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Two types of temporal *when* clauses in Hausa ¹

By

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Abstract:

Hausa has simple temporal clauses, introduced by the conjunction *dà* ‘when’, that many researchers derive from temporal relative clauses introduced by *lookàcin dà* ‘time that’, through the deletion of the pseudo head word *lookàcii* ‘time’. This paper shows that this analysis, however natural it may appear, is inadequate. Indeed, the two temporal clauses have different uses, which would not be surprising if simple temporal clauses are derivationally independent from temporal relative clauses, as proposed in this paper.

1. Introduction

There are in Hausa two types of temporal *when* clauses. The first type has the structure of relative clauses while the second type shows no immediate connection to relative clauses. The two types of temporal clauses are illustrated in the following:

- (1) a. *Sun kaawoo ma-nà zìyaaràa lookàci-n dà mu-kèe kàalàacii.*
 3P.CPL bring to-1P visit time-DF that 1P-RI meal
 ‘They visited us when we were having a meal.’

¹ Hausa (Chadic) is spoken mainly in Niger and Nigeria. Most data in this paper are made up example sentences the grammaticality of which has been checked with speakers of Katsinanci dialect and Standard Hausa. Some of the data are examples adapted from previous publications, as indicated sometimes in the text. Still other examples are adapted from naturally occurring utterances collected by the author. The transcription follows the Hausa standard orthography with some changes. Long vowels are represented as double letters, low tone as grave accent, and falling tone as circumflex accent. High tone is unmarked. Small capitals <B, D, K> represent glottalized/laryngealized consonants, and <R> represents an alveolar trill distinct from a flap [r]. Written <f> is pronounced [h] (or [h^w] before [a]) in Katsinanci and other western dialects. The abbreviations are: 1, 2, 3 ‘1st, 2nd, 3rd person’; cop. ‘copula’; CPL ‘completive’; DF ‘definite’; F ‘feminine’; FUT ‘future’; imp ‘impersonal’; IPV ‘imperfective’; M ‘masculine’; P ‘plural’; RI ‘relative imperfective’; RP ‘relative perfective’; S ‘singular’; SUB ‘subjunctive’. I thank two anonymous referees for their cogent remarks on this paper.

- b. *Sun kaawoo ma-nà zìyaaràa dà mu-nàa kàalàacii.*
 3P.CPL bring to-1P visit when 1P-IPV meal
 ‘They visited us when we were having a meal.’

The temporal clause in (1a) is structurally a relative construction where the relative clause introduced by *dà* seems to modify the apparent head word *lookàcii* ‘time, moment, period’. Sometimes, instead of *lookàcii*, an alternative word may appear such as *sa’àa*, *sà’idii*, *yàayii*, etc., all meaning ‘time, moment, etc.’ In (1b) by contrast, the temporal clause is introduced by the particle *dà* alone which is here translated as ‘when’. Furthermore, the two temporal clauses differ in the fact that the temporal relative clause can optionally take the “relative marking”, i.e., alternate forms of the perfective and imperfective that appear in relative clauses and out-of-focus clauses of focus and *wh* question constructions (see among others Bearth 1993; Hyman and Watters 1984; Schachter 1973). For this reason, the temporal relative clause in (1a) has the relative imperfective *mu-kèe* ‘1P-RI’ contrasting with the regular imperfective *mu-nàa* ‘1P-IPV’ found in the simple temporal clause in (1b).²

Nearly all descriptions of Hausa temporal clauses claim or assume that temporal relative clauses, especially the ones headed by the word *lookàcii* ‘time’, are the source of simple temporal clauses introduced by *dà*. The derivation would involve the deletion of the word *lookàcii* ‘time’ or its equivalents (cf. Bagari 1976/87: 117; Jaggar 2001: 624; Newman 2000: 556; Tuller 1986: 113). In fact, for most authors (cf. Jaggar 2001: 624, 629), the *lookàcii* temporal relative

² The complete paradigms of the completive, the relative perfective, the regular and relative imperfective are given in the following table for references (for the other TAM paradigms, see Newman 2000: 564):

(i) Regular and relative imperfective and perfective

	Imperfective (all dialects)	Relative Imperf. others / west	Complétive (all dialects)	Relative Perfective others / west
1S	<i>inàa</i>	<i>nikèe/ nikà</i>	<i>naa</i>	<i>na/ niC</i>
2MS	<i>kanàa</i>	<i>kakèe/ kakà</i>	<i>kaa</i>	<i>ka/ kaC</i>
2FS	<i>kinàa</i>	<i>kikèe/ kikà</i>	<i>kin</i>	<i>kikà/ kinkà =kiC</i>
3MS	<i>yanàa = shinàa</i>	<i>yakèe = shikèe/ shikà</i>	<i>yaa</i>	<i>ya/ yaC</i>
3FS	<i>tanàa</i>	<i>takèe/ takà</i>	<i>taa</i>	<i>ta/ taC</i>
1P	<i>munàa</i>	<i>mukèe/ mukà</i>	<i>mun</i>	<i>mukà/ munkà</i>
2P	<i>kunàa</i>	<i>kukèe/ kukà</i>	<i>kun</i>	<i>kukà/ kunkà</i>
3P	<i>sunàa</i>	<i>sukèe/ sukà</i>	<i>sun</i>	<i>sukà/ sunkà</i>
one	<i>anàa</i>	<i>akèe/ akà</i>	<i>an</i>	<i>akà/ ankà</i>

clause derives a whole series of temporal clauses introduced by phrasal subordinators involving the particle *dà*, such as: (*lookàcin*) *dà* ‘(time) when’, *sai* (*lookàcin*) *dà* ‘till (time) when’, *tun* (*lookàcin*) *dà* ‘since (time) when’, etc. The claim that temporal relative clauses are the source of simple temporal clauses is usually based on examples where the word *lookàcii* ‘time’ seems optional, as illustrated next (cf. also Bagari 1976/87: 117; Watters 2000: 223):

- (2) a. *Naa san Abdù (lookàci-n) dà ya-nàa yaarò.*
 1s.CPL know Abdu time-DF DA 3MS-IPV child
 ‘I know Abdu (at the time) when he was a child.’
- b. *Yâaraa sun ga sarkii (lookàci-n) dà su-kà shìga gàrii.*
 children 3p.CPL see emir time-DF DA 3P-RP enter town
 ‘The children saw the emir when they entered (i.e., visited) the town.’
 ‘The children saw the emir when they were entering the town.’

In the sentences in (2), the presence or absence of the word *lookàcii* ‘time’ has no consequence on the meaning of the sentences. In (2b) for example, with or without *lookàcii*, there is an ambiguity between the interpretations ‘the children saw the emir at the exact moment when they entered the town’ and ‘the children saw the emir when they were visiting the town’. It thus seems completely natural to derive the simple temporal clause from the more complex temporal relative clauses through the deletion of the word *lookàcii*. In fact, this process is thought to be general and, according to Wald (1987: 509n5), many West African languages commonly use a relative conjunction (such as *dà* in Hausa) as a conjunction introducing temporal *when* clauses.³

The aim of this paper is to show that the assumption of a systematic derivation of simple temporal clauses from temporal relative clauses cannot be maintained when one closely examines the uses of the two types of clauses. The paper also presents an alternative account of the origin of the simple temporal clauses and the temporal relative clauses.

The paper uses grammaticalization theory as a general framework. Normally, a grammaticalization process, in a specific context, turns a lexical or derivational item into a grammatical marker, or a grammatical marker becomes more grammatical (cf. for example

³ This pseudo head deletion process is actually thought by some writers to apply to all adverbial relative clauses. For example, Reineke (1998: 103) reports that in Ditammari (and other Gur languages), locative and manner adverbial clauses are headless relative clauses that however incorporate noun class markers compatible with, respectively, the lexemes meaning ‘place’ and ‘manner’. However, in the two Gur languages described by Reineke (Ditammari and Biali), the head words meaning ‘time’ are not deleted in temporal relative clauses.

Hopper and Traugott 1993: 2). In this process, the original lexical item becomes progressively eroded, both at the phonological and semantic levels. However, there is another process that also falls under the domain of grammaticalization, where an entire construction undergoes expansion in new contexts and/or acquires new functions while becoming syntactically more integrated and less flexible. This type of grammaticalization has been discussed in, among others, Givón (1990: 651); Güldemann (2003: 183); Heine and Reh (1983: 34); Himmelmann (1997); and Hopper and Traugott (1993: 167ff). In this paper, we will see both types of changes. Indeed, simple temporal clauses stem from the grammaticalization of the *dà*, which evolved from an existential predicate, through a comitative and instrumental marker, to a temporal conjunction. Temporal relative clauses on the other hand are derived from typical head modifying relative clauses and have a frozen structure characteristic of grammaticalized constructions.

The paper is structured as follows. Section 2 presents the semantic difference between the two types of temporal clauses as well as their interactions with the tenses/aspects/modes (TAM). Section 3 presents two separate development scenarios for the temporal relative clauses and the simple temporal clauses.

2. Differences between simple temporal clauses and temporal relative clauses

This section shows that the two types of clauses differ with regard to their use in ways that may not be accommodated in the framework of the *lookàcii* deletion analysis. Indeed, the two types of temporal clauses do not express the same range of temporal *when* relations and behave differently with regard to the tense/aspect paradigms.

2.1 Semantic differences between the two types of temporal clauses

In the general linguistic literature (cf. Michaelis 2006, Vlach 1981) there are essentially two types of temporal relations between the event in a temporal *when* clause and the event in its main clause. Regarding English for example, Vlach (1981) considers that the relation is overlapping when one of the situation refers to a state (i.e., when the event is durative). By contrast, the relation is consecutive when both events in the subordinate and main clause are non durative. The overlapping relation is well illustrated for both types of Hausa temporal clauses, as seen in examples (1-2), where the punctual arrival event may happen at any point during the eating activity. Another type of overlapping, one may call minimal overlapping, may obtain between two events, as illustrated in the following:

- (3) (*Lookàci-n*) *dà ya diroo, sai ya karè kafàa*
 time-DF DA 3MS.RP jump then 3MS.RP break leg
 ‘When he jumped, he broke his leg.’

In sentence (3), the event in the temporal clause is durative. The punctual event of breaking the leg can only happen, normally, at the end of the jumping process. One notes that this relation is possible for both simple temporal clauses and temporal relative clauses, as shown by the optionality of the word *lookàcii* ‘time’. The consecutive relation with two punctual events can be illustrated for Hausa as in the following:

- (4) (*Lookàci-n*) *dà su-kà zoo, sai mu-kà tàfi.*
 time-DF DA 3P-RP come then 1P-RP leave
 ‘When [once] they arrived, we then left.’

In this example, the events of arriving and leaving are both punctual and have a consecutive relation. Again, this sequential interpretation is possible for both simple temporal clauses and temporal relative clauses, as shown by the optionality of the word *lookàcii* ‘time’. The various types of temporal *when* relations seen so far between the subordinate and the main clause event can be diagrammed as in the following:

- (5) Full/partial overlapping -- minimal overlapping -- normal consecution

As illustrated in the discussed examples, both types of temporal clauses can express all three relations in (5) and, potentially, other types of relations. However, there is one type of consecutive *when* relation that can be expressed only by simple temporal clauses. In this temporal relation, the close sequencing of the events is stressed or particularly explicit. The stressing of the close sequence relation is illustrated next:

- (6) *Koo (*lookàci-n) dà su-kà zoo, sai mu-kà tàfi.*
 even time-DF DA 3P-RP come then 1P-RP leave
 ‘As soon as they arrived, we left.’

Sentence (6) is almost the same as sentence (4), except for the particle *koo* ‘even’. In (4), the closeness of the consecutive relation is not stressed and can be expressed by both types of temporal clauses, as indicated. In (6), the sentence is introduced by *koo* ‘even’, which is an emphatic particle (cf. König 1991), stressing the close sequencing of the events. One notes that in

this case, the word *lookàcii* is not possible. Another case of explicit close sequencing is illustrated next:

- (7) *Ta tàmbàyi Saanii. (*Lookàci-n) dà ya baa tà, sai ta tàfi.*
 3FS.RP ask Sani time-DF DA 3MS.RP give 3FS then 3FS.RP go
 ‘She asked Sani [for something]. When he gave [it to] her, she went.’

In (7), which could be a piece of narrative, the close consecutive relation is explicit, i.e., in the context of asking, the woman left as soon as she was given something. Here too, the word *lookàcii* is not possible. The narrative context in fact provides a further illustration of a close consecutive relation that excludes the temporal relative clauses. This is seen in the following:

- (8) *Su-kà fita. (*Lookàci-n) dà su-kà fita, sai ta rufè koofàa.*
 3P-RP go.out time-DF DA 3P-RP go.out then 3FS.RP close door
 ‘They then left. Once they exited, she then closed the door.’

Narratives, by definition, relate events that are sequenced and single occurrence (Adam 1994: 92-105), typically in close succession. In Hausa, a frequent narrative technique is to repeat a previous event in a temporal clause, before chaining up with the next event. In (8), the event of getting out is presented. Then the same event is repeated in the subordinate clause and linked with the next new event. This repetition in fact stresses the close connectedness of the events, as shown in the translation. One notes that here, too, the word *lookàcii* is not possible. In fact, the repeated event can explicitly be introduced by *baayan* ‘after’ or a hybrid conjunction *baayan dà* ‘after that/when’, instead of *dà* alone. This is illustrated in the following:

- (9) a. *Su-kà fita. Baayan (*Lookàci-n) dà su-kà fita,*
 3P-RP go.out after time-DF DA 3P-RP go.out
sai ta rufè koofàa.
 then 3FS.RP close door
 ‘They then left. After they exited, she then closed the door.’
- b. *Su-kà fita. Baaya-n sun fita, sai ta rufè koofàa.*
 3P-RP go.out after 3P.CPL go.out then 3FS.RP close door
 ‘They then left. After they exited, she then closed the door.’

In (9a), the first event of the passage is repeated and introduced by *baayan dà* ‘after that/when’ and *lookàcii* cannot be used. *Baayan* is a preposition and conjunction meaning ‘behind, after, beside’ (cf. *baayan iccèè* ‘behind the tree’, *baayan sallàh* ‘after the festival’). As seen in (9b), *baayan* can appear alone and mark the close sequence relation.⁴

Because of this ability of simple temporal clauses to mark close consecutive events, they usually have, given the appropriate context, more causal implication than temporal relative clauses. This is illustrated in the following:

- (10) a. *Lookàci-n dà su-nàa fadàa nee ùbâ-n naa-sù ya fitoo.*
 time-DF that 3p-IPV fight cop. father-DF of.3P 3MS.RP come.out
 ‘It is (at the time) when they were fighting that their father came out.’
- b. *Dà su-nàa fadàa nee ùbâ-n naa-sù ya fitoo.*
 when 3p-IPV fight cop. father-DF of.3P 3MS.RP come.out
 ‘It is when/because they were fighting that their father came out.’

When asked to contrast the sentences in (10), most Hausa speakers interpret (10a) as implying that the father came out inadvertently to find the fighting going on while (10b) is taken to imply that the father came out on purpose (say upon hearing that a fight is going on). It should be noted that both clauses primarily have a temporal function and, with some main verbs, may or may not have a causal implication. For example if the verb *fitoo* ‘come out’ is replaced by *zoo* ‘come’, then both (10a-b) would have a simple contingency reading (that is, if the father came from work or from somewhere not knowing about the fight). Conversely, if, instead of a father coming out, the main clause describes the police making arrest, then both temporal clauses would in this context naturally get the causal implication (that is, the fighters were arrested because of their fighting). This means that the interpretations are context-dependent.

⁴ There are nonetheless some differences between a hybrid temporal *baayan dà* ‘after that/when’ illustrated in (9a) and a temporal *baayan* ‘after’ clause illustrated in (9b). For example, the simple *baayan* clause allows a more or less extended time between the two events. By contrast, the hybrid *baayan dà* clause typically implies a relatively short time between the two events. Besides *koo* ‘even’ and *baayan*, the conjunction *dà* combines with other particles, such as *tun* ‘since’, *sai* ‘only, then’, to express a close consecution between events (usually with an implied causal relation). It may also be noted, as an anonymous referee suspected, that *baayan* can appear before a referential *lookàcii* (+ a relative clause) as in *ai wànnan baayan lookàcin dà sukà ci àbinci nèè* ‘oh, that was after the time when they ate’, or in *baayan lookàcin dà sukà ci àbinci, naa kuma ganee sù dà karfèè takwàs* ‘besides the time when they ate, I also saw them at 8 o’clock’, where the events are unordered.

To summarize, simple temporal clauses and temporal relative clauses do not have the same uses. In the *lookàcii* deletion analysis, which derives simple temporal clauses from temporal relative clauses, this difference in use will have to be explained in one way or another. By contrast, if the two clauses developed independently (cf. Section 3), then one can expect them to have different properties. Next we see some further differences between the two clauses.

2.2 Tense/aspect/mode paradigms and their interpretation in the two temporal clauses

This subsection explores the tense/aspect paradigms that can appear in simple temporal clauses and in temporal relative clauses, as well as the temporal interpretations of the paradigms (i.e., whether they can refer to past or future events). Table 1 presents the tense/aspect possibilities with temporal *lookàcin dà* relative clauses.

Table 1: TAM paradigms and their interpretations in temporal relative clauses (with 3rd person plural *su-* and verb *fita* ‘go out’)

	Past reference (one-time event)	Future reference (one-time event)
Imperf.: <i>lookàcin dà sunàa fitaa</i>	Yes	Yes
Rel. Imp.: <i>lookàcin dà sukèe fitaa</i>	Yes	Yes
Rel. Perf.: <i>lookàcin dà sukà fita</i>	Yes	Yes
Fut. I: <i>lookàcin dà zaa sù fita</i>	Yes	Yes
Eventual: <i>lookàcin dà sukàa fita</i>	Yes	Yes

Formally, standard Hausa has ten affirmative TAM paradigms (including the imperative; the exact number may vary depending on the dialect; cf. also Abdoulaye 2008a) but Table 1 shows that only five of them can appear in temporal relative clauses: the regular imperfective, the relative imperfective, the relative perfective, the future I, and the eventual. Temporal relative clauses cannot take the habitual, the future II, the subjunctive, etc. It should be noted that a relative clause containing the habitual aspect can modify the word *lookàcii*, ‘time’, but in this case the word *lookàcii* receives a referential interpretation only (i.e., the clause would not have an adverbial use; cf. *lookàcin dà sukàn fita* ‘the time/moment when they usually go out’). Also, only clauses describing one-time events are considered in Table 1 since they allow the adverbial use, while clauses with recurrent events would tend to have a referential *lookàcii* head. It may also be noted that a temporal relative clause takes the regular or the relative imperfective with the same meaning, as indicated in the introductory section (cf. also Abraham 1959: 163, Jaggar 2001: 531).

The second significant aspect of Table 1 is that all admissible tense/aspect paradigms can refer to the past or the future, given an appropriate context (as determined by the main clause). This is illustrated in the following for the relative perfective:

(11) a. *Lookàci-n dà bàakii su-kà zoo, an baa sù tàabarmaa.*
 time-DF that visitors 3P-RP come imp.CPL give 3P mat
 ‘When the visitors came, they were given a mat.’

b. *Lookàci-n dà bàakii su-kà zoo, sai à baa sù tàabarmaa.*
 time-DF that visitors 3P-RP come then imp.SUB give 3P mat
 ‘When the visitors come, they should be given a mat.’

Hausa is a predominantly aspectual language so that most TAM paradigms can be used to refer to past and future events. In (11a), the relative perfective *su-kà* ‘3P-RP’ has a past interpretation in a narrative-like context, while in (11b), the same TAM marker has a future interpretation in a context where the hearer is given some instruction concerning a future situation.⁵

⁵ Regular relative clauses may fail to take both the relative perfective and the relative imperfective, in contrast to temporal relative clauses, where the relative perfective is obligatory. Some examples of relative clauses with the completive or the general imperfective are presented in the following:

- (i) a. *mùtunè-n [dà koo yaa mutù koo ya-nàa dà rài àllaahù wa'àlam]*
 man-DF that whether 3MS.CPL die or 3MS-have life only God knows
 ‘the man [who only God knows whether he is dead or alive]’
 b. *Kanòo, birnii wandà dâa maa ya-nàa dà mahimmanciì à Hausa*
 Kano city which in any case 3MS-have importance in Hausa
 ‘Kano, a city which in any case has a great significance in Hausaland’

In (ia), the restrictive relative clause carries information that is marked as uncertain with the conjunction *koo* ‘whether’. As can be seen, the two embedded clauses carry the completive and the general imperfective. The relative tense/aspect paradigms would be ungrammatical in this context. It should be noted at this point that almost all researchers who dealt with the question think, one way or another, that in Hausa the relative perfective and relative imperfective mark the presupposed clause in relative constructions and in constituent focus, fronted *wh*-question, or *wh-ever* constructions and are obligatory in these constructions (cf. Bagari 1976/87: 83f, Creissels 1991: 337, Hyman and Watters 1984: 259, Schachter 1976: 514, Schuh 1985a, b, Wald 1987: 499, 506, 508, etc.). One way then to account for the failure of the relative marking to appear in (ia) is to say that the marked uncertainty of the information takes the relative clause out of the presupposition domain and *both* relative perfective and relative imperfective, as markers of presupposition, are cancelled. Example (ib) illustrates a non-restrictive relative construction (cf. Jaggat 1998: 220; Schubert 1971/72: 283), where in general the relative clause contains additional secondary information about the head. Since the clause is not presupposed, the general imperfective can be used, as indicated. More

When one turns to the simple temporal clauses, one observes a more restricted number of possible TAM paradigms. The possible paradigms and their interpretations in simple temporal clauses are presented in Table 2.

generally, it has been established that in Hausa relative constructions containing some modal or adverbial particles manipulating the relative clause information may take the completive and the general imperfective, as the discussion in Jaggar (1998: 214, 2001: 531n6, 537) shows. Nonetheless, it should be pointed out that Jaggar (2006), in contrast to most researchers, thinks that the relative perfective and relative imperfective ("Focus Perfective" and "Focus Imperfective" in his terminology) are the morphological reflex and diagnostic of focus fronting. In particular, he claims (cf. Jaggar 2006: 107) that the relative perfective "is normally used to highlight and assert elements which are *foregrounded*" as informationally prominent and addressee-new, i.e., fronted focus and *wh*-constituents and foregrounded past-time narrative events [...]" (emphasis in original). This account supposes that heads are focused in restrictive relative clauses but not in non-restrictive relative clauses, a point on which Jaggar does not elaborate. Similarly, in storyline narrative clauses, which require the relative perfective (but not the relative imperfective), there is no evidence for a focus-fronted constituent, so that some further account is necessary to show that Jaggar's generalization is indeed valid (that is, the generalization that the relative marking is the morphological reflex and a diagnostic of focus fronting). It is also not clear how Jaggar's generalization would handle the obligatory appearance of the relative marking or the copula *kèe* 'be' (which is the source of the relative imperfective) in adverbial scene-setting clauses where there is no head that can be focused (cf. discussion of (22) below; cf. also Jaggar 2001: 177, 638). It would also not be clear why the relative perfective can appear in conditional clauses (cf. Jaggar 2001: 609), simple temporal *when* clauses (where, in his analysis, the focused head *lookàcii* would have been deleted), and in main clauses of dialogical discourse. The present author follows the previous writers in considering the relative perfective and the relative imperfective as (realis) presupposition markers in the pragmatically marked constructions (scene-setting clauses, relative clauses, focus clauses, *wh*-question and *wh-ever* clauses). However, the present author is also currently working on the proposal that in temporal *lookàcin dà* relative clauses, the aspectual contrast between relative perfective and relative imperfective has collapsed (hence the optionality of the relative imperfective) and that the obligatory relative perfective has in fact grammaticalized as a specific time/simple past marker (cf. also Abdoulaye 2008a). These new functions explain the appearance of the relative perfective in many contexts where it does not contrast with the relative imperfective: conditional clauses, simple temporal *when* clauses, past narrative clauses, and past clauses of dialogical discourse.

Table 2: TAM paradigms and their interpretations in simple temporal clauses (with 3rd person plural *su-* and verb *fita* ‘go out’)

	Past reference		Future reference	
	One-time	Recurrent	One-time	Recurrent
Completive: <i>dà sun fita</i>		Yes	Yes	Yes
Imperfective: <i>dà sunàa fitaa</i>	Yes	Yes		
Rel. Perfective: <i>dà sukà fita</i>	Yes			
Future I: <i>dà zaa sù fita</i>	Yes			

Table 2 shows that simple temporal clauses accept only four TAM paradigms: the completive, the relative perfective, the regular imperfective, and the future I. In particular, simple temporal clauses do not normally take the relative imperfective, despite their admitting the regular imperfective. One may also note that Table 2 takes into account both single and multiple occurrence events, since this has no incidence on the ability of the clause to function adverbially.

Regarding the temporal interpretation of the TAM, one notices in Table 2 a general shift to a past interpretation for most tense/aspect paradigms. For example, of all admissible TAMs, the completive alone can be used to refer to past or future events, under the conditions given in the table. The two interpretations of the completive are illustrated in the following:

- (12) *Dà sun fita, sai tà rufè koofâa/ kà shâidaa ma-ni.*
 when 3P.CPL go.out then 3FS.SUB close door/ 2MS.SUB advise to-1S
 ‘As soon as they go out, she (usually) closes the door/you should let me know.’

In this example, a completive simple temporal clause can modify a main clause referring to recurrent past or future situations. The other three TAMs in Table 2 can only be used to refer to past events. This is illustrated in the following:

- (13) a. *Dà su-kà fita, sai ta rufè koofâa/ *kà shâidaa ma-ni.*
 when 3P-RP go.out then 3FS.RP close door/ 2MS.SUB advise to-1S
 ‘Once they exited, she closed the door/ [once they exit] please let me know.’
- b. *Dà su-nàa fitaa, sai ta rufè koofâa/ *kà shâidaa ma-ni.*
 when 3P-IPV go.out then 3FS.RP close door/ 2MS.SUB advise to-1S
 ‘When they were going out, she closed the door/ [when they will be going out] please let me know.’

- c. *Dà zaa sù fita, sai ta rufè koofàa/ *kà shâidaa ma-nì.*
 when FUT 3P go.out then 3FS.RP close door/ 2MS.SUB advise to-1S
 ‘When they were about to go out, she locked the door/ [when they will be about
 to go out] please let me know.’

As these examples show, a simple temporal clause with the relative perfective, regular imperfective and future I is compatible only with a main clause describing past events. The future I in (13c), for example, describes a “future-in-the-past”, i.e., the event in the main clause precedes, and sometimes cancels, the event in the temporal clause. A probable reason for the shift to past interpretation observed in Table 2 may be the influence of the ultimate origin of temporal conjunction *dà*. In Section 3.2, it is suggested that simple temporal clauses developed on the model of temporal “*dà* + Noun/Adverb” phrases, which themselves are based on comitative constructions. It happens that the comitative use of *dà* very likely developed from the ultimate function of *dà*, i.e., the existential function (cf. Abdoulaye 2006). In this context, the anchoring of simple temporal clauses in the past may be a survival of the existential function, which tend to describe realized situations (on the long survival or influence of the original semantics of grammaticalized items, see Bybee and Pagliuca 1987: 117 and Hopper and Traugott 1993: 87-93). Whatever the validity of this explanation, it is clear that the shift will be difficult to explain in the framework of the *lookàcii* deletion analysis.⁶

3. An alternative account of the origins of the temporal clauses

This section presents two separate accounts dealing with the origin of the two types of temporal clauses. It also, tentatively, suggests a relationship between the two clauses, whereby the simple temporal clause may in fact ultimately be the source of the temporal relative clause.

⁶ Beside the facts reported in this paper for Hausa, the deletion analysis is also problematic on theoretical grounds. Indeed, in this analysis, the word *lookàcii* ‘time’, which surely keeps some semantic load, is deleted while the semantically empty relative conjunction *dà* acquires, after deletion of *lookàcii*, the more substantive meanings of ‘as soon as, once, when, as, because, etc.’ This violates known grammaticalization tendencies. In fact, if something should be deleted in a temporal relative clause introduced by *lookàcin dà* ‘time that’, it would probably be the weaker grammatical element *dà*. For example, Schuh (1998: 272) reports that some temporal clauses in Miya (Chadic) can be introduced by *mùkwá* ‘day [that]’ or *mùku ma* ‘day that’, i.e., the weak head *mùkwá* ‘midday’ (a temporal word derived from *mùku* ‘sun, day’) requires no relative pronoun/conjunction.

3.1 Development of temporal relative clauses

It has long been evident that adverbial clauses in general may in some languages be closely connected to relative constructions (cf. Lehmann 1984: 320; Thompson and Longacre 1985: 178). This section shows that temporal relative clauses in Hausa can be derived from relative clauses where the head word *lookàcii* ‘time’ has a true referential reading.

Like any noun phrase functioning in a sentence (as subject, direct object, etc.), the word *lookàcii* can be modified by at least four kinds of relative clauses. One of the two fundamental contrasts in Hausa relative clauses distinguishes relative clauses with a complex structure involving a copular predicate *kè(e)* ‘be’ and simpler, reduced relative clauses that have no copula. These two types of relative clauses are illustrated in the following (cf. also Newman 2000: 540):

- (14) a. *Kà àuni lookàci-n dà ya-kè yaa daacèe.*
 2MS.SUB aim time-DF that 3MS-be 3MS.CPL fit
 ‘You must/should aim at the really appropriate moment.’
- b. *Kà àuni lookàci-n dà ya daacèe.*
 2MS.SUB aim time-DF that 3MS.RP fit
 ‘You must/should aim at the appropriate moment.’

In the sentences in (14), the main clause is *kà àuni [lookàcii...]* ‘you should target [a time...] where the word *lookàcii* functions as direct object in the main clause. In (14a), the relative clause is introduced by the conjunction *dà* ‘that’ and is made up of an impersonal copular predicate *ya-kè* ‘it be’ and the relative clause proper. We will assume that the relative clause proper here functions as a complement to the copula *-kè*. By contrast, in (14b), the relative clause is reduced in structure and is introduced only by the conjunction *dà* ‘that’. As may be seen, the reduced relative clause in (14b) has the relative perfective marker *ya* ‘3MS.RP’ replacing the regular completive marker *yaa* ‘3MS.CPL’ found in the copular relative clause in (14a). It may be noted that reduced relative clauses as illustrated in (14b) are more frequent, while the copular relative clauses illustrated in (14a) have an associated emphatic reading, as indicated in the translation.

The second fundamental contrast in Hausa relative clauses is the presence or absence of a relative pronoun introducing the relative clause. Indeed, the relative clauses illustrated in (14) all have variants with a relative pronoun, as illustrated in the following:

- (15) a. *Kà àuni lookàcii wa-n-dà ya-kè yaa daacèè.*
 2MS.SUB aim time one-DF-that 3MS-be 3MS.CPL fit
 ‘You must aim at the really appropriate moment.’
- b. *Kà àuni lookàcii wa-n-dà ya daacèè.*
 2MS.SUB aim time one-DF-that 3MS.RP fit
 ‘You must aim at the appropriate moment.’
- c. *wa-n-dà ya-kè yaa daacèè*
 one-DF-that 3MS-be 3MS.CPL fit
 ‘the one that is really appropriate.’

Relative clauses without a relative pronoun, as illustrated in (14), are usually taken to be more basic (cf. Newman 2000: 540). Indeed, relative clauses introduced by a relative pronoun, as illustrated in (15a-b), are historically secondary and stem probably from the grammaticalization of free relative clauses headed by the indefinite pronoun *wàa* ‘one’, as illustrated in (15c). The free relative clauses are now alternating with the original *dà* relative clauses in modifying a head noun. In (15a-b), the sequence made up of the indefinite pronoun and the conjunction (i.e., *wa-n-dà* ‘the one-masc. that’) is reinterpreted as a relative pronoun *wandà* ‘who-masc.’. The relative pronoun is written as one word in Hausa orthography and the other forms are: *waddà/waccè* ‘who-fem.’, *wadàndà* ‘who-plur.’ (these pronouns in fact have a variable tone pattern, see Jaggar 2001: 528; on the development of relative pronouns in general, see among others Givon 1990: 657; Lehmann 1984: 389; van der Auwera and Kučanda 1985: 927, 953).

Examples (14-15) illustrate the noun *lookàcii* ‘time’ functioning as direct object of the main clause and this noun can naturally also assume other syntactic functions in the main clause. In particular, *lookàcii* can also function as a temporal adverb in the main clause. However, in such case, *lookàcii* and its accompanying relative clause have a double interpretation, as seen in the next examples:

- (16) a. *Bàakii sun zoo lookàci-n dà mu-kèè cîn àbinci.*
 visitors 3P.CPL come time-DF that 1P-RI eat food
 ‘The visitors came at our meal time.’
 ‘The visitors came while we were eating.’

b. *Bàakii sun zoo jiyà/ karfêe biyu.*

visitors 3P.CPL come yesterday/ o'clock two
 'The visitors came yesterday/ at 2 o'clock.'

c. *Lookàcî-n nan nèe bàakî-n su-kà zoo.*

tile-DF that cop. Visitors-DF 3P.RP come
 'It was at that moment that the visitors came.'

In the first meaning of (16a), *lookàcii* is referential and designates a precise moment. In this interpretation, the people visited do not need to actually be eating. In (16a) then *lookàcii* fulfills a function in the main clause and is comparable to simple temporal adverbs such as *jiyà* 'yesterday', etc., as illustrated in (16b). The difference between the two types of adverbs is that the word *lookàcii* must necessarily be specified by a relative clause to have a reference, unless this reference is clear from context. For example, in (16c) the reference of *lookàcii* would be specified in the preceding discourse. In the second meaning of (16a), the word *lookàcii* 'time' is not referential and its interpretation seems to be closely tied to the action described in the apparent relative clause (the action of eating). In particular, the action of eating refers to a specific event (unlike in the first interpretation), which thus determines the temporal reference. In this case, it is the entire apparent relative construction that acts as a temporal adverbial clause in the main clause. That is, since *lookàcii* is not referential (or is lexically empty, cf. Lehmann 1984: 320), one no longer has the construction "Head *lookàcii* + relative clause". Indeed, many relative constructions with the word *lookàcii* can only be interpreted as adverbial clauses, in particular when they refer to single occurrence events, as illustrated in the following: ⁷

(17) a. *Lookàci-n dà su-nàa favàa nee ùbâ-n naa-sù ya fitoo.*

time-DF that 3P-IPV fight cop. father-DF of-3P 3MS.RP come.out
 'It is when they were fighting that their father came out.'

⁷ Relative clauses normally require the previous reference marker -`r (feminine) or -`n (masculine or plural) on the head noun itself or in the relative pronoun, as seen in examples (14-15). Katsinanci is one of the dialects where the definiteness marker has lost its floating low tone in relative clauses. One may assume that in temporal relative clauses, where the head word *lookàcii* is not referential, the previous reference marker survives as a relic in the frozen construction.

- b. *Lookàci-n dà Saanii ya buudo koofàa sai su-kà ruugàa.*
 time-DF that Sani 3MS.RP open door then 3P-RP run
 ‘It is when Sani opened the door that they fled.’

In sentences (17), the action described in the temporal relative clause is a single occurrence event, whether the tense/aspect is imperfective, as in (17a), or perfective, as in (17b).

The functional/semantic changes observed in examples (16-17) can be naturally apprehended in the grammaticalization framework whereby the regular relative clauses would be the source of the specialized temporal relative clauses. Indeed, there are indications that the semantic changes are accompanied by formal changes as well. As expected in a grammaticalization process, the derived temporal relative clauses are indeed more reduced and less flexible syntactically. We have at the beginning of this section seen that one contrast opposes copular and reduced relative clauses (cf. discussion of examples (14)) while another contrast opposes relative clauses that have a relative pronoun and those that have no relative pronoun (cf. discussion of examples (15)). It happens that temporal relative clauses have no variants with the copula *-kè* and cannot take a relative pronoun, as illustrated in the following examples:

- (18) a. **Lookàci-n dà ya-kè su-nàa fadàa...*
 time-DF that 3MS-be 3P-IPV fight
 ‘When they were fighting...’
- b. **Lookàcii wa-n-dà su-kèe fadàa...*
 time one-DF-that 3P-RI fight
 ‘When they were fighting...’
- c. **Lookàcii wa-n-dà ya-kè su-nàa fadàa...*
 time one-DF-that 3MS-be 3P-IPV fight
 ‘When they were fighting...’

Examples (18a-c) show that temporal relative clauses cannot, respectively, have the copula *-kè*, the relative pronoun, or both features at the same time. The same grammaticality judgments obtain when the imperfective paradigms are replaced by the completive or relative perfective. It may be noted that copular relative clauses have an emphatic connotation, which would apparently apply to *lookàcii* ‘time’ only if it is referential. At the beginning of the section it was suggested that relative clauses with a relative pronoun are a secondary development and incorporate a free

relative clause. It appears then that only reduced relative clauses without a relative pronoun specialized to become temporal relative clauses.

3.2 Development of simple temporal clauses

In relative clauses and temporal relative clauses, the particle *dà* is generally taken to be a simple grammatical marker, i.e., a subordination conjunction without semantic load. By contrast, the same particle in simple temporal clauses is translated by all writers as the conjunction ‘when’ (cf. for example Jaggar 2001: 606, 624; Newman 2000: 556; cf. also example (1b) above). Nonetheless, such translation is only an approximation and is context-bound since *dà* appears in other temporal expressions where it is not exactly translatable as ‘when’. This is illustrated in the following (cf. also Jaggar 2001: 650; Wolff 1993: 440):

- (19) *Abdù yaa zoo dà saafe/ (dà) karfêe takwàs.*
 Abdu 3MS.CPL come during early.morning/ at o'clock eight
 ‘Abdu arrived early in the morning/ at 8 o'clock.’

As seen in (19), the particle *dà* can, obligatorily or optionally, accompany certain temporal adverbs such as the times of day, prayer times, hours, seasons, etc. (however, some temporal adverbs such as *maakò/saatii* ‘week’, the months and the years –such as *Maaris* ‘march’, ‘1999’, *bana* ‘this year’, *bàara* ‘last year’, and *bàdi* ‘next year’, etc.- do not take *dà*). As indicated, in contexts such as (19), *dà* can be translated as ‘at, in/during’, which shows that the temporal particle is in fact semantically complex and the meaning of ‘when’ may be a secondary meaning.

In this regard, there are indications showing that particle *dà* ‘when’ may be a development of the comitative/instrumental preposition *dà* ‘with’. In fact in certain temporal uses, the comitative semantics of *dà* is quite explicit, as illustrated next:

- (20) a. *Abdù yaa zoo dà wuri.*
 Abdu 3MS.CPL come with margin
 ‘Abdu came very early (i.e., with “space, margin”).’
- b. *Ciiwò-n nân yaa zoo dà dàamanaa.*
 sickness-DF this 3MS.CPL come DA rainy.season
 ‘This disease came with the rainy season.’
 ‘This disease came during the rainy season.’

In (20a), the adverb *wuri* very likely derives from *wurii* ‘place, space’ and the expression *dà wuri* literally means ‘with (time) room/margin’. Example (20b) however may more clearly show the semantic/functional shift from comitative *dà* to temporal *dà*. Indeed, *dà* in (20b) can mean ‘with’, as in the first interpretation, or ‘during’, as in the second interpretation. That the sentence has both meanings is shown by the fact that if *ciiwòn nân* ‘this disease’ is replaced with *gwamnà* ‘governor’, the sentence will only have a temporal reading. If however *ciiwòn nân* is replaced by *shàamuwaa* ‘stork’, then the sentence will only have the comitative meaning (since in Hausaland the appearance of the migratory bird means the rainy season will soon start). One may assume that once particle *dà* took up the function of introducing temporal adverbs, the new function spread to events expressed in finite or non finite clauses. This is illustrated in the following (example (21a) adapted from Hiskett 1971: 78 and (21b) from Moussa-Aghali 2000: 8; cf. also Jaggar 2001: 635 for similar examples):

- (21) a. *Dà gaanàawaa dà kau ràsuwaa taa-sà.*
 on meeting on indeed dying of.3MS
 ‘He died as soon as they greeted.’
- b. *Dà jî-n hakà sai uwaa-taa ta buushèè dà dàariyaa.*
 on hearing-of this then mother-of.1S 3FS.RP blow with laughter
 ‘On hearing this [= as soon as she heard this], my mother laughed.’
- c. *Dà ta ji hakà sai uwaa-taa ta buushèè dà dàariyaa.*
 when 3FS.RP hear this then mother-of.1S 3FS.RP blow with laughter
 ‘When she heard this, my mother laughed.’

In (21a), particle *dà* introduces two verbal nouns and is probably the same preposition found introducing nominals or adverbs in examples (19-20). The construction “*dà* + verbal noun + (complement)” is quite frequent in Hausa and can appear even in frozen expressions (such as *dà faaràawaa dà iyàawaa* ‘early talent’, lit. ‘on starting (is) on knowing how’; cf. further examples in Newman 2000: 44). For this reason, the construction is frequently an alternative to finite temporal clauses, as seen in (21b-c), where the two sentences are essentially equivalent (although (21b) is better suited to convey the ‘as soon as’ meaning). The shift from a preposition to a subordinating conjunction seen in (21b-c) characterizes the development of many particles in Hausa (cf. *sai Abdù* ‘only Abdu (can do something)’ and *sai kaa jee can* ‘only [if] you go there

(can you achieve something)'). Other particles introducing a noun phrase or a finite clause are: *baayan* 'after' (from *baayaa* 'back'), *koo* 'even', *kàafin* 'before', *tun* 'since', etc. (cf. Schachter 1985: 51; Wolff 1993: 449). It is clear that examples (19-21) evidence some temporal uses of *dà* that are unrelated to *lookàcin* *dà* relative clauses. The proposal that temporal conjunction *dà* developed from comitative/instrumental *dà* is hence a viable alternative to the *lookàcii* deletion analysis.

Nonetheless, given the fact that both types of temporal clauses contain a particle *dà*, one may wonder what the relation between these two particles is, and, hence, the relation between the two types of clauses. In fact Hausa has another major family of constructions using *dà* that may constitute a potential link between the two types of temporal *when* clauses. Indeed, *dà* in Hausa also introduces some causal adverbial clauses that carries presupposed information and serves as background to their main clause. These "scene-setting clauses" (SSCs), like relative clauses, can have a copular and a reduced form (with the relative marking), as seen in the following (cf. also Abdoulaye 1997):

- (22) a. [*Dà ya-kè Aishà ta-nàa sôn shubkà gyàɗaa*], *ta-nàa saaran daajii*.
 as 3MS-be Aishà 3FS-IPV want plant peanuts 3FS-IPV cut bush
 'As it is the case Aisha wants to plant peanuts, she clears the bush.'
- b. [*Dà Aishà ta-kèe sôn shubkà gyàɗaa*], (*ai*) *ta-nàa saaran daajii*.
 as Aisha 3FS-RI want plant peanuts well 3FS-IPV cut bush
 'As Aisha wants to plant peanuts, she naturally clears the bush.'

Functionally, the adverbial clauses in (22) carry information that is typically known by the hearer and only the main clauses carry asserted information. Formally, in the adverbial clause of (22a), the subordinator *dà* introduces the predicate *ya-kè* '3MS-be', which takes as complement a verbal clause carrying the general imperfective auxiliary *-nàa*. In the corresponding reduced SSC in (22b), the predicate *ya-kè* '3MS-be' is absent, but the simple clause has the relative imperfective marked by *-kèe*, instead of *-nàa*. Copular SSCs containing the completive would correspond to reduced SSCs with the relative perfective. Thus, formally SSCs have the same structure as relative clauses, which can also be copular or reduced, as discussed in Section 3.1. For this reason, Abdoulaye (2007) proposes that relative clauses in fact derive from SSCs when these switched from clause-level modification to NP-level modification (cf. Abdoulaye 2007: 263-265 for details). Now, as indicated in the glosses, *dà* in (22) is interpreted as 'as, since, because'. The

present author is currently working on the proposal that the causal *dà* found in SSCs in fact derives from *dà* ‘when’ found in simple temporal clauses (cf. Abdoulaye 2008b). It may be noted that a change from temporal markers to causal markers is well attested in world languages (cf. among others Hopper and Traugott 1993: 74f, Thompson and Longacre 1985: 181). The derivations proposed can be diagrammed as follows:

(23) Temporal clauses > Causal SSCs > Relative clauses > Temporal RCs
 dà ‘when’ *dà* ‘as, because’ *dà* as a subordinator

If these derivations should be confirmed, then simple temporal *when* clauses would actually be the ultimate source of the temporal relative clauses.

4. Conclusion

This paper shows that in Hausa, one cannot straightforwardly derive simple temporal *dà* ‘when’ clauses from temporal *lookàcin dà* ‘time that’ relative clauses through deletion of the head word *lookàcii*. The paper shows that the two types of temporal clauses differ in their semantics, the list of the TAMs they allow, and the temporal interpretation of the TAMs. In an alternative account, the paper proposes two different development paths for the temporal clauses. Temporal relative clauses are grammaticalized forms of ordinary relative clauses, while simple temporal clauses developed very likely when the preposition *dà* (introducing temporal adverbs, nouns, or verbal nouns) grammaticalized as a conjunction introducing finite temporal clauses.

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