From nominal to clausal morphosyntax: complexity via expansion
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Abstract

The study of the rise of syntactic complexity, in particular of clause subordination and recursive language structures has more recently become the topic of intense discussion. The present paper builds on the reconstruction of grammatical evolution as proposed in Heine and Kuteva (2007) to present a scenario of how new forms of clause subordination may arise.

Taking examples from attested cases of grammatical development as well as using evidence that has become available on grammaticalization in African languages, it is argued that there are two major pathways leading to the emergence of clause subordination: either via the integration of coordinate clauses or via the expansion of existing clauses. The concern of this paper is exclusively with the latter pathway.

1 Introduction

As argued for in Heine and Kuteva (2007, chapter 5), there are crosslinguistically two main ways in which clause subordination arises: Either via the integration of two independent sentences within one sentence or via expansion, that is, the reinterpretation of a thing-like (nominal) participant as a propositional (clausal) participant.[1] This is a strong claim, namely that clause subordination is historically derived from non-subordinate sentences. The same claim has been made independently, and more competently, by Givón (2006; see also 2002, 2005): Analyzing a wide range of languages of worldwide distribution, he concludes that there are two main diachronic sources or channels leading to complex sentences (or clause union), namely via embedded verb phrase complements (type A) and clause chaining (type B). His type A relates to clause expansion, while type B corresponds to clause integration.[2] In a similar way as Heine and

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[1] This terminology is taking from Diessel (2005), who uses them for two distinct kinds of strategies used in first language acquisition to develop complex sentences. Observing that in first language acquisition complex sentences appear later than simple sentence, he proposes the following generalization: "Thus, while complement and relative clauses evolve via *clause expansion*, adverbial and co-ordinate clauses develop through a process of *clause integration*" (Diesel 2005: 4).

[2] The reader is referred to this study by Givón (2006), which discusses a much wider range of processes than we are able to cover here and provides a coherent syntactic account of these processes.

Kuteva (2007), Givón (2007: 4) proposes the following two main pathways leading to clause union:

(a) the nominalized V-COMP pathway
(b) the clause-chaining pathway.

Historical information on grammatical change in the languages of the world is unfortunately scanty, and many of the reconstructions proposed are based on applying the methodology of grammaticalization theory to synchronic linguistic data, even if a number of the reconstructions are also supported by attested historical evidence (see Heine and Kuteva 2007, chapter 5).

The concern of this paper is exclusively with the process of clause expansion, which so far has received little attention in morphosyntactic reconstruction. For example, Hopper and Traugott (2003: 176) propose a cline of clause combining leading from parataxis to subordination; but their concern is only with clause integration; as we will see in this paper, this is not the only way in which clause subordination arises.

The purpose of this paper is to show how devices that first served to structure independent sentences come to assume functions of subordination. This, however, does not necessarily mean that there was no previous form of subordination; as Harris and Campbell (1995: 282ff.) rightly emphasize, the rise of a new form of subordination may simply mean that an existing form was either modified or replaced. In some language families, no subordinate structures can be reconstructed though; for example, no specific relative clause marking can be reconstructed for the Germanic languages. But this does not mean that in the relevant families there previously were no corresponding subordination structures.

The present paper is based on a small survey of "nominal" complement clause constructions in languages across the world. What I have to say about complement clauses presumably applies as well to relative and adverbial clauses, but more research is required on this issue (see Givón 2007 for a detailed treatment of relative clauses). The term "construction" has received a wide range of applications in the recent literature. I will use the term for linguistic phenomena (a) that combine a specific form with a specific meaning, (b) that combine more than one linguistic unit with one or more other units, and (c) whose meaning is non-compositional (i.e., is not identical to the sum of its parts).

There are three main methods for reconstructing earlier morphosyntactic situations, namely (a) studying historical records of contiguous developmental stages, (b) analyzing synchronic variation of co-existing related constructions, and (c) internal reconstruction (Givón 2007). Our concern here will be with (c), to some extent also with (b).

2 Patterns of clause expansion

Take the following example. In the Nigerian language Kanuri, the dative case enclitic –*rò* (DAT), clearly an exponent of noun phrase syntax, can be attached to finite clauses like (1a) to form complement clauses (1b).

(1) Kanuri (Saharan, Nilo-Saharan; Noonan 1985: 47; Heine 1990)
a Sávā- nyī íshìn.
  friend- my come(3.SG)
  'My friend is coming.'

b Sávā- nyī íshìn- **rò** tǝmǎŋǝ́nà.

friend- my   come(3.SG)- DAT   thought.1.SG.PERF
'I thought my friend would come.'

I will say that (1b) is an instance of clause expansion, that is, of a conceptual strategy whereby clausal (propositional) participants are treated like nominal participants, and that this strategy has the effect that – over time – nominal structures acquire the properties of subordinate clauses (Givón 2007; Heine and Kuteva 2007). Even when this process has reached a more advanced stage, there tend to be some nominal properties that survive as relics, such as the following (but see also below):

(2) Structural properties commonly found on subordinate clauses arising via expansion
a The marker of subordination resembles a grammatical form associated with noun phrase structure, such as a marker of case, gender, definiteness, or an adposition.
b The verb of the subordinate clause is non-finite, coded like an infinitival, gerundival, participial, or a nominalized constituent and takes the case marking of a corresponding nominal participant.
c The arguments of the subordinate clause are coded in a form that tends to differ from that of the main clause.
d The agent or notional subject takes a genitive/possessive or other case form, typically having the appearance of a genitival modifier of the subordinate verb.
e The patient or notional object may also take a genitive/possessive or other case form.
f There are severe restrictions on distinctions such as tense, aspect, modality, negation, etc. that can be expressed -- in fact, such distinctions tend to be absent altogether.

The properties in (2) are not definitional ones; rather they are taken to be diagnostic for identifying instances of expansion and, as we will see below, not all of the properties are necessarily present in a given case. To be sure, nominal encodings such as the ones listed in (2) are in no way restricted to specific languages; rather, they are found in some way in quite a number of languages. For example, English *He witnessed the enemy's destruction of the city* largely corresponds to (2), being a nominal version of the largely equivalent sentence *He witnessed that/how the enemy destroyed the city*.

With reference to the four parameters of grammaticalization proposed by Heine and Kuteva (2007, 1.2), clause expansion tends to have the following effects in particular: *Extension* means that an existing morphological device is extended from nominal to clausal structures, with the result that a new function, that of presenting subordinate clauses, emerges. This has the effect that the nominal function associated with this device is lost in the relevant contexts (*desemanticization*), and also that the ability associated with nominal structures to take determiners and modifiers is lost (*decategorialization*). Finally, erosion, which may but need not be involved, means that the marker of subordination tends to lose in phonetic substance, becoming shorter or phonetically simplified vis-à-vis the corresponding nominal marker.

Which kinds of constructions undergo expansion is determined, first, by the kind of subordination that is the target of expansion. For example, as an overview of the relevant literature suggests, clause expansion is more likely to be observed in the development of complement clauses than in relative or adverbial clauses. Second, it is also lexically determined, in that it tends to affect some verbs more than others, most of all speech-act, cognition, volitional, and phase verbs, which typically take both nominal and propositional complements, such verbs being e.g. 'see', 'hear', 'feel', 'want', 'finish', 'start', 'know', 'tell', 'remember', 'say', etc.

Frajzyngier (1996: 234) distinguishes in Chadic languages between 'like'-verbs and 'want'-verbs and concludes that the former tend to be associated with nominal complements while the latter imply a subsequent action or event and are more likely to take propositional complements. And, third, it is also determined by the structure of the language involved (see Givón 2007).

3 A five-stage scenario

In order to reconstruct how new forms of clause subordination may arise via clause expansion, I carried out a crosslinguistic survey. The goal of the survey was to reconstruct the mechanism that can be hypothesized to be at work in the development from nominal to clausal complement morphosyntax. The sample employed was dictated by the availability of data; while it contains languages from a range of genetically and areally unrelated languages, no claim is made on whether it is in any way representative of the world's languages at large. Complement clauses arising via expansion tend to be restricted to a limited spectrum of main clause (matrix) verbs (see section 2).

Nominal vs. verbal properties

As a basis of reconstruction, a distinction between noun phrase and clausal morphosyntax is made. The former is said to manifest itself in the presence of what will be called "nominal properties" such as the ones listed in (3).

(3) Nominal properties
Na   non-finite marking (nominalizing, infinitival, gerundival, participial, etc. morphology)
Nb   possessive modifiers
Nc   case affixes or adpositions
Nd   noun phrase word order
Ne   raising
Nf   other means (markers of definiteness or indefiniteness, nominal number markings, etc.)

Clausal morphosyntax is described in terms of what I loosely refer to as "verbal properties", in particular the ones listed in (4).

(4) Verbal properties
Va   personal verbal affixes or pronouns
Vb   tense-aspect markers
Vc   agreement between verb and subject
Vd   clausal word order
Ve   clausal participant marking
Vf   other properties (verbal derivation, negation, etc.)

A few notes on some of these properties and the way they are treated in this paper seem in order. Non-finite forms (Na) on verbs typically consist of a "nominalizing" morpheme, and/or a case affix or adposition, but they do not normally take any other morphological elements. Nevertheless, there are languages where they also mark categories such as transitivity, tense, aspect, cf. the tense-aspect distinctions used with infinitives in English, Russian, Classical Greek, etc. (Noonan 1985: 58-9); for a particularly complex kind of nominalization marker, see Clendon (1988) on the Manjiljarra dialect of the Australian Western Desert language. Nevertheless, if there are grammatical categories on the non-finite verb that are typically

associated with verbal morphosyntax then these are likely to show severe restrictions in number compared to the verbal morphosyntax of the main clause.

Property Nb means that the complement subject and/or object is coded typically, though not necessarily, as a possessive modifier of the complement verb. In one language, the West African Niger-Congo language Koromfe, we found a compounding construction instead of a possessive construction; thus, in the following example, the complement object appears as the first component of an endocentric compound ('knife giving'):

(5) Koromfe (Gur, Niger-Congo; Rennison 1996: 44)

a	gabrɛ	pãʊ̃	a	kɛ̃ɔ̃	a	kɛkʊ	joro	kaŋənaa.
ART	knife	give.NOMIN	ART	woman	ART	field	in	be.hard.PROG

'It's hard to give a woman a knife in a field.'
(Lit.: 'Knife giving a woman in the field is hard')

While nominalization is a paradigm property of noun phrase morphosyntax, there are a number of languages that have no nominalizing morphology and in such cases I relied on other structural features to establish the presence of a noun clause structure, in particular word order (Nd). For example, that the Northern Khoisan language !Xun has a nominal structure in complement clauses after certain verbs, such as *kàlè* 'want', can be concluded in particular on account of the word order employed: This language has invariably verb-medial (SVO) order, cf. (6a), but in such complement clauses the order is OV, that is, the word order is that of attributive possession (6b). Thus, the sentence in (6b) can be translated literally as 'I want the woman's giving of water', where the complement recipient 'woman' is coded as a possessive modifier of the complement verb, acting like a head noun in a possessive construction, while the complement theme (or patient) is presented by means of the transitive preposition *kē* (TR) via clausal participant marking.

(6) !Xun (Northern Khoisan, W2 dialect; own field notes)

a	mí	má	ǀàˈā	ďàhmà	kē	gǁú.
	1.SG	TOP	give	woman	TR	water

'I give the woman water.'

b	mí	má	kàlè	ďàhmà	ǀàˈā	kē	gǁú.
	1.SG	TOP	want	woman	give	TR	water

'I want to give the woman water.'

A scenario

On the basis of differences in the treatment of these properties, a five-stage scenario is proposed for the process leading to the rise of one specific type of subordinate clauses – a process that is described by Givón (2007: 12) as one where "the complement-clause event is treated analogically as a nominal object of the main clause."

0 The noun stage

I hypothesize that at the beginning of the process leading to the type of complement clause subordination looked at in this paper there is a nominal complement or adjunct as, e.g., in English *I want candies, I know that person*.

I The extended noun stage

As observed above, our concern is with verbs that may have either a nominal or a propositional complement, and stage I relates exclusively to the latter. This stage concerns predications of what Noonan (1985: 60) calls nominalized complements with the internal structure of noun phrases. This is crosslinguistically a fairly common construction; in Haspelmath's (2005: 502) sample of 'want' complement clauses of 283 languages, more than half (144) belong to this type. The main properties of this stage are:

(7) Properties of stage I
a The complement or adjunct (C) is a non-finite verb (NFV), typically in a nominalized, an infinitival, or an participial form.
b The subject is, to use Haspelmath's (2005: 502) phrasing, "left implicit" in object complement clauses; it is coreferential with the matrix subject.
c The complement can be interpreted alternatively as a nominal or a subordinate clause.
d Arguments of the NFV are encoded as oblique participants, typically as genitival modifiers, occasionally also as a peripheral participant of the NFV.
e The complement subject or object of C may be coded as the object of the matrix clause ("raising").
f The complement lacks most or all tense-aspect markings and other trappings characteristic of matrix clause verbs.
g Linear ordering is that of nominal rather than of verbal constituents.

A paradigm instance of stage I is provided by the following example from English, where both the complement subject and object are presented as possessive modifiers: *Algernon's shooting of the aardvark drew international attention* (Noonan 1985: 60).

The following example from Estonian illustrates one of the two ways in which complement clauses having speech-act or mental-state verbs as main verbs are expressed in this language: The verb is non-finite, constructed in the present tense of the active participle, and the subject/agent appears in the genitive case (GEN):

(8) Estonian (Finno-Ugric; Harris & Campbell 1995: 99)
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sai    kuul-  da    seal    ühe        mehe      ela-  vat.
got    hear-  INF   there   one.GEN    man.GEN   live- PRES.ACTIVE.PTCPL
'S/he came to hear that a man lives there.'
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In a number of languages there is no special morphology on the complement verb, that is, there is no morphological distinction between finite and non-finite verb forms; nevertheless, there may be other means which provide clues that we are dealing with nominal clauses. Such clues may consist of markers of attributive possession (Nb). For example, in the Chadic language Angas, nominalization is not marked, but the fact that the object is coded as a possessive modifier of the verb shows that there is nominalization (Frajzyngier 1996: 243):

(9) Angas (Chadic, Afroasiatic; Frajzyngier 1996: 243)
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Musa    rot    dyip    kə-     shwe.
Musa    want   harvest POSS-   corn
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'Musa wants to harvest corn.' (lit.: 'Musa wants harvesting of the corn.')

Alternatively, it can be word order characteristics (Nd) that suggest that we are dealing with a nominal structure, as in our !Xun example of (6).

In the West African language Hausa, the case-marking morphology appears on the complement verb rather than its nominal complement: It consists of the enclitic genitive linker (LINKER) –n, diachronically the masculine genitive marker (cf. (11a)), which connects the preceding complement verb, behaving like a head noun, with the following complement noun, being a possessive modifier. This possessive structure is used for both complement objects (11b) and complement subjectss (11c):

(10) Hausa (Chadic, Afroasiatic; Newman 2000: 310, 311)
a bāya- n   gàrī   'the back of the town (or behind the town)'
   back-   M.LINKER town

b sun dainà shâ-   n   giyā.
   they quit   drinking- LINKER beer
   'They quit drinking beer.'

c hãrbì- n   wàzīrì   yā   būrgē   ni.
   shooting- LINKER vizier   3.SG.M   impress me
   'The vizier's shooting impressed me.'

Raising is considered here a nominal property even if it has the status of an affix in the matrix clause, as in the following example:

(11) Bole (Chadic, Afroasiatic; Frajzyngier 1996: 263)
   ita ndol- na   te-   yyi.
   3.F want-   1.SG   eat- NOMIN
   'She wants me to eat.'

The following examples from Ancient Greek and Latin are also taken to be instances of stage I since the dative case (DAT) of the complement clause is governed by the matrix verbs *éksestin* 'it is possible' of Greek and *licet* 'it is permitted' of Latin, respectively:

(12) a Ancient Greek (Comrie 1997: 43)
         Nûn   soi   éksestin   andrí   genésthai.
         now   you.DAT it.is.possible man.DAT to.become
         'Now is it possible for you to be a man?'

      b Latin (Comrie 1997: 43)
         Mihi   neglegenti   esse   non licet.
         I.DAT   negligent.DAT   to.be   not   it.is.permitted
         'It is not permitted for me to be negligent.'

Being an argument of the matrix clause, the NFV may have a case affix or adposition on it. But depending on the language, it may as well be marked for other categories. Thus, there may be tense-aspect distinctions used with the NFV (see above). I am ignoring here adverbial adjuncts, which generally appear to be coded as clausal participants.

Evidence for transfer from nominal to verbal structure. That there is in fact an extension from nominal to clausal morphosyntax may be illustrated with the following example from the Nilo-Saharan language Ik of Uganda. In the case system of this language there is one peculiarity: The main clause object appears in the accusative case (ACC) whenever the subject has third person reference, cf. (13a) but in the nominative (NOM) when the subject has first or second person reference (13b). The same case marking is found in object complement clauses, cf. (13c) and (13d).

(13) Ik (Kuliak, Nilo-Saharan; König 2002)
a bɛɗ- ía mes- ᵃ.
   want- 1.SG beer- NOM
   'I want beer.'

b bɛɗ- a mes- íkᵃˑ
   want- 3.SG beer- ACC
   'He wants beer.'

c bɛɗ- ía atsⁱ- ésa ŋƙáƙá- é.
   want- 1.SG eat- INF.NOM food- GEN
   'I want to eat food (or meat).' (Lit.: 'I want the eating of food'.)

d bɛɗ- a atsⁱ- és- íka ŋƙáƙá- é.
   want- 3.SG eat- INF- ACC food/meat- GEN
   'He wants to eat meat.'

The structure of the Ik complement clause is a canonical instance of stage I: The (non-finite) complement verb 'to eat' in (13a) appears in a non-finite form and is case-marked, and the object of the complement clause is treated like a possessive modifier in the genitive case (GEN). Thus, complement clauses are structured on the model of nouns.

Stage II: Mixed morphosyntax
The nominal structure is gradually intruded by a clausal syntax. At this stage, the complement clause is still determined by nominal structures but there are now elements of a clausal morphosyntax that are also found in finite clauses, such as the ones listed in (14).

(14) Properties of stage II
a One or more arguments are presented as clausal participants. This applies in particular to the complement object.
b Parts of the complement syntax are determined by the word order of finite clauses.
c The complement verb may have elements of finite verb morphology on it.

Rather than coding the complement subject or object as a nominal modifier, the non-finite complement verb takes an object in much the same way as finite clauses do – that is, the complement is characterized by the presence of a [verb-object] constituent, as in the East African language Swahili, where (15a) is a main clause and (15b) an object complement clause:

(15) Swahili (Bantu, Niger-Congo)
a Ali   a-   li-   **m- saidia Hadija**.
  Ali   N1.S-PAST- N1.O- help   Hadija.
  'Ali (had) intended to help Hadija.'

b Ali   a-   li-   kusudia   ku- **m- saidia Hadija**.
  Ali   N1.S-PAST- intend   INF- N1.O- help   Hadija.
  'Ali (had) intended to help Hadija.'

The structure of the complement clause presents a mixture of nominal and clausal structures. Thus, in the English subject complement clause construction illustrated below, the subject (*Cartier*) has a nominal structure while the object (*Dugué*) is coded like a main clause object.

(16) English
  Cartier's defeating Dugué is significant. (Noonan 1985: 43)

In a similar fashion, in the following example from Uzbek, the complement subject is coded in the genitive like a possessive modifier while the object shows clausal syntax, taking the object case marking. Note that there is an inflected complement verb, but the suffix –*i*- is not one of main clause syntax but rather it "reinforces the associative relationship" (Noonan 1985: 61).

(17) Uzbek (Noonan 1985: 60)
  Xɔtin bu   ɔdam- niŋ   ǰoǰa- ni   oğirla- š-   i-   ni   istadi.
  woman this man-   GEN   chicken-OBJ steal-   NOMIN- 3.SG- OBJ wanted.3.SG
  'The woman wanted the man to steal the chicken.'

In the following example from the Tungusic language Evenki, the complementizer is an accusative case marker (ACC), that is, the complement clause is introduced by a case suffix, in accordance with Nc in (3), the verb *əmə-* 'come' of the complement clause is presented in the resultative participle (PART), cf. Na in (3), and the agent of the complement clause appears as a possessor suffix (-*s* 'your') on the participle form of the verb. But in addition to these nominal structures there are also clausal ones, such as the subject pronoun *si*:

(18) Evenki (Tungusic; Comrie 1981: 83)
  ənii- m əə-   ćəə- n   saa- rə   si   tənəwə
  mother- my NEG- PAST- 3.SG know- ?[3]   you yesterday

  əmə- nəə- wəə-   s.
  come- PART- ACC- 2.SG

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[3] No glosses are provided by the author.

'My mother doesn't know that you arrived yesterday.'

Another typical mixed situation can be illustrated with the following example from the Krongo language of the Kordofan Hills of Sudan. There are both nominal and verbal properties on the verb of the object complement clause: The nominalization and the second person possessive markers are suggestive of the former, and the verbal derivation (BEN) and transitivity markers (TR) of the latter. Furthermore, the direct object (ɲàamà) and the beneficiary (à ʔàŋ) also appear to be coded as clausal participants, cf. (19a). The same kind of mixed situation is found in the second type of object complement clause of Krongo, which involves subject-to-object raising (ʊ̀ʔʊ̀ŋ), cf. (19b).

(19) Krongo (Kordofanian; Reh 1985: 333-7)

a n- átàasà àʔàŋ t- óshó- ókò- n- tú ɲàamà àʔàŋ.
   1/2- want I NOMIN- IMPFV.cook- BEN- TR- 2.SG things DAT.I
   'I want you to cook for me.' (Lit.: 'I want your cooking for me.')

b n- átàasà àʔàŋ ʊ̀ʔʊ̀ŋ kú- t- úmúnó àʔàŋ.
   1/2- want I you LOC- NOMIN- IMPFV.help me
   'I want you to help me.'

(19b) illustrates a common stage II situation where the complement verb shows nominal properties whereas its participants are all characterized by verbal (clausal) codings. Similarly, the following complement clause type of the Ethiopian language Maale marks the complement verb in the infinitive (plus appropriate case suffix) while all of its participants (except the complement subject) are presented like main clause participants:

(20) Maale (Omotic, Afroasiatic; Amha 2001: 177)

   ʔála ʔúʃk- itsí nayí- m k'ára t- uwá- se.
   beer.ABS drink- INF.NOM child.ABS- DAT good be- IPFV.NEG- NEG
   'Drinking beer is not good for a child.'

Stage III: Clausal syntax with nominal relics
The complement is now a full-fledged subordinate clause. Still, there are relics of nominal morphosyntax that bear witness to its nominal origin.

The clearest case is provided by languages where the morphosyntax of the subordinate clause is largely or entirely identical to that of main clauses and the only relic is a case marker or other element of nominal morphology. Thus, we saw in section 2 that in Kanuri, the dative case enclitic –ro is found on complement clauses, which otherwise have the structure of finite main clauses, and it appears to be the only relic of the erstwhile nominal structure, otherwise complement and adverbial clauses behave like other finite clauses (Noonan 1985: 47; Heine 1990). And in Imbabura Quechua it is the accusative case marker (ACC) in particular that bears witness to the nominal origin of the complement clause, which is finite:

(21) Imbabura Quechua (Cole 1982: 43)

Pedro	ya-	n	[ñuka	Agatu-	pi	kawsa-	ni]	-ta.
Pedro	think-	3	I	Agato-	in	live-	1-	-ACC

'Pedro thinks that I live in Agato.'

In the Caucasian language Laz of Turkey it is possible to have a dative marker cliticized to a finite verb form, thereby turning a main clause, as in (23a), into a subordinate one (22b):

(22) Laz (South Caucasian; Nino Amiridze; Funknet, April 2005)

a	ali	oxori-	sha	mo-	xt-	u.
	Ali	house-	in	PREVERB-	come-	S3.SG.AOR

'Ali came home.'

b	ali	oxori-	sha	mo-	xt-	u-	**shi** […].
	Ali	house-	in	PREVERB-	come-	S.3.SG.AOR-	DAT

'When Ali came home […].'

Similarly, in the Ethiopian language Maale, a nominalized complement clause (24b) can be distinguished from a main clause (23a) only by the fact that it takes the nominalization marker – *tsí* instead of a declarative marker (DCL):

(23) Maale (Omotic, Afroasiatic; Amha 2001: 177)

a	nu	ʔáʃínna-	á	jink-	ó	ʔááɖ-	á-	ne.
	1.PL.GEN	neighbors-	NOM	Jinka-	ABS	go-	IPFV-	DCL

'Our neighbours are going to Jinka.'

b	nu	ʔáʃínna-	á	jink-	ó	ʔááɖ-	á-	**tsí**	goné-	ke.
	1.PL.GEN	neighbors-	NOM	Jinka-	ABS	go-	IPFV-	NOMIN	true-	be.DCL

'It is true that our neighbors are going to Jinka.'

In the Squamish language of British Columbia, all nominals are accompanied by an article (ART), and so are nominalized complements, as the description by Noonan (1985: 61) suggests. Complement clauses such as the following have all of the verbal inflections, clitics, and sentence particles to be found in main clauses; still, the presence of an article in the complement clause bears witness to the nominal origin of the structure.

(24) Squamish (Noonan 1985: 61)

č-	n	ɬč-	iws	kʷi	n-	s-	na	wa
DECL-	1.SG	tired-	body	ART	1.SG.POSS-	NOM-	fact	PROG

c'aqʼ-	an-	umi.
hit-	TRANS-	2.SG.OBJ

'I'm tired of hitting you.'

Stage IV: The full-fledged complement clause

Finally, there are complement clauses that are indistinguishable in their morphosyntax from finite main clauses, as in the following example, where the object complement clause (25a) is

structurally identical with the main clause (25b) except for the topic marker *má* (TOP), which is mandatory in declarative main clauses:

(25) !Xun (North Khoisan, Khoisan; own field notes)
a mí   m-   é   bh'àlì mí   dàbà   ‖'àn.
  1.SG TOP- PAST dream   1.SG child   be.sick
  'I was dreaming that my child is sick.'

b mí   dàbà   má   ‖'àn.
  1.SG child   TOP   be.sick
  'My child is sick.'

The stage IV situation may be due to two different processes: (a) Either there was an evolution such as the one sketched above, with the result that all nominal properties have disappeared, or (b) there never was a nominal construction; rather, the structure of the main clause is copied into the subordinate clause. While (a) is suggestive of clause expansion, (b) is an instance of clause integration, where two distinct clauses are combined into one complex sentence (cf. Givón's clause-chaining pathway; see section 1). Which of the two, (a) or (b), is involved is hard to determine in many cases.

4 Some generalizations
The extent to which nominal and verbal properties contribute to structuring complement clauses is shown in table 1 on the basis of the fairly small sample that is used in this study (see Appendix 1, 2). As the figures in table 1 suggest, it is the complement predicate that stands out as showing the highest amount of nominal properties (78.9 %), followed by the subject (69.9 %) and the object (21.4 %). An extreme situation is found with "other participants", which almost invariably are adjuncts: They are associated exclusively with verbal properties.

Table 1. Relative contribution of nominal vs. verbal properties in structuring complement clauses showing nominal properties (in percentages. N = nominal properties, V = verbal properties; O.Com = object complement clause, S.Com = subject complement clause).

Type of clause	Predicate		Subject		Object		Other participants	
	N	V	N	V	N	V	N	V
O.Com (18)	81.0	19.0	58.3	41.7	30.0	70.0	0	100
S.Com (13)	76.5	23.5	81.1	18.9	0	100.0	0	100
Total (31)	78.9	21.1	69.9	30.1	21.4	78.6	0	100

Assuming that these figures are suggestive of a diachronic process from nominal to clausal morphosyntax, one may hypothesize that the process starts out with peripheral participants (adjuncts), subsequently affecting complement objects, subjects, and finally the complement predicate, as sketched in the following scale:

(26)   adjunct > object > subject > predicate

Note that this scale is probabilistic in nature: It predicts what is likely to happen rather than what must happen. What the scale captures is the following: Adjuncts (peripheral participants) of complement clauses are the first to be coded by means of verbal morphosyntax; in fact, they are

likely to appear already at stage I as clausal participants indistinguishable from main clause adjuncts.

The next to acquire the properties of clausal syntax are (direct) objects. This observation also surfaces in Noonan's (1985: 61) analysis: He observes that cases such as Irish, where only the notional object shows a possessive syntax (an "associative relation"), that is, a nominal property, are rare. Compared to other complement participants, complement subjects appear to be the most resistant to change; but clearly the most conservative of all is the predicate structure, which tends to retain nominal (or nominalising) properties when other constituents of the clause have lost them.

The scale in (26) can be read on the one hand as a synchronic implicational structure of the kind "If any of the categories of the scale is characterized by a nominal property then all categories to its right are also likely to be". On the other hand, I hypothesize that the scale can also be interpreted as a diachronic scenario, describing the growth of complement clauses out of nominal complements via clause expansion or, in more general terms, a grammaticalization process leading from nominal to clausal morphosyntax.

5 Evidence for the development from nominal to propositional structures

That there is a fairly common grammaticalization process leading from nominal to clausal morphosyntax can be shown by looking at other kinds of grammaticalization; the development proposed in the preceding sections is but one manifestation of this strategy. In fact, there is some evidence to suggest that conceptualizing and describing propositional contents, typically expressed by clauses, in terms of concrete objects, coded linguistically as nouns, is a salient human strategy.

First, nominalization of subordinate clauses is not restricted to complement clauses; it also concerns relative and adverbial clauses, as aptly demonstrated by Givón (1994; 2007), who observes for example:

In many language families--Turkic, Carribean, Bodic (Tibeto-Burman), No. Uto-Aztecan, Sumerian, to cite only a few--all subordinate clauses are nominalized, at least historically. Such structures may re-acquire finite properties over time (Givón 1994; Watters 1998), but the morphology retains, for a long time, the telltale marks--clear fossil evidence–of the earlier nominalized status. (Givón 2007)

Second, there are some well documented grammaticalization processes whose main effect is that noun phrase morphology is extended to introduce clauses. Thus, demonstrative attributes on nouns commonly grammaticalize to relative clause markers, and nominal case markers turn into markers of clause subordination. Third, in the rise of new tense and aspect morphologies it may happen that participant roles reserved for nominal constituents are extended to take clausal/propositional constituents; thus, structures such as (27a) commonly develop diachronically into structures like (27b) (Heine and Kuteva 2007, section 2.2.6; see Heine and Kuteva 2002 for more examples):

(27) English
a He used all the money.
b He used to visit her once a month.

Fourth, there is also a well documented lexical process whereby negative existential verbs

taking a nominal participant ('there is no X') may be extended to take clausal participants ('there is no doing of X'), thereby giving rise to clausal negation markers. For example, in Mandarin, the negative existential *méi* [*yǒu*] takes nominal complements, as in (28a), but its use appears to have been extended to verbal complements, as in (28b), with the result that there now is a new negation marker of completed actions (for more examples and details of this process, see Croft 1991):

(28) Mandarin (Croft 1991: 11; cited from Li & Thompson 1981)

a **méi [yǒu]** rén zài wìmian.
NEG.EXIST person at outside
'There's no one outside.'

b tā **méi [yǒu]** sǐ.
3.SG NEG.EXIST die
'S/he hasn't died', or 'She didn't die.'

Finally, that there is a unidirectional development whereby the use of nominal structures is extended to verbal structures can also be demonstrated with the following example. A typological survey of question pronouns suggests that there is a widespread process whereby interrogative pronouns referring to inanimate objects ('what?') are extended to also refer to actions and events (Heine, Claudi & Hünnemeyer 1991: 56ff.). Evidence for this directionality comes in particular from languages where the interrogative pronoun is etymologically transparent: In such languages the pronoun is not infrequently derived from a phrase 'which thing?' For example, in the Ewe language of Togo and Ghana, the pronoun *nú-ka* 'what?' means historically 'thing-which?', but is used in the same way for nominal as for verbal referents, as in (29), and the interrogative pronoun *m̄tcí* 'what?' of the !Xun language of southwestern Africa, which is historically composed of the interrogative element *$\bar{m}$[4] and the noun *tcí* 'thing', is not restricted to nominal referents but is used in much the same way also to refer to actions and events, cf. (30).

(29) Standard Ewe (Kwa; Niger-Congo; own data)

nú- ka wo- ḿ ne- le?
thing-which o PROG 2.SG-PROG
'What are you doing?'

(30) !Xun (W2 dialect, North Khoisan; own field notes)

m̄tcí á hà- è ò̀?
Q.thing Q N1 REL do
'What does he do?'

Further data are found in pidgins and creoles, where not uncommonly the question word referring to actions ('what?') is transparently derived from the phrase 'which thing?', as in the following example from the Spanish-based creole Papiamentu:

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[4] *$\bar{m}$ is no longer a productive morpheme in !Xun.

(31) Papiamentu (Holm 1988: 180)
    Ta **kiko**   Wan   ta   hasi?
    is what.thing   John   TAM   do)
    'What is John doing?'

6 Conclusions

The hypothesis proposed in the present paper is far from new. That new forms of complex sentences arise via clause integration has been shown by a number of authors (see especially Hopper and Traugott 2003; Givón 2005; 2006; 2007; Heine and Kuteva 2007). The objective of this paper was a narrow one. First, we were restricted to complement clauses and, second, our concern was exclusively with clause expansion. But even the rise of complex sentences via the expansion of simple sentences has already been dealt with in earlier works (see especially Givón 1994; 2002; 2005; 2006; 2007; Heine and Kuteva 2007). The question that we were concerned with here was with the nature of the process leading from nominal to clausal structures.

As I argued in section 3, there are a number of stages of development leading from fully nominal complements at stage 0 to fully clausal constructions at stage IV, with each new stage characterized by a decrease in the amount nominal properties and an increase in verbal and clausal properties. In section 4 we saw that that this gradual process appears to have an internal structure of the following kind: It affects first adjuncts, which are coded as clausal participants from stage I on, followed by clausal objects, which again tend to be followed by subjects, and it is the verbal morphosyntax that turns out to be the most conservative component of the complement construction, surviving as a rule until stage III. At the final stage IV there are no more traces of nominal morphosyntax – the complement clause is now largely or entirely identical with the main clause.

One may speculate that the similarity shared by the implicational scale presented in (26) and other scales that have been devised ever since Keenan and Comrie (1977) proposed their accessibility hierarchy[5] is not coincidental; but this is an issue that would require a separate analysis.

What the present survey shows is that neither the scenario of section 3 nor the scale in (26) correlates significantly with languages as a whole but rather with specific constructions of a given language. Quite commonly there are two or more complement clause constructions within one and the same language, where each of the constructions represents a different stage of development or, even more commonly, where one construction is suggestive of clause integration and the other of clause expansion, as in the following Finnish example: Whereas (32a) can be assumed to be an instance of integration, (32b) appears to represent clause expansion of stage II, where there are both nominal properties (cf. the coding of the complement subject as a genitival modifier) and clausal properties (the locative argument *Helsingissä* is coded like a main clause participant).

(32) Finnish (Comrie 1997: 45)
a Tiedän,   että   sinä   olet   Helsingissä.   *or*
   I.know   that   you.NOM   are   in.Helsinki

b Tiedän   sinun   olevan   Helsingissä.
   I.know   you.GEN   being   in.Helsinki

---

[5] Cf., e.g., Langacker's (1997: 262) reference-point chain subject > object > other.

'I know that you are in Helsinki.'

The hypotheses presented were based on findings made in studies on grammaticalization. For example, case affixes and adpositions have been shown to commonly develop into markers of clause subordination while a development in the opposite direction is unlikely to happen; hence the conclusion drawn in this paper is that if there is a morphological element in a given language that serves both as a case marker or adposition and as an element introducing complement clauses then the former is the older function.

Grammaticalization thus rests on generalizations on grammatical change, that is, it is diachronic in nature and, accordingly, relies on and can be falsified by means of historical evidence. But so far not much historical evidence has become available on the reconstructions proposed in this paper; accordingly, the conclusions reached here have to be taken with care until such evidence is found.

Abbreviations
ABS absolute = ART = article; ASSOC = associative; C = complement; CAUS = causative; COMP = complementizer; COP = copula; DAT = dative; DCL, DECL = declarative; GEN = genitive; INF = infinitive; IPFV, IMPFV = imperfective; LOC = locative; N = nominal property; NEG = negative; NFV = non-finite verb; NOM = nominative; NOMIN = nominalizer; OBJ = object; PERF = perfect; PL = plural; POSS = possessive; PROG = progressive; SG = singular; TOP = topic marker; TR = transitivity marker; V = verbal property; VN = verbal noun; 1, 2, 3 = first, second, third person

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Appendix 1. Data on nominal properties in subordinate clauses

Angas (Chadic, Afroasiatic; Frajzyngier 1996: 243)

Musa	rot	dyip	kə̀-	shwe.
Musa	want	harvest	POSS-	corn

'Musa wants to harvest corn.' (lit.: 'Musa wants harvesting of the corn.')

Bole (Chadic, Afroasiatic; Frajzyngier 1996: 263)

ita	ndol-	na	te-	yyi.
3.F	want-	1.SG	eat-	NOMIN

'She wants me to eat.'

English

a Burt's being a chicken farmer worries Max. (Noonan 1985: 49)
   Cartier's defeating Dugué is significant. (Noonan 1985: 43)
b For Cartier to defeat Dugué would be significant. (Noonan 1985: 43)
c I want her to come.

Estonian (Finno-Ugric; Harris & Campbell 1995: 99)

sai	kuul-	da	seal	ühe	mehe	ela-	**vat**.
got	hear-	INF	there	one.GEN	man.GEN	live-	PRES.ACTIVE.PTCPL

'S/he came to hear that a man lives there.'

Evenki (Tungusic; Comrie 1981: 83)

ənii-	m	əə-	ćəə-	n	saa-	rə	si	tənəwə
mother-	my	NEG-	PAST-	3.SG	know-	?[6]	you	yesterday

əmə-	nəə-	**wəə-**	s.
come-	PART-	ACC-	2.SG

'My mother doesn't know that you arrived yesterday.'

Finnish (Comrie 1997: 45)

Tiedän	sinun	olevan	Helsingissä.
I.know	you.GEN	being	in.Helsinki

'I know that you are in Helsinki.'

Ancient Greek (Comrie 1997: 43)

Nûn	soi	éksestin	andrí	genésthai.
now	you.DAT	it.is.possible	man.DAT	to.become

'Now is it possible for you to be a man?'

Hausa (Chadic, Afroasiatic; Newman 2000: 311-2)

a | sun | dainà | shâ- | n | giya̍. |
   |---|---|---|---|---|
   | they | quit | drinking- | LINKER | beer |

---

[6] No gloss is provided by the author.

'They quit drinking beer.'

b har̆bì-   n   wàz̃ìrì   yā   bur̃ge̬   ni.
  shooting- LINKER   vizier   3.SG.M   impress   me
  'The vizier's shooting impressed me.'

Ik (Nilo-Saharan; König 2002)
  bɛɗ-   ía   ats˥- ésa   ŋƙáƙá- é.
  want- 1.SG   eat-   INF.NOM   food-   GEN
  'I want to eat food (or meat).' (Lit.: 'I want the eating of food'.)

Irish (Noonan 1985: 61)
  Is   ionadh   liom   Seán   a   bhualadh   Thomáis.
  COP   surprise   with.me   John   COMP   hit.NOMIN   Thomas.GEN
  'I'm surprised that John hit Thomas.'

Kanuri (Saharan, Nilo-Saharan; Noonan 1985: 47)
  Sávā-   nyī   íshìn-   **rò**   tə̀mǎŋə́nà.
  friend- my   come(3.SG)- DAT   thought.1.SG.PERF
  'I thought my friend would come.'

Khwe (Central Khoisan, Khoisan)
  xàcí   tcà-   á-   tè   **ˈà**   tí |xˈân   qāámà-   à-   tè.
  she   be.sick- JUNC- PRES   ACC   I   very   regret- JUNC- PRES
  'I am a lot sorry that she is sick.'

Koromfe (Gur, Niger-Congo; Rennison 1996: 44)
  a   gabrɛ   pã̀ʊ̃   a   kɛ̃ɔ̃   a   kɛkʊ   joro   kaŋənaa.
  ART   knife   give.NOMIN   ART   woman   ART   field   in   be.hard.PROG
  'It's hard to give a woman a knife in a field.'
  (Lit.: 'Knife giving a woman in the field is hard')

Krongo (Kordofanian; Reh 1985: 333-337)
a n- átàasà   àʔàŋ   t-   óshó-   ókò-   n-   tú   ɲàamà   àʔàŋ.
  1/2- want   I   NOMIN-   IMPFV.cook- BEN-   TR-   2.SG   things   DAT.I
  'I want you to cook for me.' (Lit.: 'I want your cooking for me.')

b n- átàasà   àʔàŋ   ʊ̀ʔʊ̀ŋ   kú-   t-   úmúnó   àʔàŋ.
  1/2- want   I   you   LOC-   NOMIN-   IMPFV.help   me
  'I want you to help me.'

Latin (Comrie 1997: 43)
  Mihi   neglegenti   esse   non   licet.
  I.DAT   negligent.DAT   to.be   not   it.is.permitted
  'It is not permitted for me to be negligent.'

Maale (Omotic, Afroasiatic; Amha 2001: 173, 177)

a ʔála   ʔúʃk-   itsí   nayí-   m   k'ára   t-   uwá-   se.
  beer.ABS drink- INF.NOM   child.ABS- DAT   good   be-   IPFV.NEG-   NEG
  'Drinking beer is not good for a child.'

b ʔízó-   ko   timirto máári   ʔááɖ-   is'-   á
  3.F.SG.ABS-   GEN   school   house.ABS   go-   INF-   NOM

  koʔ-   is-   á-   ya-   ke.
  want-   CAUS- IPFV- NOMIN-   be.DCL
  'Her going to school is necessary.'

c nu   ʔáʃínna-   á   jink-   ó   ʔááɖ-   á-   tsí   goné-   ke.
  1.PL.GEN   neighbor- NOM   Jinka-   ABS   go-   IPFV- NOMIN   true-   be.DCL
  'It is true that our neighbours are going to Jinka.'

Imbabura Quechua (Cole 1982: 43)

  Pedro   ya-   n [ñuka   Agatu-   pi   kawsa-   ni]   -ta.
  Pedro   think- 3 I   Agato-   in   live-   1-   -ACC
  'Pedro thinks that I live in Agato.'

Laz (South Caucasian; Nino Amiridze; Funknet, April 2005)

a ali   oxori- sha   mo-   xt-   u.
  Ali   house- in   PREVERB-   come- S3.SG.AOR
  'Ali came home.'

b ali   oxori- sha   mo-   xt-   u-   **shi**.
  Ali   house- in   PREVERB-   come- S.3.SG.AOR- DAT
  'When Ali came home (...).'

Mandarin (Li & Thompson 1981: 575-81)

a zhòng   shuǐguǒ   de   hěn   nán   guòhuó.
  grow   fruit   NOMIN   very   difficult make.living
  'It is difficult for fruit growers to make a living.'

b nǐ   méi   yǒu   wǒ   xǐhuān   de.
  you   not   exist   I   like   NOMIN
  'You don't have what I like.'

Manjiljarra (Clendon 1988: 195)

  Mama-   partarnu- nga   nyangu   mitu   ngarri- nja-   n.
  father- KIN-   TOP   saw   dead   lie-   NOMIN-   CONT
  'He saw his father dead.'

Persian (Noonan 1985: 85)

Mæn	adæd-	æn-	e	Babæk-	ra	færman	dadæm.
I	come-	NOMIN-	ASSOC	Babak-	OBJ	order	gave.2.SG

'I ordered Babak to come.'

Imbabura Quechua (Cole 1982: 43)

Pedro	ya-	n	[ñuka	Agatu-	pi	kawsa-	ni]	-ta.
Pedro	think-	3	I	Agato-	in	live-	1-	-ACC

'Pedro thinks that I live in Agato.'

Squamish (Noonan 1985: 61)

č-	n	ɫč-	iws	kʷi	n-	s-	na	wa
DECL-	1.SG	tired-	body	ART	1.SG.POSS-	NOM-	fact	PROG

c'aqʼ-	an-	umi.
hit-	TRANS-	2.SG.OBJ

'I'm tired of hitting you.'

Swahili

Ali	a-	li-	kusudia	ku-	m-	saidia	Hadija.
Ali	N1.S-PAST-		intend	INF-	N1.O-	help	Hadija.

'Ali (had) intended to help Hadija.'

Turkish (Kerslake 2007: 236-7)

a

[Bura-	ya	kadar	gel-	me-	miz]	zor	ol-uyor.
here-	DAT	as.far.as	come-	VN-	1.PL.POSS	difficult	be-IMPF

'It's difficult for us to come all this way.'

b

Ali	[bu	araba-	yı	kullan-	ma-]	ya	başla-	dı.
Ali	this	car-	ACC	use-	VN-	DAT	begin-	PF

'Ali has begun to use this car.'

Uzbek (Noonan 1985: 60)

Xɔtin	bu	ɔdam-	niŋ	jŏja-	ni	oğirla-	š-	i-	ni	istadi.
woman	this	man-	GEN	chicken-	OBJ	steal-	NOMIN-	3.SG-	OBJ	wanted.3.SG

'The woman wanted the man to steal the chicken.'

!Xun (Northern Khoisan, W2 dialect; field notes)

mí	má	kàlè	ɗàhmà	ǀàˈā	kē	gǁú.
1.SG	TOP	want	woman	give	TR	water

'I want to give the woman water.'

Appendix 2. Nominal vs. verbal properties of complement clauses. (The symbols "Na", "Vd", etc. refer to the categories distinguished in (1) and (2). Verbal properties are printed in bold).

Construction	Type of clause	Predicate	Subject	Object	Other participants
Angas	O.Com	Na	-	Nb	
Bole	O.Com	Na	**Va, Ve**		
English a	S.Com	Na	Nb	**Ve**	**Ve**
English b	S.Com	Na	Nc	**Ve**	**Ve**
English c	O.Com	Na	Ne	**Ve**	**Ve**
Estonian	S.Com	Na	Nb		
Evenki	O.Com	Na	Nb, **Va**		
Finnish	O.Com	Na	Nc		**Ve**
Ancient Greek	S.Com	Na	Nc		
Hausa a	O.Com	Na	-	Nb	
Hausa b	S.Com	Na	Nb		
Ik	O.Com	Na	Nb		
Irish	S.Com	Na	Nb		
Khwe	S.Com	Nc, **Va, Vb, Vd**	**Ve**	**Ve**	
Kanuri	O.Com	Nc, **Va, Vb**	**Ve**	**Ve**	
Krongo a	O.Com	Na, **Vb, Vf**	Nb	**Ve**	**Ve**
Krongo b	O.Com	Na, **Vb, Vf**	Ne	**Ve**	
Latin	S.Com	Na	Nc		
Laz	O.Com	Nc	**Ve**		**Ve**
Maale a	S.Com	Na, **Vb**		**Ve**	**Ve**
Maale b	S.Com	Na, Nc	Nc		**Ve**
Maale c	S.Com	Na, **Vb**	**Ve**		**Ve**
Mandarin a	S.Com	Na, **Vd**			
Mandarin b	O.Com	Na, **Va, Vd**			
Persian	O.Com	Na, Nb			
I. Quechua	O.Com	Nc	**Ve**		**Ve**
Swahili	O.Com	Na	-	**Va**	**Ve**
Turkish a	S.Com	Na	Nc		**Ve**
Turkish b	O.Com	Na	-	**Ve**	
Uzbek	O.Com	Na	Nb	**Ve**	
!Xun	O.Com	-	-	Nd	**Ve**