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CHAPTER 2

The cultural, linguistic and cognitive relativity of time concepts

Thomas Widlok | University of Cologne

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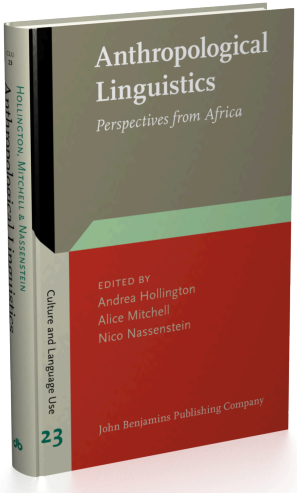

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CHAPTER 2

The cultural, linguistic and cognitive relativity of time concepts

Thomas Widlok
University of Cologne

There has been a considerable boost in studies on the cognitive foundations of language, including the fields of space, time, and causality. While Africa has increasingly been included in these studies, the attention to cognitive constraints has sometimes overlooked possible diversity as captured by anthropological linguistics. The study of cultural relativity with regard to time concepts which flourished initially in anthropology and linguistics has been overshadowed by research in economics and neighboring disciplines. Linguistic distinctions such as that between weak FTR (Future Time Reference) and strong FTR languages become associated with cultural differences such as saving for the future. This contribution looks critically at these typologies and argues that research would benefit from closer cooperation between comparative and intrinsic approaches to the study of African languages.

Keywords: anthropological linguistics, time, relativity

1. Introduction

It is sometimes difficult to tell an Anthropological Linguist from a Linguistic Anthropologist, or an Africanist Linguist from a Cognitive or Comparative Linguist with an interest in Africa for that matter. This is partly because Africa, together with other parts of the world that have for a long time been marginalized in scholarly work, has in recent decades become included in major debates, not only in anthropology and linguistics but also in the large field of cognitive sciences. It has dawned on dominant disciplines such as psychology and economics that many of their findings had been based on a sample of WEIRD people, the self-acclaimed Western, Educated, Industrial, Rich and Democratic parts of this world, i.e., typically the average students at American or European universities (see Henrich et al., 2010). As a consequence, the interest in African languages has grown but only in

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a limited, extrinsic way. Interest has also grown through neo-Whorfian debates about the role of language in the constitution of fundamental phenomena of human culture, namely space, time and causality. However, as Dimmendaal (2015, p. 124) has noted, even though Africa has increasingly been included in these studies, the attention to underlying cognitive similarities and constraints has in practice sometimes come at the cost of the description of diversity as captured by anthropological linguistics. In practice, there is a difference between cognitive linguists who harvest the record of world languages for their arguments and the anthropological linguists and linguistic anthropologists who not only participate in these debates but who are also involved in creating the underlying record through language documentation in the first place. While the former tend to have only an extrinsic interest in African language phenomena (for the purpose of making particular arguments), the latter are also driven by an intrinsic interest in African ways of speaking. In the spirit of a double interest, extrinsic as well as intrinsic, that is pursued by the contributors of this book, this contribution looks at the conceptualization of time in African languages. It is not an attempt to "harvest" African materials for any particular theory and consequently no attempt is made to cover as many cases from Africa as possible or to create a representative sample. Rather, the interest is also intrinsic: When being in Africa, how does one establish sufficient common ground for mutual understanding? This intrinsic interest in the ways of speaking found in Africa, I shall argue, is also conducive to a critical advancement in dealing with long-standing theoretical problems surrounding the relation between language, social practice and cognition.

2. Relativity in space and time

Space and time are often considered in parallel since they are similarly fundamental for human life. With very few and fairly recent exceptions most anthropology introductory books map out 'cultures around the world' spatially (see for example Haviland et al., 2011; Kottak, 2008). Less frequently today, they also sort cultures according to an evolutionary grid (Vivelo, 1978). Moreover, specific conceptualizations of space and time may be considered hallmarks of what makes 'a culture' and they are often considered in some way homomorphic. That is, within these deep structures of cognition, language and culture are often expected to play out similarly in the domain of time as they do in the domain of space. Research on spatial frames of reference and orientation accelerated in the 1990s (see Levinson, 1996) with a strong neo-Whorfian revival that highlighted cultural difference. In a group effort by the Cognitive Anthropology Research Group (later renamed the "Culture and Cognition" branch of the MPI in Nijmegen), led by Stephen Levin-

son and associates, it was convincingly shown that philosophers such as Kant got it wrong when considering a body-centered frame of spatial orientation to be universal. Far from it, there are numerous examples around the world, including Africa, which show that people may operate with an absolute or geo-centered frame of reference instead, i.e., they use north/south/east/west rather than left/right/front/back in their everyday conversation and arguably in their everyday cognition (see Widlok & Neumann, 1996 for Hai//om and Kgalagadi, examples from Southern Africa). Moreover, there appear to be more alternatives than either using the body or cardinal directions since in some places we find yet other systems, for example relying on uphill/downhill/traverse or relying on the intrinsic shape of things (see Levinson, 2003). In any case, these diverse cultural and linguistic strategies of framing space differed from what Kant and most Europeans considered to be the "standard" human way of framing spatial differences and of orienting yourself in space accordingly (Levinson & Brown, 1994).

It is worth noting that the reason this debate took place in the domain of space was to a considerable extent a strategic and methodological choice: it was much simpler to concentrate on the domain of space when developing a stimulus-kit for tasks to be carried out comparatively in the field than to do this for the domains of time or causality. It is therefore not surprising that there have only been a few attempts to transpose the same neo-Whorfian debate to the domains of causality (Bender & Beller, 2016; Beller et al., 2017) and time (Boroditsky & Gaby, 2010; Bender et al., 2010) and with much less traction in the scholarly landscape. However, it is still worthwhile to have a closer look at the results of these attempts in particular since there is evidence that spatial and temporal frames of reference need not have the same underlying structure (Brown, 2012).

Bender, Beller, and Bennardo (2010) present an initiative by linguists and cognitive anthropologists to elicit temporal frames in parallel to the spatial frames elicited by Levinson and his group. The point of departure were observations that helped develop a comparative toolkit. For instance, even among English speakers responses vary when interlocutors are asked the following question: "Next Wednesday's meeting has been moved forward two days. What day is the meeting now?"

In the United States, roughly half of the English speakers asked responded with "Friday", the other half with "Monday" (see McGlone & Harding, 1998). Cognitively, the answer depends on how the direction of the forward movement in conceived or, as Bender et al. (2010, p. 283) put it "where the "front" is: towards the future or towards the past". Or, to put it differently again, whether speakers consider the forward movement from their own perspective looking into the future lying ahead of them (from Wednesday to Friday) or whether they consider themselves as being facing a future that approaches them and that gets closer to the person speaking as it moves towards them (from Wednesday to Monday). This

intriguing difference in positioning has been noted in other contexts, for instance when etymologically comparing French *l'avenir*, the future that comes to us, with the English *future*, the future we are heading to. In more abstract terms, Bender et al. (2010, p. 284) remind us that these differences, glossed as "moving ego" versus "moving time" perspectives, have been used as a typology for some time but that diversity goes beyond this typology.

It is African languages (such as Igbo and Ewe) that further complicate the picture. These languages distinguish lexically proximate from distant days rather than the direction of time, i.e., the same lexeme is used to express "the next day" and "the previous day" (i.e., one day away), which is not captured by the moving ego versus moving time distinction. Moreover, if speakers of one and the same language can conceive of both answers (Monday and Friday) to be possible answers, it is obviously not just a question of the lexicon but of choosing different reference points from which the temporal flow is being considered. Orienting themselves by the idea of spatial frames of reference, Bender et al. then suggested that the different responses are different choices in the temporal frame of reference that allows speakers to position themselves and their perspectives at different points within the frame. In our example speakers can either position themselves temporally (1) at the subjective present (now) or (2) at another point, namely Wednesday when the meeting was initially supposed to take place. In the second frame, when reaching Wednesday, Friday is still ahead. In the first frame, however, it is maintained that Monday precedes or is "in front of" Wednesday in time. As Bender et al. put it: "the way in which front is ascribed to the time line depends on which point of view is taken: In (1) the future or later event is in front, in (2) the past or earlier event is in front" (Bender et al., 2010, p. 285).

The authors then proceed by trying to design a master frame of reference onto which the various ways of framing can be mapped comparatively. They show that dyadic classifications (such as the moving ego versus moving time distinction) do not capture diversity as well as a frame of reference approach which allows for more dimensions of difference. Moving ego suggests that time is consistently considered "futureways" away from ego. Moving time, by contrast, suggests that time is consistently considered "pastways", moving from a future vantage point towards the now of the speaker. They label these frames "absolute" and "intrinsic", respectively, mapped onto vocabulary of the better-known spatial frames of reference. What is missing, they argue, are two "relative" frames of reference, namely a frame (3) in which futureways movement is accepted for events in the past – i.e., meetings last week – and pastwards movement is accepted for events in the future – i.e., meetings next week (they call this the "relative-reflection frame") and (4) the opposite constellation in which pastwards movement is accepted for past events and futurewards movement is accepted for future events (they call this the

"relative-translation frame"; see 2010, p. 293). They then go on to show experimentally (2010, p. 300) how this extended set of distinctions can help to specify differences between German/Chinese (both overwhelmingly "intrinsic" in orientation) and US English (almost equally "absolute" and "intrinsic") and Tongan ("intrinsic" closely followed by "relative-translation" and then "absolute", with some "relative-reflective" responses, too, which are virtually absent in all other groups). Separating the Tongan sample even further into "students" and "non-students" shows that the "relative translation" frame is in fact dominant among Tongan non-students. Moreover, this matches a dominant relative frame in Tongan spatial orientation.

The authors then discuss these results in terms of how spatial and temporal frames may be connected and how much "deep relativity" there is in terms of whether these are cases of language influencing cognition or vice versa. What concerns us here is the fact that this study emphasized that speakers of all languages have a choice and that conventionalization is needed (in all languages) to deal with the possible ambiguities that emerge as speakers are able to choose different vantage points or perspectives in the overarching frame or, in other words, as they activate one frame over another. In any conversation and interaction participants will look out for cues to decide which frame is the appropriate one and for which one the interlocutors are settling in their interaction. This underlines the importance of what Bender et al. had to say about frames of reference in the first place:

> When describing relations between and movements of objects or events, we have to take a perspective and *choose one particular frame* of reference. In order to facilitate communication within a group, *conventions are required* with regard to which frame of reference should be *preferred*.
>
> (Bender et al., 2010, p. 286, emphasis added)

It seems that conventionalization is hardly ever so hermetic and complete that it would not allow for within-language diversity as speakers have a choice of different FoR (frames of reference). The linguistic and paralinguistic context is unlikely to force them into one possible answer only, but it may well nudge them into choosing one possibility over another. Bender et al. continue:

> If a language does not generally restrict which FoR is to be used in a certain situation, then situational cues may be used to trigger either FoR, and it is quite reasonable to assume that spatial as well as temporal cues can serve this purpose.
>
> (p. 302)

This is the underlying lesson that I derive for the remainder of this contribution when attempting to understand and to classify different ways of expressing temporal differences: The research focus shifts as we no longer search for the one lex-

eme response ("Monday" or "Friday") to a convoluted question but rather try to document the situational cues that speakers provide to each other or derive from the situation at large in order to choose from what their repertoire provides. This would also take care of the very basic critique of this kind of research which argues that there are hardly any monolingual speakers, certainly not in Africa, and that the boundary between languages may be overemphasized in any case. The Tongans mentioned above are a case in point since students with a greater exposure to English were choosing a different strategy than non-students. The repertoire of a speaker may be at the more limited or at the extended side of things but whatever the case may be they will have to make choices. Instead of essentializing languages and their speakers we are well advised to investigate the conventional ways that speakers employ when they search for cues in the social environment and in interactional and linguistic contexts – and we should allow for idiosyncratic strategies, too. As the next section will show, the speakers' search for cues begins with the linguistic cues contained in the question being asked.

3. The cue is in the questions: Results from a pilot study

On the basis of the experiment by Bender et al. I conducted a pilot study with the help of a number of students.[1] We used the phrase "The meeting that was supposed to happen on Wednesday next week has been moved forward two days. On which day of the week will it now take place?" (in its English and German version) to elicit responses from speakers of various languages.[2] Since it was an exploratory study no statistical representativeness was sought (or reached). Nevertheless, an interesting pattern emerged: Speakers of Indo-European languages, namely English (1), German (15), French (1) Russian (2), and Brazilian/Portuguese (2), responded with "Monday" whereas speakers of (very diverse) African languages responded with "Friday", namely speakers of Ewe (5), Twi (2), Hausa (1), and Khoekhoe (1). A rich point emerged when a student tried to translate the stimulus question into Turkish. It turned out that there were two possible translations depending on whether the English version or the German version from the original experiment was used.

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1. The students who contributed to this project were Stefanie Bergmann, Katharina Monz and Sylvanus Job whose assistance is gratefully acknowledged. Sylvanus Job also assisted with the interlinearization of the Khoekhoekowab example.

2. We used the same German version as Bender and Beller did in their original research project: "Das Treffen, das in der nächsten Woche am Mittwoch stattfinden sollte, wird um zwei Tage vorverlegt. An welchem Wochentag findet es nun statt?" (A. Bender pers. com.).

The interlocutor was fluent in German and Turkish with very good knowledge of English. When translating from the German stimulus question the result was "Monday" but when translating it from English into Turkish the answer was "Friday".[3] In Ewe the English and German stimulus sentences also generated two different translations. However, in this instance this did not affect the answer since all Ewe speakers settled for "Friday" as an answer. What this suggests is that the minute differences in the way in which the question is phrased can be exploited as cues by the interlocutors to formulate their response. It also suggests how much care and knowledge is needed on the side of any researcher, even with decent competence of the local language, to conduct this seemingly simple task. A researcher may inadvertently lay cues in the way he or she presents the question and thus nudge respondents in either direction. Moreover, the home language of the researcher may easily influence the experiment to the extent that interlocutors may provide different answers. The whole task therefore is open to translation effect, and unless the language is well-known to the researcher (and even then) it is easy to misinterpret results as indicating different frames of reference where in fact we are primarily dealing with an effect triggered by a particular formulation chosen in the translation.

The most extreme illustration emerged from the attempt to translate the stimulus into Khoekhoekowab (formerly known as Nama/Damara) and it is worthwhile to provide interlinear glossing for this case:

> The meeting that was supposed to happen on Wednesday next week was moved forward two days. On which day of the week will it now take place?

Question translated:

(1) *!Goaxa wekhe.b Wunstaxtsē ga hâ hâ ǂnû.s ge ǀgam*
approaching week.MS Wednesday SUBJ stay COMPL meeting.FS IND two
tsē-ra ǀkhā nî mâi-ǂui-he [*or mâi/gu*]
day-FD with FUT put-out-PASS [or put.close.pass]
'The meeting that was supposed to happen on Wednesday next week will be moved forward [or backward] two days.'
O ǁnā-ti ī ǂnû.s-a nēsisa mâ-tsē.s wekhe.b di-s
then that-so appear meeting.FS-OBL now which-day.FS week.MS POSS-3FS
ai-s nî hâ?
on-3FS FUT stay
'Then such a meeting now, on which day of the week will it take place?'

3. The question translated from German read "*Haftaya çarşamba günü olacak toplantı, iki gün öne alındı. Toplantı hangi gün olacak*?". Translated from English it read "*Haftaya çarşamba olması gereken görüşme iki gün ileriye ertelenecektir. Haftanın hangi gününde görüşme gerçekleşecek?*"

Khoekhoekowab's system of deriving composite verbs from basic verb roots allows – and forces – speakers to make a choice from the start between *mâiǂui* ("putting further away") versus *mâi/gu* ("bringing closer"). One would either say *"ǂNûs ga hâ hâ tsēs ge |gam tsēra |kha go* ***mâi|gūhe***" (the day for which the meeting was scheduled has been put nearer, i.e., made earlier than initially announced) or "*ǂNûs ga hâ hâ tsēs ge |gam tsēra |kha go* ***mâiǂuihe***" (the day for which the meeting was schedule has been put further away, i.e., later than initially announced). In other words, trying to set up the experiment in Khoekhoe was a mission impossible. This also sheds some doubts on the employment of strict language-based experiments more generally. After all, an ideal experimental setup requires that a stimulus question is posed in a way that allows respondents more than one possible answer but at the same time only a controlled number of possible responses, ideally two only. Researchers working with English as their tool for research may be excused for presupposing that the question "The meeting that was supposed to happen on Wednesday next week was moved forward two days. On which day of the week will it now take place?" allows for a near to ideal experimental question with an exhaustive set of two opposite answers. As pointed out above, in the English-speaking sample of Bender et al. (144 US American students at Northern Illinois University) this led to a near to 50/50 result (41.0% absolute vs 45.8% intrinsic responses). This was replicated in our very modest sample of two English speakers, one American ("Friday", the absolute response) and one British English ("Monday", the intrinsic response). To native speakers of English, and probably only to them, the stimulus question can easily appear to be ideal for an experiment but this changes even when moving to a closely related question such as German, let alone to a more distant language such as Khoekhoe. Our German-speaking students who conducted the pilot study felt that the German verb *vorverlegen* did clearly nudge speakers into answering in an "intrinsic" way in a way that the English *move forward* did not.

Where does this leave us with regard to the underlying question of temporal frames? We may conclude that this is another example in which a WEIRD sample, American students (see Henrich el al., 2010), leads to weird or at least skewed results, and in a double fashion. Not only would an all-American student sample not show the diversity that there is in the domain of conceptualizing time, as Henrich et al. (2010) found to be the case with regard to many psychological and economic experiments. Such a sample would also structure the space for diversity in a very peculiar way, namely into a bifurcated and exhaustive choice of either adopting an "absolute" frame or an "intrinsic" frame, and lead to the assumption that a simple stimulus sentence was sufficient to elicit the difference. It is intriguing to speculate how a native-speaking Khoekhoekowab researcher would have approached the problem, or a speaker of another African language. Possibly, they

would have hesitated to rely exclusively on a single sentence elicitation task. In any case, triangulating results from a number of elicitation methods and a battery of tasks seems a more promising strategy. One could, for instance, expand to include other cues, cues that include both linguistic and non-linguistic expressions and a diversity of domains.

In the African setting this could be achieved by connecting this research to earlier investigations about "African time" (for a summary see Widlok et al., 2021). Africans sometimes conceive of themselves as following their ancestors (i.e., people of the past, who lived before them) when moving into the future so that moving into the future does not take place with ego continuing futurewards having previous generations "behind his or her back" but rather by following the footsteps of elders and previous generations (who have passed on, forwards, but who also gradually disperse into the past), having people of the past in front of them, so to speak. In this cue, taken from social relations and kinship, the future is folded into past, as it were. John Mbiti (1969) based his presentation of African time in large parts on such relational, including religious ideas, that influence the temporal frame of reference. He concluded that one should not be surprised if Africans do not formulate a future but would rather be concerned about the immediate present (and immediate past) as opposed to a historical past or a remote future. There has been, over the years, considerable critical debate about Mbiti's scheme, especially from other African scholars. However, what is worth exploring further is how to integrate other, non-linguistic features into our investigation, a point that will be discussed in the following section.

4. The temptation of generalization

Mbiti's generalization that all Africans lack the idea of an abstract future was met with repeated critique from within Africa. To a large extent it was the generalization that provoked counter-arguments (see Fasholé-Luke, 1969; English and Kalumba, 1996). Critics complained that Mbiti was overgeneralizing a specific East African example and they provided cases from other African languages as counter-evidence (Aja, 1994; Gyekye, 1996; Kazeem 2016). Gyekye (1996), for instance, showed that Akan proverbs from West Africa clearly have a future tense and even if some Bantu languages did, in fact, lack a future tense, there is evidence that speakers of such 'future-tense-less' languages nonetheless have a conception of the distant future. Masolo (2010) criticized Mbiti's argument in a similar vein as he doubted that a lack of future tense in a language was sufficient proof that the concept of an abstract future is absent. Likewise, the "African" in "African time" was problematized because it would presuppose the idea of a homogenous

African culture (Beidelman, 1995). Instead, the cultural variation of time frames on the African continent was emphasized (Horton 1967). Other scholars who worked comparatively on notions of time (see for example Horton, 1967; Adam, 1994) insisted that all cultural or linguistic groups have a fairly broad repertoire of ways to conceptualize time. This, again, highlights intragroup diversity and seeks to establish instead a conception of temporality in terms of different *uses* of time frames along the lines of practical issues and preoccupations (see for example Munn, 1992; Loimeier, 2012) rather than attributing monolithic ontologies of time to linguistic or ethnic communities.

However, other commentators supported Mbiti's arguments (for example Kagame, 1996; Kalumba, 2005; Onyeocha, 2010) and since then a whole new strand of research has developed that does not shy away from classifying languages and nationalities into an even more general bifurcated template of two opposed temporal orientations. Economist Keith Chen has eloquently proposed that there are local concepts of time that can be derived from linguistic evidence and that do reflect underlying cultural structures nudging people to either a more or a less future-oriented life (Chen, 2013, see also Roberts et al., 2015 for discussion of methods). His argument, in a nutshell, is that there are languages that grammatically associate the future with the present. German would be a case in point because in German, unlike in English or French, it is possible to use the present tense for saying "It will rain tomorrow". This feature has been labeled a "weak Future Time Reference language" (weak FTR, in the case of German and other languages) vs a "strong Future Time Reference language" (strong FTR, in the case of English and other languages). The comparison is global and it includes several African examples on the two sides of the big divide (see Chen, 2013, p. 708). Burkina Faso is home to Dyula as a weak FTR case and Fula or Moore as strong FTR cases. Ethiopia has Amharic, Oromo and Sidamo as weak FTR cases and Chaha, Gamo and Tigrinya as strong FTR cases. Nigeria has Yoruba as a weak FTR language and Hausa and Igbo as strong FTR languages. It is noteworthy that languages are considered weak or strong FTR languages to different degrees. The larger number of African languages in the sample are strong FTR languages, including Akan, Bemba, Chichewa, Dagbani, Ewe, Isekiri, Lingala, Lozi, Luba, Luganda, Sotho, Sesotho, Swati, Swahili, Tenyer, Tsonga, Tswana, Venda, Wolaytta, Wolof, Xhosa and Zulu. Among the few weak FTR languages in Africa are Bambara, Kongo, Kikuyu and Soddo (see Chen, 2013, appendix). The purpose of the exercise from the economist's perspective is to try and correlate the weak FTR (Future Time Reference) languages with various types of social and economic behavior. To cut a long story short, the basic argument is that speakers of such weak FTR languages "save more, retire with more wealth, smoke less, practice safer sex, and are less obese" (Chen, 2013, p. 690) and that

they "save, exercise, and plan more, and spend, smoke, and over-consume less" (Chen, 2013, p. 697).

The attempt to define different cultural time regimes with reference to linguistic framings of time therefore continues but it is now based on statistics rather than on case studies as in Mbiti's case. In the process it has shifted from theology, anthropology and linguistics to economics, psychology and politics.[4] It is interesting to note that the linguists who provided the original data that Chen uses in his argumentation are highly critical of the causality assumptions on which the argument is based (see Dahl, 2013). While there are also some linguists who are prepared to argue for a close causal link between specific cultural features and specific features of a language (for example Everett, 2005) it is noteworthy that by and large disciplines seem to part ways in this regard. It is likely that this has to do with the way scholars are "disciplined" by their subjects but also with the way in which their voices are heard in the audience of the wider public. Economics and psychology in particular follow closely the probabilistic paradigm, and they are also keen to reduce complex relations and to operationalize features (of languages and societies) into factors that can be experimentally isolated and statistically analysed. Some features of language lend themselves to these operations. This is the lexicon (as in the 100-words-for-snow debate) but also grammatical features such as those selected and re-bundled by the FTR-theorists. Anthropological linguists and linguistic anthropologists, by contrast, less readily isolate features as factors or attributes of languages and speakers and instead are keen to show how speakers exploit the diversity of features that the languages and ways of speaking in their repertoire provide them with in the process of interactive conversation. This tendency is amplified by shifts in the public reception of science which has become more materialist and less patient with regard to complex scientific explanations. A psychological explanation that involves neuroimaging or an economic explanation that involves material/monetary factors often trump other considerations and with growing complexity there seems to be also a growing demand for simple explanations. Only such combined effects in the disciplines and in the shifts in the authority granted to particular brands of science seem to account for a situation in which correlations between language features on the one hand and socio-economic features on the other hand are readily accepted as causality from the former onto the latter. These developments are reason enough to take a closer look at the domain of causality and its relation to temporal frames, which is what the following section of this contribution will aim to do.

4. For a recent attempt to bridge linguistics and economics see the contributions in Vigouroux and Mufwene (2020). With regard to the relationship between linguistics and studies of behavioural practice see Lucy (1997).

5. Causality and language

Apart from work on space and time, the domain of causality has been the third field that has seen collaborative interdisciplinary efforts that involved anthropologists and linguists (see the group at the ZiF in Bielefeld https://www.uni-bielefeld.de/(en)/ZIF/FG/2011Cognition/). In African studies this has been an established field of research covered in the classic ethnographies, for instance in the work by Evans-Pritchard with Azande (on causality) and with the Nuer (on time). Working with the Azande, Evans-Pritchard was able to capture aspects of causal thinking by witnessing (and eliciting) their reactions to everyday and extraordinary events such as the attribution of causal agency in mishaps. This concerns not only the "internal" construal of causality but rather how far causal explanations are employed in conversation and what entities are included as causal agents. His celebrated case study is that of how Azande deal with "accidents" involving grain storage baskets. These are mounted on poles and also serve as shady resting places for people to sit under but occasionally the baskets eventually collapse and hurt or even kill people who are seated underneath. Evans-Pritchard (1937) shows that Azande are well aware of the role of termites in making the poles brittle and in contributing to the collapse of grain storage baskets. However, when people get hurt in the process, the activity of the termites is not considered sufficient but the causal explanation is expanded to include the possible effect of the socially malevolent agency of witches (Evans-Pritchard, 1937, p. 69). Thereby Azande seek to explain why the storage collapsed at exactly that point in time when particular people were seated underneath. The causal cognition is expressed by Azande in a metaphor of "two spears" whereby "natural" causes and "witchcraft" can supplement one another, like how two spears hitting an elephant are considered equally causally effective (Evans-Pritchard, 1937, p. 74). Considering two causes with equal impact is neither weird to "Westerners" today nor was it to Evans-Pritchard. After all, despite consensus that a house fire is as much enabled by oxygen in the air as by something (or someone) igniting inflammable materials, legal and insurance investigations usually concentrate on the latter and largely disregard the former. There is also growing awareness that speakers of all languages have different "logics" available of which the "monotonic" logic of Greek debates that feature large in philosophy textbooks is but one of many possible arenas, and a very peculiar competitive one at that. To be rational is no longer seen as choosing one particular logic across all situations but rather aiming for an appropriate match between the type of situation and the type of logic chosen (see Widlok & Stenning, 2018).

Evans-Pritchard concluded that Azande follow the same logical thought as anyone else, but that they differ with regard to the premises on which they

base their inferences. The inclusion of witches as agents is such a premise and, although Evans-Pritchard would maintain that not all premises are equally valid, the extension of agency to witchcraft therefore seems to be a matter of degree rather than kind. After all, humans universally attribute personhood (and as a consequence, causal agency) to fictitious entities, since we accept corporations, companies, and institutions (such as "the crown" or "the state") as legal persons that can take action and must take responsibility when taken to court.

With many of the subsequent debates centering around witchcraft and rationality (see Winch, 1964), another feature in Evans-Pritchard's work on the Azande is often overlooked: He also reports on considerable internal cultural diversity and debate amongst the Azande who would discuss whether and when there is the need (or the justification) to refer to witchcraft. One example he gives is the case of a potter whose clay pot cracks during the process of burning. The potter may attribute this to witchcraft whereas others may rather consider this a case of negligence on the side of the potter who failed to free the clay from stones that may cause cracks to occur in the process of pot-making (Evans-Pritchard, 1937, p. 77). It is easy to draw a parallel between these kind of choices in causal agency and the choices made with regard to the temporal frameworks that have already been alluded to. Going back to the FTR example: In German (and surely in other "weak FTR" languages) it is possible, without much difficulty, to also use the future tense when talking about tomorrow's rain just as a non-Inuit can come up with manifold adjectival expressions of different types of snow. In the process not only semantic but also pragmatic aspects may nudge speakers to shift their strategies.

There is an intricate relationship between causality frames and time frames which is beyond the limits of this contribution (see Widlok, 2014). However, it is noteworthy that Evans-Pritchard's description of time concepts in Africa matches his investigation on causality. His case study is that of the Nuer whom he found to have a marked seasonal contrast between dry river villages in the savanna where they subsist mostly on cattle-keeping and the wet season in which floods force them to aggregate and retreat to the hills where they practice agriculture and focus on communal rituals and kinship ties. All of this, Evans-Pritchard argues, is reflected in Nuer time concepts. Their "cattle clock" is determined by daily and seasonal routines of cattle-keeping. They measure their time according to the tasks that need to be done as required by the needs of the animals which in turn is conditioned by the environment and the material world at large (Evans-Pritchard, 1940, p. 103). This "ecological" and task-oriented time management made the Nuer appear to Evans-Pritchard to be less bothered with time pressure and therefore more fortunate than people living in Europe. Added to this "defiance" of time (pressure) is that the Nuer seem to be only interested in the past as a means to

establish relative distance or nearness with regard to one another in their kinship obligations of the present. All Nuer consider one another to be genealogically related – as members of clans, major and minor lineages that have branched off from another. To know the point in time when the lineages of two individuals have split is to know the relative distance between them. The further back in time the split occurred the more distant one's kinship link. Given the importance of time in the construction of causality, it is easy to see that reports on such "diverging" time concepts lend themselves to the interpretation that the Nuer also have different concepts of causality, giving less importance to chronology and to before–after relationships. Other ethnographers in Africa have since tried to show that local causality concepts rely on conceptualizations of time that are "cyclical," "reversible" or in some other way departing from a linear mode of time-reckoning (e.g., Alverson, 1978, p. 170) thereby fuelling a relativist agenda that challenges sequentiality as one of the defining features of causal relations. However, as Maurice Bloch has pointed out, "The Nuer" and other ethnographies deserve a more careful reading and a more complex interpretation (Bloch, 2012, p. 91–97). He underlines that the faculty to live by imagined time regimes that are not dictated by ecology or "nature" is an important feature that marks off humans from other species (Bloch, 2012, p. 108). This capacity to "time travel" includes the examples already given, for instance when Nuer are "freezing" seasons into two modes of social and cognitive organization and two modes of grappling with problems and of seeking explanations. This capacity allows us humans to make past and future events relevant for memorizing, planning and structuring our lives. It has wide-ranging implications since the "normal rules of time and space are temporally suspended" for the benefit of imagining alternative scenarios to the ones that we find ourselves in at a particular here and now (Bloch, 2012, p. 108). The Nuer "cattle clock" is an example of "concrete, immanent and process-linked" time reckoning of one action and one task leading to the next, at the microscopic level. By contrast their lives at the long-term macroscopic level, like in most African societies documented in the classic ethnographies, are structured by intricate social concepts of generations, age sets and other socially "constructed" units (Gell, 1992, p. 17). The construction of a lineage and generation in a sense "immunizes" these social units of "generation", "age set" etc. from the duration of time. A generation has no fixed number of years and age sets can cover more or less years depending on demographic factors since a sizable group of young men need to grow up to form such a ritually constructed age set. People belong to an age set or a lineage not due to a specific time that has lapsed but with regard to the cultural limits set by rituals and other cultural means. The relationship between socially defined "cultural epochs" and the relationship between ancestors and present-day people is not altered by the durational intervals between them. However, these cultural

rules do not undermine an understanding of a (before–after type) preceding of one epoch before the other (Gell, 1992, p. 22).

At the same time, and this is the point underlined by Bloch (2012), this human ability to imagine different time regimes concurrently goes hand in hand with the before–after linear time reckoning still in place that is instrumental for causality. In fact, it is the particular strength of ethnographic monographs based on long-term field research (in comparison to narrowly focused survey or experimental work) that they usually contain evidence of the parallel existence of at least two modes of time-reckoning. Evans-Pritchard's work on the Nuer is a case in point. He not only shows how Nuer "imagined" genealogical time and how pastoralist task oriented time helps them organize their society in a way that allows them to lead complex and satisfactory lives. He also describes scenarios and rules which show that the Nuer take account of the linear time that structures for instance the calculated give and take of cattle when negotiating bride wealth (Evans-Pritchard, 1940, p. 222; see also Bloch, 2012, p. 94). Here the marrying out of a girl in one generation will cause cattle to be transferred to the wife-givers which in the next generation in turn will cause an inverse flow of cattle when the daughters of that girl are married off with cattle going the other way. There are irreversible, calculable time sequences. In this sense, both Nuer cattle owners and the Azande potters therefore have a repertoire of strategies to reckon time and causality at their hands.

6. Conclusions: Dealing with time in the field and in analyses

The disciplinary divide already alluded to above may also be revisited in light of the debate surrounding the relativity of time, space and causality: Anthropologists in particular tend to focus on the cultural imagination that differs between groups while cognitive scientists such as developmental psychologists focus on the level of time and causality concepts that are acquired early in life and are universal. Anthropological linguists and linguistic anthropologists often find themselves in an in-between situation which makes their task particularly demanding but which in turn makes them produce records that are comprehensive enough to show the co-existence and the interplay of apparently exotic "cyclical" ideas about time and an underlying before-and-after time reckoning that can be found across cases. It is the detailed field record that allows us to understand the time-framing practices of the Nuer in terms of their intricate combination of two ways of framing time, or more precisely of positioning events and actions in temporal frames of reference.

Alfred Gell, who argues along similar lines, provides another reason why disciplines differ in their approaches to non-Western time and causality concepts. Gell's example (1992, p. 169) relates to preparations for a ceremony which inter-

locutors in the field may describe in the following terms: "Six moons pass before the Great Ceremony: one moon for fishing, one for hunting, one for making gardens, one for gathering nuts, one for visiting relatives, and then the Great Ceremony occurs." A common situation in which researchers find themselves in when communicating with locals is that after several months the announced ceremony is still not carried out. Is there a completely different worldview and concept of time and causality at work, after all? Outsiders tend to understand the statement about the right time of a ceremony as a prescriptive sequence whereby any question on "Why is there (or isn't there) a great ceremony?" may be answered with reference to fishing, hunting, gardening, gathering, and visiting as causal prerequisites that lead to a great ceremony. However, locals may not be concerned about counting the months. They typically know the correct sequence but what they need to establish is whether enough hunting, gathering, visiting, etc., has occurred such that these tasks can be considered "past" and "done". To solve everyday problems requires a knowledge of both the sequences of appropriate circumstances (springtime, lack of frosts etc.) that need to be in place "to cause" a good harvest or reproduction of animals (see Gell, 1992, p. 173) but also the ability to know which point in the sequence has been reached. Speakers need to know the frame of reference but also where they currently stand with regard to this frame. The Nuer who leave the flooded savanna to start gardening in the hills rely on their ecological calendar, "causing" their seasonal movement. And at a more microscopic level their "cattle clock" works in a similar way as an orientation for the daily tasks for tending cattle that are necessary for a herd to survive. The ecological calendar or cattle clock may be understood to be sequences that are true at all times and for everyone. In order to act, however, I need to establish where we are in the sequence. What tells me that it is indeed the rainy season now and indeed time to plant or to move to the hills and so forth? Experiencing specific changes from yesterday to today or from dry to rainy season or from taking the cattle out to bringing them back into the corral is decisive here. It is only such a sense of the current moment that enables me to act. With reference to causality we might say that the spectrum of (immediate, distant, intermediate etc.) causes are important to know but for taking action I also need to know which of these causes needs attention right now, which are the ones that are unproblematic at that particular point in time, and which are the ones that can or should be influenced at any particular moment.

Gell (1992) observes that the combination of the two time series often leads to confusion when conducting research – a common problem of "reading" cross-cultural data. A researcher from Psychology or Economics who wants to establish the cultural model of the systematic order in which things are said to happen is actually given a processual type of response of where the participants see

themselves in the process. Respondents may repeat, month after month, that the months of fishing, hunting, gardening, gathering, and visiting have to pass which may lead the researcher to either classify respondents as unreliable or as confused. Similarly, such an observer may ask Azande what caused the death of a person but will not be given a comprehensive response about all contributing factors such as termites eating away poles of grain storages and so forth but instead be provided with a witchcraft account and the need to ask a diviner about current social conflicts because these are the factors that are relevant to clarify at that particular point in time. It is not far-fetched to recognize the different interests of different disciplines here: Non-regionalists with an extrinsic interest in harvesting data from case studies may be interested to get at the more stable sequences. They may also statistically distil them from a variety of responses. By contrast, the field-working anthropologist or linguist with an intrinsic interest in understanding the life of people in which he or she participates in field research will try to understand the complexities of the unfolding case.

With this example we have returned to the issues that were highlighted at the beginning of this contribution. A strengthening of regional expertise with intrinsic interest in local strategies does not only add more detail to the larger theoretical strokes drawn by other disciplines. Rather, the minutiae of social interaction and conversation, the variation found on the ground, is not the micro-size version of larger statistical trends but rather they are the "normal size" of social exchanges and of social life (Schegloff, 1988, p. 100). The "danger" of cognitive scientists extracting data from the records compiled by the field-working linguist or ethnographer is that they easily mistake comments about what is relevant "here and now" for remarks of generality or, conversely, they mistake comments about what typically occurs for remarks of what necessarily should occur in that particular instance. Experiments geared toward general statements of "what causes what" may get interpreted by the respondents in different ways and the responses may be interpreted by those conducting the experiments in inappropriate ways. At the same time, this explains an important strength of a researcher who is directly involved in both the documentation and the analysis. They can place the responses collected in the appropriate context of unfolding activities, events and relationships. Humans effortlessly switch between the different modes of framing time (and space and causality) but documenting these switches with regard to events and processes unfamiliar to the observer does require considerable effort and it requires being appropriately positioned in the research process. As Dimmendaal (2015) has observed, there is something to be said for anthropological linguists and linguistic anthropologists to work in language documentation in Africa and to be interested in the larger issues of language, agency and cognition *at the same time*.

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