three syntactic domains for tense interpretation:⁹

- (4) $[_{DP}D[_{TP}T[_{n^*P}n^*[_{NP}n[NPN]]]]]$

This hypothesis immediately accounts for the fact that the past determiners are scope bearing elements with regard to the interpretation of modifiers. Like English *before*, the (non-intersective) adjective *horé* ‘before’ is a general ordering predicate that situates or characterizes an entity in either time or space from a reference point. As the examples show, *horé* has a spatial meaning when used with a spatial demonstrative (5a) or a present nominal tense (5b), and a temporal meaning in the domain of a nominal PAST: in other words, PAST is required for *horé* be interpreted as ‘former’ (5c). In contrast, only a present nominal is compatible with a modifier like *máanta* ‘today’. This is best illustrated by (5d).

⁸ I envisage a parallel treatment of CP and DP, as often implied in the literature (see Hiraiwa, 2005, for a recent syntactic account). On the semantic side, many parallels have been suggested between nominals and clauses: verbs in general are assumed to have neo-Davidsonian meanings, where the VP names a ‘property of eventualities (events and states, cf. Bach, 1981), not a single event. Events are assumed to have the same logical type as individual entities, that is, $\langle e \rangle$. ‘Sentence determination’ is obtained by quantifying over the event variable (Krifka, 1992; Partee, 2000; von Stechow, 2002). Building on these studies, I will assume that noun phrases, like sentences, contain implicit quantification over times, and implicit restrictions to times contained in a contextually salient interval.

⁹ The functional head n^* is labelled Appl(licative) in Lecarme (2004).

In the following, I will use ‘tense’ as ‘morphological tense’ (possibly null), T as the syntactic category T(ense), the locus of computation of tense features ([T]), and PAST as semantic tense (some abstract temporal quantifier).

(5) *Spatio-temporal modifiers*

- a. Tuulá-dóo horé (éeg!)
village-defF.dem before look
'(Look at) that village in front!'
- b. Jíd-ka hore má ahan ee waa kán labaad
street-defM before Neg is and F/C m.dem second
'It is not the next street ahead, but the second one'
- c. (Waa) tuulá-díi hore (oo aad degganayd)
C/F village-defF.past before (and 2S lived.2s)
'(This is) the former village (where you lived)'
- d. Máxay kú kala duwán yihiin noló-shíi dád-kíi
What.3P at between different are.3p life-defF.past people.defM.past
hore iyo tán dád-ka maánta?
before and f.dem people-defM today
In what does the life of former people differ from the one of today's
people?

Nominal tense is 'inflectional' in Somali in that the D-T complex determines crucial aspects of the internal syntax of DP, such as Case assignment, agreement and deletion processes (Lecarme 1996, 1999b, 2004). I argued that structural genitive Case involves T in addition to D: elements with inherent case selected by n^* remain in Spec, n^* P, pronominal possessors in Spec,TP are assigned Case by T in conjunction with D. Tense also can be used as a feature of agreement (or concord). As (6) shows, Somali adjectives must agree with a definite head noun in gender and tense.¹⁰

(6) *Tense agreement (adjectives)*

- a. Xaashí-da yar ee cád (buu kéenayaa)
paper-defF small and white (F/C.3MS is.bringing)
'(He is bringing) the small white sheet of paper'
- b. Xaashí-díi yarayd ée caddayd (buu keenay)
paper-defF.past small.past.f and white.past.f (F/C.3MS brought)
'(He brought) the small white sheet of paper'

At the same time, Somali (among other Afroasiatic languages) has a syntactic condition to the effect that noun modifiers in the context of $D_{[Definite]}$ must be marked morphologically for definiteness.

¹⁰ On the special morpho-syntactic status of nominal number, see Lecarme (2002).

(7) *Tense and definiteness agreement (NP modifiers)*

- a. ardayád soomaalí ah
student.f Somali.f be
'a Somali student(f)'
- b. Ardayád-**da** Soomaalí-**da** ah (way imáaneysaa)
student.f-defF Somali-defF be (C/F.3F is.coming.f
'The Somali student(f) (is coming)')
- c. Ardayád-**díi** Soomaalí-**da** ahayd (wáy timid)
student.f-defF.past Somali-defF be.past.f (C/F.3F f.came)
'The Somali student(f) (came)'

In uttering (6b), the language user does not assert that the smallness and whiteness of the sheet of paper is 'past' relative to the utterance time: if that were the case the use of past tense would be at best unfelicitous, as under the most natural interpretation the state of the sheet of paper being white and small extends through the time of utterance into the future. Similarly, the use of past in (7c) does not mean that the individual-level predication 'be Somali' held of the student (only) prior to the utterance time.¹¹ In addition, the DP modifier in (7b, c) is not interpreted as a definite description. The most telling examples are idioms, since idioms typically do not have compositional meanings. The paradigm for an idiomatic noun+ adjective combination thus will be as follows:

(8) *Idioms*

- a. siyaasadó foól xun
policies face ugly
'ugly policies' (lit. 'ugly-face' policies)
- b. siyaasadá-**ha** foó-**sha** xun
policies-defM face-defF ugly
'the ugly policies' (lit. 'the face')
- c. siyaasadí-**híi** foó-sha xum-**aa** ee uu
policies-defM.past face-defF ugly.past and 3SM
guméysi-gu doónayey ínuu...
colonialist-defM[+nom] wanted COMP.3MS
'the ugly policies with which colonialists wanted to...'

Space prevents me from reviewing all the evidence. What is important here is simply the overall generalization: nominal Tense, like Definiteness, is interpreted syntactic material. [Definite] and [T] pattern together because they are both features on D. Agreement morphemes reflect certain syntactic properties, but do not in any sense contribute these properties to syntax. Assuming the recent minimalist framework (Chomsky, 1995, 2000, 2001), these instances of past tense represent unvalued features (*u*T) that must be valued at the D-phase level, in a local relation to an interpretable PAST (the D-T connection).

¹¹ On the syntactic and semantic difference between adjectives (*white*) and stative verbs (*be white*), and between inflected adjectives/predicative nouns and (reduced) relative clauses in Somali, see the discussion in Lecarme (2004).

1.3 Time and the Noun

1.3.1 On Tense Morphology and Temporal Interpretation

Assuming that syntax and semantics run in parallel from the bottom to top, three (sets of) times are potentially involved in the temporal interpretation of noun phrases: (i) the time of the predicate (or predication time), that is, the times at which a property like ‘dog’ or ‘president’ is asserted to hold of an individual, (ii) the time of the genitive/possessive relation ‘R’ (Higginbotham, 1983b; Partee, 1983), and (iii) the time of (existence of) the individual.¹² The corresponding syntactic domains are NP, n*P and DP, respectively. The relevant Somali examples are as follows:

- (9) a. Madaxweyní-híí hore (wuu imaáneyaa)
 president-defM.past before C/F.3SM is.coming
 ‘The former president (is coming)’
- b. (Wáxaan ku bárayaa) afáday-díí hore
 expl.C/F.1S 2S introduce.prog wife-defF.Poss1S-defF.past before
 ‘(I am introducing to you) my ex-wife’
- c. Weerár-kíí ków iyo tobán-kíí Sebteंबर (ma lá
 attacks-defM.past one and ten-defM.past September Q with
 socotaa?)
 follow.2s
 ‘(Do you know about) the September 11 attacks?’

As discussed in section 1.2, the spatio-temporal adjective *horé*, like English *before*, express temporal precedence when it is bound by a PAST tense. In (9a), *horé* applies to the predicate, creating a predicate true of individuals that once had the property ‘president’ (*horé* is needed to convey the aspectual meaning of *ex-* or *former*). In (9b), *horé* applies to the possession relation: the nominal can be used to refer to someone who was formerly ‘my wife’, and is ‘my wife’ no longer. As our examples make it clear in both cases, the time when the property ‘president’ or ‘my wife’ is true of the individual must be a subset of the intervals bound by *horé*, but in order for those intervals to be temporally located in the past, a nominal PAST is needed. Similarly, in (9c), the running time of the event (the attacks) must be included in the reference time (September 11). The effect of a nominal PAST is to constrain the denotation of the temporal modifier ‘September 11’ to a set of past times. Nominals then are much similar to clauses with regard to temporal interpretation: PAST makes it possible to chain together various elements of the interpretation of noun phrases. Since the core eventuality is anchored at the utterance time, there is no other source of PASTness in our examples.

¹² Here and below, I assume that there is no asymmetry between the application of tense to individuals and to events. The individual’s ‘time of existence’ is to be understood as the time associated with underlying existential quantification (making the temporal location of an individual parallel to the temporal location of an event), not the whole time-span of an individual’s existence, which is, in case of animate individuals, their *lifetime* (Kratzer, 1995; Musan, 1995, 1997).

1.3.2 On the Temporal Location of Individuals

Most of the previous work on the temporal interpretation of noun phrases (in English and German) has centered on the temporal location of predication times.¹³ We owe to Enç (1981) the claim that the interpretation of *fugitives* in sentences such as ‘every fugitive was in jail’ is independent of the tense that is present in the syntax (the possible readings involve individuals who are fugitives now, or were fugitives before they were in jail). Enç (1986) proposed that nouns (like verbs) must be provided with temporal arguments, the value of which are supplied by the utterance context. Important observations made by Musan (1995) led her to question this analysis. According to her, the correct generalization is that only strong (presuppositional) NPs are temporally independent. Cardinal noun phrases (e.g., weak noun phrases in existential *there*-constructions) can have temporally dependent readings.

The temporal location of individuals has received comparatively little attention. Musan (1995, 1997) does provide a pragmatic account of the ‘lifetime effects’ that individual-level predicates like ‘be from America’ or ‘have blue eyes’ impose to their subjects.¹⁴ But Musan’s theory aims at explaining in which way the temporal location of individuals is determined or affected by the temporal interpretation of a clause, and crucially depends on an ontology that contains stages (temporal parts) of individuals as basic entities (of type *e*). On this view, an individual’s ‘time of existence’ is actually the time of existence of a *stage* of an individual.

Deeper insights into the temporality of noun phrases, I argued, can be gained by the study of systems where nominals encode temporal distinctions. In Somali, tense is a feature of any (common) noun, not only nouns that are said to include an event as part of their lexical semantics. The main function of nominal tense in the language is to temporally locate individuals like *the table* and *my brother*.¹⁵ Syntactic Definiteness and Tense draw the difference between the ‘strong’ pronouns, which have the same distribution as ordinary DPs, and the ‘weak’ pronouns (semantically definite) associated with them. Since pronouns do not contain nouns that can be predicated of a stage, the following examples illustrate a clear case where nominal tense locates an individual temporally, at a past time which overlaps (or coincides with) the time of the event:

- (10) a. Isá-gíí baa hádal-kíí qaatáy, oo yiri:
HE-defM.past C/F talk-defM.past take.past and m.said
‘HE began to speak, and said:’
- b. Díbna umá arág isá-gíí iyo
Back.any at.NEG see HIM.defM.past and
lacágtay-diiba.
money.f.Poss1S-defF.past.any
‘Afterwards I did not see HIM again, nor my money’

¹³ On the temporal location of the genitive/possessive relation, see Burton (1997) and Larson and Cho (1999, 2003).

¹⁴ See note 12 above.

¹⁵ As expected, proper names, kind-denoting DPs (e.g. *naasley-da* ‘the mammal(s)’) and DPs that denote abstract entities (e.g. *xisaáb-ta* ‘the mathematics’) do not reflect tense distinctions.

Both Enç's and Musan's generalizations can be derived from the nominal tense hypothesis. Assuming that the time variables of nominals are bound DP-internally by a nominal tense operator, the scope paradoxes that motivated Musan's stage analysis do not arise.¹⁶ The cardinal vs. presuppositional distinction is tense-related: if true D (i.e., D + T) relates to referentiality in some sense, an indefinite nonspecific nominal phrase ('a lot of people', 'someone', etc.) is temporally indefinite. A crucial piece of evidence for this is that nonreferential nominals (nonspecifics, quantified and predicate nominals, etc.) are tenseless in Somali. On this view, the distribution of temporally dependent/independent noun phrases coincides closely with Chomsky's (2000, 2001, 2008) notion of phase: weak (temporally indefinite) NPs are merged in the VP and interpreted in situ, whereas 'presuppositional' (i.e. tense-related) DPs occupy higher positions in the syntax.¹⁷

1.4 Interim Discussion

To recapitulate the conclusions so far, crucial aspects of temporal interpretation of nominals in Somali are strictly determined by linguistic form, then belong to the syntax and semantics of the language. Depending on the tense marked on the DP, (simple) event and process nominals (e.g. *exhibition*, *trip*, *ceremony*) trigger distinct presuppositions, as reflected by the English translations of the examples.

(11) *Presuppositions*

- a. Bandhíg-**ga** máad daawatay?
exhibition-defM Q.2S see.2s.past
'Have you seen the exhibition?' (still running at UT)
- b. Bandhíg-**gíi** máad daawatay?
exhibition-defM.past Q.2S see.2s.past
'Did you see the exhibition?' (closed at UT)

Both utterances (11a) and (11b) carry an existence presupposition: the sentences would be used most naturally by a speaker who assumes that the hearer knows that there is a (unique) exhibition—the semantic contribution of the definite article. A second presupposition is associated with tense: by uttering (11b), a speaker makes it clear that she takes for granted that the exhibition is 'over' at the time of her utterance. The temporal presupposition is not required to be in the common ground.¹⁸

¹⁶ See Musan's (1995, 89–92) arguments against a scope approach of the presuppositional vs. cardinal distinction (Diesing, 1988, 1992), namely that presuppositional noun phrases under the scope of a temporal adverb of quantification still can be temporally independent.

¹⁷ In the framework of Chomsky (2001, 2008), a DP with an interpretable tense feature should reach the edge position of the phases v*P and CP (i.e., outer Spec, v* and Spec, T, if T inherits the edge feature of C) typically associated with 'surface structure' interpretation (specificity, new/old information, topicality, etc.).

¹⁸ See Lecarme (1996, 1999b) for more examples. The fact that the temporal presupposition is not required to be in the common ground makes it more similar to assertions than a presupposition

The presuppositional content is not an implicature either, since conversational implicatures are typically cancellable. The presuppositional fact encoded in the linguistic meaning of nominal expressions—namely that the exhibition is ‘past’ or ‘present’ relative to the time of utterance—is *semantic* in the sense that it represents *what the speaker knows*, independently of her communicative intention.

On the assumption that the semantic conditions on the temporal interpretation of noun phrases are similar across languages, what distinguishes, say English (or German) from Somali? One possibility is that in languages where the temporal interpretation of nominals does not show up in linguistic form, these temporal interpretations are pragmatic, not semantic. They are accordingly not represented. A more plausible possibility is that the English DP reaches the semantic interface in the same form as the Somali DP, as we would expect if the external systems of interpretation are essentially language-independent. On this view, the temporal arguments of nouns are represented in the syntax as empty categories sensitive to their syntactic environment. Perhaps supporting this conclusion is that nominal tense features are also often phonologically expressed in some fashion. According to Pesetsky and Torrego (2001), the property of nominals called ‘structural case’ is actually unvalued T on D. Determiners across languages are semantically complex elements with inner structure. Languages with ‘double definiteness’ effect provide some evidence that definiteness is comprised of two parts: uniqueness and specificity (in the sense of Enç, 1991).¹⁹ In their anaphoric uses, non-proximal demonstratives (e.g., English *that/those*) are prone to semantic reinterpretations in which the basic deictic meaning has been lost. It is likely that the language faculty does not stipulate *which features* serves as the past ‘exclusion’ function in the nominal domain. It merely requires *some* feature of N to perform this function.

2 Modality

2.1 Time and Worlds

Crosslinguistically, past tense morphology often does not indicate temporal anteriority (e.g., in English and Japanese, the non-temporal use of a past tense carries a definitive meaning of counterfactuality). Most linguists think that these different uses are closely related and are not merely uses of distinct homonymous lexical items. This lends support to Iatridou’s (2000) idea that past tense is used as an exclusion/dissociation feature, formally expressed as (12).

- (12) $T(\text{opic})_x$ excludes C_x
 The variable x ranges over times or worlds (Iatridou, 2000, 246)

under a Stalnakerian analysis, although the presupposition is not directly asserted. This, however, is left for future discussion.

¹⁹ Roehrs (2006, on Scandinavian) makes the interesting claim that ‘specificity’ originates in a syntactic position lower than D, and that determiners are parallel to auxiliaries in the clause.

When the variable ranges over times, past tense expresses a relation of precedence between the Topic Time (Klein, 1994) and the Utterance Time. When the variable ranges over worlds, past tense morphology allows the set of topic worlds to exclude the actual world, thus establishing the implicature of counterfactuality.

In this section, I argue that the analysis naturally extends to the nominal domain: nominal past is among the devices that make it possible to get access to non-actual worlds for the interpretation of noun phrases. I describe how the generic operator interacts with definite expressions, using first ordinary definites and then free relative examples.

2.2 *Generics and Habituals*

In any sentence expressing a generalization, nominal past does not have a past temporal meaning. Rather, it apparently introduces a modal dimension into the interpretation, by allowing variability of reference of the DP. Consider, for example, the contrast between (13a) and (13b):

- (13) *Generics*
- a. Wíl-kfí wanaagsani waa ínuu wax bartó
 boy-defM.past good[+nom] C/F COMP.3MS thing learn.pres.dep
 ‘A (lit. the) good boy must learn something’ (deontic generalization)
- b. Wíl-ku / wíl-ka wanaagsani waa ínuu wax
 boy-defM[+nom] /boy-defM good[+nom] C/F COMP.3MS thing
 bartó
 learn.pres.dep
 ‘The boy/the good boy must learn something (now)’

(13a) expresses a normative statement, or a lawlike generalization (ideally, a good boy must learn something according to some set of rules). There need not be boys in the context of use: generic quantification is over (deontically) possible individuals, not just the actual ones. Compare with (13b), where the nonpast DP is construed as an episodic subject (‘unique boy who must learn something in the actual world’).²⁰

Similarly, past DPs are required in habitual sentences, involving states or processes that are typically regularly repeated.²¹

²⁰ Note that the nominal past is the only apparent source of genericity in examples such as (13a). The interpreted modality is not associated with any lexical item in the structure (cf. the English ‘is to’ or ‘has to’ constructions): the *waa in* construction is formally a verbless sentence, where the root complementizer *waa* is a pure, non verbal copula and the *ín*-clause a complement CP (see Lecarme 1999a, 286–287).

²¹ As in English, only stative verbs in Somali have a non-habitual interpretation in the present tense, hence the examples in (14–15) are unambiguously generic/habitual.

(14) *Habituals*

- a. Aróor-tíí wáxaan toosaa líx-da
 morning-defF.past expl.F/C.1S wake-up.pres.gen six-defF
 ‘In the morning I wake up at six’
- b. Góor walba dúmar-kíí baa áwr-ta fura
 time each women-defM.past F/C camels-defF unload.pres.gen.restr.
 oo aqallá-díí dhisa
 and huts-defM.past build.pres.gen.restr.
 ‘Always the women unload the camels and build the huts’

Habitual sentences are a special case of generalization: over parts of worlds or situations (Kratzer, 1989; Carlson, 1995). Sentence (14a) can be paraphrased most naturally as ‘in general, if there is a morning situation, I wake up at six in that situation’. The temporal noun *aróortii* ‘the morning’ is not used to denote a particular time interval here. Likewise, in (14b), where the sentence quantifies over typical situations of the nomadic life in Northern Somalia (the women unload the camels and build the *aqal* while the men take the stock to water), the past DPs need not be interpreted with the collective subject referring to specific groups of women. The sentence is not necessarily a generalization over instance of observed events: it can be reported in a book. The past DPs are not anaphoric to any antecedent explicitly present in the preceding speech or text, and they are not ‘discourse anaphoric’ either. Here, past indicates that we are talking about non-actual, non-episodic individuals.

A similar effect is observed in ‘inherent’ generics, those describing events that do not require instantiation, as in (15). On the attributive interpretation, ‘the winner’ in (15a) is relativized to the world of evaluation (i.e., ‘whoever is the winner in w’). Past DPs are also required in sentences that express statistical correlations, percentages, prices per kilo, etc., as (15b, c). Here, the distributive interpretations can be reinforced by adding the quantifier *-ba* ‘each’, as in (15c).

(15) *‘Inherent’ generics*

- a. Sánnad kasta qóf-kíí gúuleystaa wúxuu
 year each person-defM.past win.gen.[+nom] expl.F/C.3MS
 léeyahay kún shillin
 has.pres thousand shilling
 ‘Every year, the winner (lit. ‘the winning person’) will receive 1000 shillings’
- b. Shír-kaas oo sánnad-kíí már la
 conference-defM.dem and year-defM.past time one
 qabto
 holds.dep.pres.gen
 That conference that is held *once a year* (= annual conference)
- c. Kani waa diiqád sahlán oo kú dhacda ilaa sidéed
 m.dem.[+nom] F/C depression mild and to happens up.to eight
 hooyo tóban-kíí-ba
 mother ten-defM.past-each
 ‘This is a mild form of depression that occurs in up to eight *out of ten* mothers’

The phenomenon is quite general: similar generalization can be made in most languages about definite and demonstrative descriptions that take narrow scope under quantifiers (e.g., ‘The elegant man does not wear jewelry’). But if the quantificational variability effect is due to the relation between a generic quantifier and the iota definite description operator, as it is generally assumed, why should the DP be past?

I propose that all these readings combine a quantificational dimension and a modal dimension. The quantificational dimension of the DP comes from a covert generic operator, as it is generally assumed after Lewis (1975) and Heim (1982). The modal dimension comes from the past dissociative morphology: the quantifier does not quantify over actual individuals, but over possible, non-actual ones. In other words, the *-ii* morphology is not a quantifier, but a modal determiner).²²

2.3 Attitude Verbs

In episodic sentences, DPs occurring as objects of attitude verbs expressing ‘ignorance’ or ‘uncertainty’ on the part of the speaker (or attitude holder) are marked as past. The sentences (16a,b) have a ‘subjective’ epistemic reading (cf. Lyons, 1977; Papafragou, 2006) in the sense that they are interpreted as relative to a speaker (or attitude holder)’s knowledge state at the time of utterance:

- (16) a. Jawaáb-tíí garán maayo
 answer-defF.past know Neg.have.pres
 ‘I do not know *the answer*’
- b. Wíx-íí dheeráad ah Állaa óg!
 thing-defM.past beyond is God.F/C knows.pres.restr.
 ‘(Only) God knows *what(ever) lies beyond!*’

In (16a), nominal past explicitly marks an epistemic possibility: the modal base consists of worlds which, for all the speaker knows at the time of her utterance, could be the actual world—a conjunction of propositions (e.g., ‘the answer is yes’ and ‘the answer is no’) both of which could be true without contradiction, given the speaker’s present state of knowledge. The construction can be paraphrased with an *ever*-free relative, as in (16b).

The overall generalisation is that in Somali, definite descriptions can scopally interact with generic operators and propositional attitude verbs. Definite description that take narrow scope in relation to these operators are overtly ‘dissociated’ from the actual world: the source for the modality can be attributed to the same linguistic device in both cases. Past DPs in either their ‘variation’ or ‘ignorance’ readings are closely related to the free relative examples that I will now discuss.

²² This supports the view that generic sentences are implicitly modalized (Heim, 1982; Diesing, 1992). See Heim and Kratzer (1998, 165–170) for a related discussion.

2.4 Free Relatives

There is no (uninterpretable) *wh*-like element in Somali.²³ The variable element in plain free relatives ('I read what you wrote') is spelled out as *qóf* 'person' and *wáx* 'thing'. Plain free relatives, then, are formally relative clauses headed by *wáx-a* 'the thing', *qóf-ka* 'the person', etc. The modal dimension of a relative clause correlates with the presence of the *-ii* morphology. The following examples have the universal or the free choice readings of English *-ever* free relatives:

- (17) a. *Qóf-kíí* *ilá* *kulma-ba* *wáx* *aanán* *aháyn* *buu*
 person-defM.past 1S.with meet-each thing 1S.neg be.inf C/F.3MS
i *moodaa*
 1S think.pres.gen
 'Whoever meets me thinks too highly of me'
 ≠ The specific person (= *qóf-ka*) who meets me now
- b. *Wíx-íí* *aad* *heysáan* *íí* *keena*
 thing-defM.past 2P have.2p 1S.to bring.2p
 'Bring me whatever you have'
 ≠ Bring me the specific thing (= *wáx-a*) that you have now
- c. *Wíx-íí* *wár* *ah* *ée* *aad* *na* *siisíd* *wáxaa* *la*
 thing-defM.past new be and 2S 1S give.dep.pres expl.F/C one
isticmaáli *doonaa*
 use.inf will
 'We will use whatever information you send us'
- d. *Kíí/búug-gíí* *aad* *rabtíd* *qaadó!*
 defM.past/book-defM.past 2S want.2s take.imp.2s
 'Take whatever/whatever book you want!'

In every one of these examples, the denotation of the free relative covaries with the situation: the identity of the person who meets me differs in each situation, or different things or books are picked up in different possible continuations of the situation (the quantificational meaning can be reinforced by the polarity sensitive item *-ba* 'each'). As in the cases discussed before, the suffix *-ii* contributes an additional modal dimension, signaling that the individual is not instantiated in the speaker's actual world.

Somali *when*-clauses also take the form of a relative clause introduced by a definite head noun meaning 'the moment', 'the time', etc. The presence of *-ii* correlates with the quantificational reading of the adverbial clause.

²³ The Somali counterpart of English interrogative complements headed by *who*, *what*, *when*, *where*, *how*... are relative clauses headed by *qóf-ka*, *cíd-da* 'the person', *wáx-a* 'the thing', *sí-da* 'the manner', etc. The interpretable interrogative element *-ée* (e.g. *nínk-ée* 'which man?') is not used in complement clauses or free relatives of any kind. See Lecarme (1999a) for a more detailed discussion.

(18) *When-clauses*

- a. *Már-ka* la burburiyó Taleban,...
 time-defM one destroy.dep.pres Taleban
 ‘When (lit. *the time*) the Taleban will collapse,...’
- b. *Már-kūi* la gaboobó wax badán waa la
 time-defM.past one becomes-old.dep.pres thing many F/C one
 illoobaa
 forgets.pres.gen
 ‘When (lit. *the time*) one gets old one forgets many things’

In (18a), ‘the time’ when the Taleban will collapse is a specific referential time, and even if this time is a future time, this time belongs to our world. In contrast, no specific referential time is available in the reading of (18b), where the past tense morphology is interpreted not along a temporal but along a modal dimension.

Conditionals are modal in nature, in that they involve quantification over possible worlds/situations (Kratzer, 1981, 1991 a. o.). In Somali, all types of conditional clauses are modalized free relative headed by the past DP *hád-dūi* ‘the time’—interestingly, the present tense form *hád-da* means ‘now’ (lit. the (present) moment’).

(19) *If-clauses*

- a. Nin *hád-dūi* uu seexdó oo sóo
 man[+nom] time-defF.past 3MS sleeps.dep.pres. and dir.
 toosó, waa isá-gūi ún
 wakes-up.dep.pres. F/C him-defM.past only
 ‘If (lit. *the time*) a man goes to sleep and then wakes up, he is only himself’ (i.e. the same as he was before) (Proverb)
- b. *Hád-dūi* aad rabtó na ráac!
 time-defF.past 2S want.2s.pre.dep 1P follow.imp
 ‘Come along with us, if (lit. *the time*) you want!’

What, then, is the role of the *-ii* morphology? I suggest that even if the conditional is based on the actual world, *the time* of the conditional realization (i.e., the denotation of the free relative) is not in the world according to the speaker.

It will be useful at this point to make explicit what analysis I have in mind for free relatives in Somali, and free relatives more generally. I am assuming here a now familiar analysis of free relatives along the lines of Iatridou et al. (2001, 224–225), namely that the nominal expression generated as non-specific (more specifically, as a N-head) is merged as a Spec of CP, possibly after extraction from within the VP (e.g., *wáx* [C [*aad heysáan t*]] = (17b)) and then projects a DP headed by N (the Somali complementizer of relative clauses is a phonologically non overt form). I propose that the definite determiner is further decomposable, and one of its constituents, the past tense morpheme, is interpreted not along a temporal but along a modal dimension. This account seems compatible with recent treatments of conditional clauses as free relatives of possible worlds (Schlenker, 2004; Bhatt and Pancheva, 2006).

2.5 *Interim Discussion*

In the voluminous literature on English free relatives with *-ever*, it is widely assumed that free relatives are definite descriptions. The status of the morpheme *-ever* is more controversial. According to Larson's (1987) analysis, *-ever* is a universal quantifier. Dayal (1997) argues that *whatever*-phrases have a modal dimension: in the speaker's 'ignorance' reading, *whatever*-clauses quantify over epistemic alternatives that differ from the actual world only in the identity of the free relative referent (see also Iatridou and Varlokosta, 1997). According to von Stechow's (2000) unified analysis, the content of *-ever* is presuppositional: *-ever* introduces a presupposition of variation over the denotation of the free relative (a definite expression) across possible worlds. This variation is construed either as 'indifference' ('I grabbed whatever tool was handy') or 'ignorance' ('There is a lot of garlic in whatever (it is that) Arlo is cooking'), depending on the (counterfactual or epistemic) modal base. But whatever the analysis, a question remains: if the denotation of a definite description varies as a function of the values introduced by a higher quantifier, why do we also need *-ever*?

My proposals come closer to Dayal's conception of i(dentity)-alternatives as differing from each other only in the denotation of the free relative. From the perspective of the present discussion, what is reflected in the meaning of *-ever*, like the meaning of *-ii*, is the core meaning of exclusion/dissociation. On this view, the modal properties of English *every*, *who/what/when-ever* and French *quiconque*, *quelconque*, are related to the temporal polarity items *ever* and *onque* of Old English (*aeþr ylc* 'ever each')²⁴ and Old French (*qui c'onques*, *que c'onques* > *quiconque*, *quelconque*). These morphologies should also be viewed synchronically as polar items bound by temporal or modal operators—not the time or world variable itself, but a linguistic sign of exclusion/dissociation.

3 Evidentiality

Evidentiality is generally defined as the linguistic encoding of a speaker's source of information, such as perception, report, or inference (Chafe and Nichols, 1986). Evidential markers found in many languages are the linguistic means to indicate these sources. According to Willett's (1988) typology, a true evidential system is fundamentally concerned with the distinction between DIRECT (i.e., perceptual) and INDIRECT (i.e., inferential and reportative) evidence types. Systematic interactions exist crosslinguistically between evidentiality and tense, in that the present tense is interpreted as being based on direct evidence. To the extent that there is a close (causal) connection between one's source of information and one's knowledge, there is also a close relation between evidentiality and epistemic modality. For instance, epistemic modals like *must* are often the carriers of indirect (inferential) evidence (Palmer, 1986). Still,

²⁴ See Postma and Rooryck (1996).

and the hearer know that the girl is present in the next room. (21a) is not the simple assertion ‘your daughter is pregnant’: by using an evidential past, the speaker marks that the girl is absent from the immediate visual context. As a further illustration, a speaker who asserts (21b) presupposes that the hearer knows the students. By using a past evidential, she also signals that the students are not in sight—as evidenced by the hearer’s question. The process is not intentional, and not optional either: *-ii* is inappropriate in both (21a) and (21b) if the girl or the students are visible in the contexts of use.

(21) *Talking about invisible referents*

- a. Inántaa-**dii** úur bay leedahay
 girl-f.Poss2S-defF.past[+nom] pregnancy C/F.3FS has.3fs
 ‘(Doctor to Mother) Your daughter is pregnant’.
- b. Arday-**dii** way jóogayaan. —Kuwée?
 students-defF.past[+nom]t C/F.3P stay.prog (—defM.pl.Q)
 ‘(Secretary to Dean) *The students* are waiting. —Which students?’

Could the *-ii* morphology be analyzed as anaphorically dependent on a previous ‘discourse’ context where the referent of the DP was in sight? As discussed in Lecarme (2003), this is not a necessary condition: speakers can use an evidential past to refer to individuals, things or places that were not previously in sight nor in the common ground before the time of utterance. The fact that evidential past sometimes may be used to talk about the future suggests that we are dealing here with modal, not temporal, exclusion:

(22) *Talking about the near future*

- a. Bal wíl-**kíi** baan gáarayaa, nabadgélyo!
 Well boy-defM.past C/F.1S reach.prog.pres goodbye
 ‘Well, I am going to *the boy*, goodbye!’
- b. Xáj-**kíi** baan áadayaa
 pilgrimage-defM.past C/F.1S go-to.pres.prog
 ‘I am going on *the Pilgrimage*’

Somali has no grammatical evidentials at the sentence level. The difference between perceptual, inferred and reported evidence is obtained compositionally via the evidential values of the nominal tenses—an analogous linguistic means to disclose the speaker’s source of information. In (23a), both nominals are marked as past, in concord with the past tense marked on the verb. The interpretation conveyed is that of a reportative evidential: (23a) is not a felicitous utterance if the speaker is on the spot of the accident (the sentence out of context has no evidential interpretation). In (23b), both nominals are in the present-tense form. The evidential meaning conveyed is that of (positive) DIRECT evidence. For example, (23b) can be uttered felicitously on the spot of the accident, where both the truck and the road are in sight. On the other hand, (23c) illustrates the inferential evidential meaning: (23c) is a possible utterance in a context in which the road is ‘present’, hence visible for the speaker. The interpretation that the rhino is ‘invisible’ or ‘absent’ (as glosses commonly indicate) is conveyed

by the evidential value of *-ii*. Thus, both (23a) and (23c) indicate INDIRECT evidence, but differ with respect of the source of evidence: in (23c), the evidence is based on observable results (for example, one might infer that the rhino has crossed the road from seeing traces on the ground). Here, the inference is constructed compositionally from the (positive) DIRECT evidential value of the present tense (i.e., the perceptual meaning).

(23) *Evidential constructions*

- a. Baabúur-kíi jíd-kíi buu ká tallaabey
 truck-defM.past[+nom] road-defM.past C/F.3MS by pass.past
 ‘The truck crossed the road’

Indirect evidence: report

- b. Baabúur-ku jíd-ka buu ká tallaabey
 truck-defM[+nom] road-defM[−nom] C/F.3MS by pass.past
 ‘The truck (visible) crossed the road (visible)’

Direct evidence

- c. Wiyíi-shíi jíd-ka bay ká tallaabtay
 rhinoceros-defF.past[+nom] road-defM C/F.3FS by pass.f.past
 ‘The rhinoceros (invisible) crossed the road (visible)’

Indirect evidence: inference

It appears, then, that past/non-past morphologies have uses that are clearly evidential. The question we must now ask is what ‘past’ and ‘invisible’ interpretations have in common. An answer I have offered in previous work is that they must share some feature: exclusion/dissociation. In this section, I will address more precisely the following questions: what are the factors determining the evidential reading of a past nominal? What gives rise to the *visual* character of nominal evidentiality? How can the visual meaning be incorporated into the semantics of evidentiality?

3.2 Approaches to (Sentential) Evidentiality

There is crosslinguistic evidence that modals and evidentials occupy adjacent segments on the same hierarchy (Oswalt, 1986; Willett, 1988). From an extensive investigation of adverb placement in a number of languages, Cinque (1999) postulates a universal hierarchy of functional projections, in which evidentiality is included as a type of mood.

(24) *Cinque’s (1999) functional hierarchy*

Speech Act MoodP > Evaluative MoodP > Evidential MoodP > Epistemic MoodP > Tense

According to Faller’s (2002) analysis, evidentiality is the linguistic encoding of the speaker’s grounds for making a *speech act*—in the case of assertion: the speaker’s source of information. Quechua evidential enclitics are illocutionary modifiers which add or modify the sincerity conditions of the act they apply to (for instance, the direct

evidential *-mi* adds a sincerity condition which requires that the speaker has the best possible grounds for believing the asserted proposition). In other words, the meaning of the whole expression is not based on truth-values. But as Faller points out, then we should have to distinguish between ‘pure evidentials’, an illocutionary phenomenon, and other means languages have to express the same distinctions.²⁶ Another problem is that under this analysis, evidentiality is conceived of as part of the theory of action, not knowledge. There is, then, little hope that we will find principles of general interest about how linguistic knowledge is made compatible with knowledge involved in vision, and how linguistic and non-linguistic (e.g., visual) representations interact in the construction of evidential meanings.

The modal approach which uses a possible world semantics in the analysis of epistemic modality seems more promising. From a semantic point of view, evidential markers do not contribute to the informative proposition, but disclose the source of information. In Izvorski’s terms,

‘the two dimensions. . . are logically independent. Yet, natural language typically treats propositions based on perceptual evidence on the part of the speaker as propositions asserted by the speaker to be true.’ (1997, 3)

Kratzer’s theory of ‘doubly relative’ modality is a profound insight into the nature of evidentiality. As in standard analysis in formal semantics, her theory posits an abstract common logical structure unifying the epistemic and root uses of modals. The lexical semantics of the modal encodes a quantificational force (\Box or \Diamond , a relation between sets of worlds). A covert variable next to the modal picks up a contextually salient set of worlds as a restrictor, and this contextually salient set determines how the modal is interpreted. On this view, epistemic accessibility is defined as compatibility relative to a knowledge state: (25) will be true in a world *w* if and only if it follows from ‘what is known in *w*’ that John is at home. Speakers do not claim that *p* (= ‘John is at home’) is true, but that a certain logical relation holds between *p* and *what they know*.

(25) (in view of what is known) John **must** be at home

In Kratzer’s theory, the quantificational part of a modal (the modal relation) is defined along two ‘conversational backgrounds’: the modal base and the ordering source, both functions from worlds to propositions.²⁷ An epistemic modal base (‘what we know’)

²⁶ ‘The framework of speech act theory might also prove to be the right one in analyzing evidentials in other languages, although not necessarily evidentiality in general. It is a reasonable hypothesis that evidentiality that is encoded by markers of tense and modality can more fruitfully be analyzed within a framework such as possible world semantics, which was developed to account for these categories’ (Faller, 2002, 264).

²⁷ Kratzer (1981, 1991) does not explain how a ‘conversational background’ is formally selected from the context of the utterance, but she does suggest that the distinction between modals with epistemic and circumstantial modal bases may correlate with a difference in argument structure. As many have previously noted, there are good arguments that modals with a circumstantial modal base (i.e., root modals) have an implicit agent argument which can act as a syntactic controller, whereas epistemic modals are structurally speaker oriented.

determines the set of worlds which are epistemically accessible from w . The innovation in Kratzer's theory is the ordering source, an additional construct for ordering worlds with respect to a reference world. The ordering source (w is at least as close to the ideal as w') imposes an order on the modal base and let the quantification range only over the closest worlds in the modal base. Thus, if the ordering source for the modal in (25) is the set of propositions which represent 'the normal course of events', the 'most normal world' may be a world in which John is not at home.

This view has crucial consequences on our understanding of evidentiality. Epistemic modal bases take ordering sources related to information. As Kratzer suggests, in uttering (25), speakers convey that they do not rely on known facts alone. They use other sources of information which are more or less reliable. These other sources potentially include extralinguistic information. This opens the possibility that evidential meanings depend on the kind of ordering source supplied by the context.

Izvorski (1997) proposed a formal analysis of indirect evidentiality in this framework.²⁸ Her arguments are based on the analysis of the 'perfect of evidentiality' in Bulgarian, Turkish and other languages. As (26a) shows, a present perfect morphology in Bulgarian is interpreted not as a present perfect, but as a perfect of evidentiality (glossed as PE). The indirect evidential reading is linked to the present tense: this reading is unavailable in non-finite environments, as well as in the formation of the past and future perfects (26b).

- (26) a. Ivan **izpil** vsičkoto vino včera
 Ivan drunk.PE all.the wine yesterday
 Ivan *apparently* drank all the wine yesterday (evidential reading)
- b. Ivan trjadvada e **izpil** vsičkoto vino včera
 Ivan must is drunk all.the wine yesterday
 Ivan must have drunk all the wine yesterday (perfect reading)

According to Izvorski's analysis, indirect evidentials (PE or *apparently*) are semantically propositional operators. Sentences of the form EVp are represented in (27): the EV-operator is an universal epistemic modal with a presupposition of available indirect evidence for the truth of the proposition it modifies. This presupposition restricts the domain of quantification of EV, for a given world, to the set of propositions which constitute the available indirect evidence in that world (e.g., 'There are empty bottles in Ivan's office' or 'Mary said that p '). The domain of quantification is further restricted by a stereotypical ordering source (e.g., 'If there are empty bottles in someone's office, that person has drunk the wine' or 'Normally, Mary is a reliable source of information').

- (27) a. *Assertion*. $\Box p$ in view of the speaker's knowledge state
 b. *Presupposition*: Speaker has indirect evidence for p

In addition, Izvorski is able to derive the presupposition of available indirect evidence from the exclusion/dissociation formalism, thereby defining the formal link between the perfect of evidentiality and the present perfect. For the Present perfect,

²⁸ See also Garrett's (2002) analysis of the Tibetan indirect evidential.

the compositional meaning is that the consequent state of a past eventuality holds at the time of utterance. For the perfect of evidentiality, the compositional meaning is that the worlds in which p is known are epistemically inaccessible from w_s , the world of the speaker; the speaker has therefore no direct evidence for p (the modal contribution of the perfect aspect morphology). The accessible worlds are those in which p' (= 'there are consequences or results of p ') is true (the modal contribution of the present tense). Together with a stereotypical ordering source, this compositional meaning derives the inference and report interpretations. On this view, evidentiality is a kind of epistemic modality: the presupposition of indirect evidence contributes a proposition P' to the modal base, which serves to restrict the domain of the evidential operator.²⁹ In Izvorski's terms,

'... it is more useful to think of the terms DIRECT and INDIRECT... as making a distinction based not on whether or not the evidence is perceptual, but on whether or not the evidence justifies the speaker's belief in a proposition' (1997, 3–4).

Still, there is a nontrivial, linguistic difference between classical inference on the one hand, and the evidentially modalized counterpart of it. Whether or not the evidence is perceptual does matter: when a speaker utters an evidential statement, the grounds upon which her knowledge is claimed to rest is something more restricted and more specific than the proposition 'there are consequences or results of p ': crucially, some internal structure corresponds to DIRECT, perceptual experience. Even if the inference is not valid (i.e., if Ivan has not drunk the wine), the particular epistemic state that the speaker is in still includes some perceptual knowledge. Assuming that evidentiality is part of the presuppositional content does not capture that fact.

Here, I argue that the treatment of direct evidentiality in possible world semantics is indeed possible, provided that we reinterpret Kratzer's doubly relative semantics. Informally, we might assume an ordering source that singles out the accessible worlds which come closest to an ideal in which the speaker has direct (visual) evidence: a perceptual ordering source, which relates informal access (e.g. seeing) to current knowledge.

3.3 Extending Kratzer's Theory

There are two necessary factors in the computation of the (either sentential or nominal) evidential meanings. First, evidential expressions must be anchored to the utterance time. At any time, the evidence available to speakers is made compatible with a set of worlds which, for all they know, is the actual world. Deictic anchoring to the present tense is the crucial factor: as discussed earlier (section 2.2), the evidential interpretation of past DPs is unavailable in generic and generalizing sentences,

²⁹ This analysis is similar to Kratzer's treatment of (modal) conditionals: for each world, the *if*-clause is added to the set of propositions the modal base assigns to that world, thus restricting the accessibility relation.

my pen', 'my pen is red', 'there are empty wine bottles here'...). On this account, the 'default' modal force characteristic of evidential statements derives from perception. Evidentiality differs from 'subjective epistemic modality' described above (section 2.3) in that it is a subjective *necessity*: if our perceptual system is reliable and works properly, what we perceive directly must be true. Our perception of objects and events around us is veridical, a true representation of what those objects are and where they are situated in space. The analysis correctly predicts that evidential statements, like other modal statements, are contingent: our perceptions can be mistaken. But the perception-based knowledge relevant for evidentiality (a linguistic notion) are facts of our world, not necessary truths.

Now, why is direct evidentiality *visual*? It cannot be the case that the tenses 'encode' the visual meaning. The visual meaning cannot plausibly be derived from a conversational implicature either, since those implicatures are typically cancellable. The most natural answer is that the hierarchical structure of evidential systems linguistically reflects the epistemic importance of visual perception in human knowledge. This is because visual perception contains an epistemic component (Dretske, 1969, 1990) by which non-linguistic and linguistic representations are mutually compatible.³¹ From the speaker/viewer's perspective, the 'visual' meaning can be derived as follows.

- (i) What is brought up by the context is not a proposition (because propositions cannot be perceived), but what can be thought of as the complement of a perception verb: semantically, an object or an event; syntactically, a DP or a bare infinitive—expressions like 'my pen' 'bottles in the office', 'John drink the wine', that is, the uppermost level of perceptual processing (i.e., Dretske's 1969 'non-epistemic seeing').
- (ii) The meaning of DIRECT perception does not come from a perception verb (as in perceptual reports)—or from an abstract perceptual predicate or operator.³² The meaning of DIRECT perception comes from the present time, 'now'. We can think of the deictic present tense as some functional equivalent of demonstrative reference, an indexing mechanism that relates informational access to *current* knowledge. In evidential contexts, deictic present tense indicates DIRECTness.³³
- (iii) Anchoring to the utterance time is responsible for matching linguistic with non-linguistic representations, yielding perceptual knowledge (propositions like 'the pen is red', 'this is my pen', 'there are bottles in Ivan's office. . .') (i.e., Dretske's 1969 'primary epistemic seeing').

³¹ Beyond linguistics (Jackendoff, 1983), there is an enormous literature concerning the relation between knowledge and (visual) perception in the related fields of philosophy of perception (Dretske, 1969, 1990) and neuropsychology (Milner and Goodale, 1995).

³² On perceptual reports, see Higginbotham (1983a); on the relation between perceptual reports and evidentiality, see Van der Does and Lambalgen (2000).

³³ This is a feature of many languages with grammatical evidentials. According to Faller (2002, 123), the Qechua evidential *mi* encodes direct evidence. The same evidential value is implicated by simple assertions. From a typological perspective (e.g. De Haan (to appear)), many languages only have overt evidentials for indirect evidence types, and in those cases, zero is interpreted as direct evidence. In languages that make the distinction between visual and nonvisual direct evidence, evidence by seeing is the default evidential.

- (iv) Evidential inference crucially rests on perceptual knowledge (i.e., representations in (iii): we come to know that the rhino has crossed the road *by seeing* traces on the ground, we come to know that Ivan drank the wine *by seeing* empty bottles in his office, etc. This corresponds to Dretske's 1969 'secondary epistemic seeing', and crucially differs from inference from reasoning.

On this view, we can think of true evidentials, which come with a lexically specified accessibility relation (like attitude verbs), as lexicalizing the ordering source. Assuming a partial ranking of all possible sources gives clues to access the direct (perceptual) meanings and derive the basic distinctions encoded by the evidential systems. The hierarchy of evidential types (DIRECT, INDIRECT INFERENCE, INDIRECT REPORTATIVE) might be thought of in binary terms: (visually) perceived, (visually) perceived resultant state, lack of personal experience (or non-speaker's evidence).

This has only been an outline of how to spell out an analysis of DIRECT evidentiality in a classical, truth-conditional semantics. I hope this beginning has looked promising enough to motivate interest in further investigation of evidentiality in nominals, and what it reveals about the other systems with which language interacts and interfaces.

4 Conclusions

What has been the leading thread throughout this paper is the common abstract meaning underlying the different uses of nominal past, namely exclusion/dissociation. The interaction of modality and temporality has a natural parallel in the nominal domain: past as referential displacement (distinct from the notion of precedence, or chronological order) makes it possible to talk about possible worlds that stand in a certain relation to the actual world. If Kratzer's theory can be supplemented with a perceptual component, as I proposed, past gives rise to the 'non-actual', 'unknown', 'invisible' modal meanings, depending on different choices of modal bases and ordering sources.

From our study of the Somali determiner system, it appears that demonstratives and evidentials encode two different aspects of visual cognition: past versus nonpast is linked to visual perception, visual and episodic memories, knowledge, and reasoning about abstract entities that cannot be perceived. This is consistent with the distinction between two separate visual systems—one for conscious perception and another for the control of action.³⁴ We hope in future work to investigate why these particular components of meaning, 'past' and 'invisible', correlate in precisely this way, and what this reveals more generally about the interfaces between linguistic meanings and the visual system. If language can be shown to make use of a more primitive, domain-general exclusion/dissociation feature, it might be the case that the evidential values of past morphemes could be taken as their core meaning.³⁵ If so, our experience of

³⁴ See Goodale and Milner (1992), Milner and Goodale (1995).

³⁵ I refer here to the cognitive mechanisms underlying temporality and evidentiality, not the historical evolution of grammatical forms. Diachronically, evidential meanings are often acquired by modal, tense and aspect morphemes (Bybee et al., 1994). Among languages with (sentential)

time may ultimately derive from perceptual mechanisms and processes, which in turn enable us to perceive objects and events.

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evidentials, visual evidentials typically derive from already grammaticalized tense or aspect morphemes, or demonstratives (see De Haan, 1998, to appear).

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