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The noncausal-causal alternation in the languages of Subsaharan Africa: a preliminary survey of noncausal-causal pairs involving inanimate undergoers

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1. Introduction

In this presentation, I use 'noncausal' and 'causal' (abbreviated as nC and C) as purely semantic notions, as opposed to 'causative' (which implies derivation from nC to C) and 'decausative' (or 'anticausative', which implies derivation from C to nC). 'Noncausal' and 'causal' are relative notions: a verb is not noncausal or causal in the absolute, but only in relation to another verb with which it forms a noncausal-causal pair (Haspelmath 2016).

Five types of strategies may be involved in the coding of noncausal-causal pairs:

- the *suppletivism* strategy nC ≠ C: in a suppletive pair, the formal difference between the noncausal verb and its causal counterpart cannot be analyzed as a particular instance of some more or less regular pattern;
- the *lability* strategy nC = C: in a labile pair, there is no formal difference between the noncausal verb and its causal counterpart;
- the *causativisation* strategy nC > C: in a causative pair, the causal verb can be analyzed as formally more complex than its noncausal counterpart;
- the *decausativisation* strategy nC < C: in a decausative pair, the noncausal verb can be analyzed as formally more complex than its noncausal counterpart;
- the *equipollence* strategy nC ~ C: the two members of an equipollent pair are formally related, but the relationship cannot be directed from nC to C or from C to nC); this definition embraces several subtypes that Nichols & al. (2004) designate as *double derivation*, *conjugation class change*, *auxiliary change*, and *ablaut*.

As illustrated in (1), for some noncausal-causal pairs of verb meanings at least, the five possible strategies are attested cross-linguistically, which raises the question of possible regularities in the choice of particular strategies by individual languages.

(1) 'go out / put out (fire)' in five Subsaharan languages

(1a)	Koroboro Senni (Songhay)	**buu / wii**	nC ≠ C
(1b)	Minyanka (Gur)	**fúkú / fúkú**	nC = C
(1c)	Afar (Cushitic)	**bade / bad-ise**	nC > C

(1d) Jóola Fóoñi (Atlantic) **fok-o /fok** nC < C

(1d) Lingala (Benue-Congo, Bantu) **kozim-ana / kozim-isa** nC ~ C

The regularities in the choice of particular strategies by individual languages and in the preference of individual noncausal-causal pairs of verb meanings for the causativization or decausativization strategy have already been discussed in very general terms by Haspelmath (1993), Nichols & al. (2004), and Haspelmath (2016). In this presentation, I try to confront their findings or hypotheses with the variation in the coding of inanimate noncausal-causal pairs across a sample of Subsaharan languages.

2. The questionnaire

Among the possible semantic types of causal-noncausal pairs, this presentation deals specifically with pairs whose noncausal member is a monovalent verb referring to a process (not a state) typically undergone by concrete inanimate entities, and easily conceived as occurring without the involvement of a clearly identified external instigator.

This choice is motivated by the fact that the variation between the possible strategies seems to be particularly important for such verb pairs (cf. in particular Haspelmath 2016). Taking into account this delimitation, the wordlists already used for similar studies (Haspelmath 1993, Nichols & al. 2004), and my own experience of working on Subsaharan languages and of consulting dictionaries of Subsaharan languages, I eventually selected the 13 pairs of verb meanings listed in (2). In order to facilitate comparison with other studies of valency orientation, I decided to restrict my questionnaire to noncausal-causal pairs that also feature, or at least have a near equivalent, in the questionnaire used by Haspelmath (1993).

(2) The 13 noncausal-causal pairs

1. break (intr. / tr.)
2. burn (intr. / tr.)
3. close (intr. / tr.)
4. dry (intr. / tr.)
5. go out / put out (fire)
6. increase (intr. / tr.) – cf. Haspelmath ‘develop’
7. melt (intr. / tr.)
8. move (intr. / tr.) without changing place (rock, shake, ...) – cf. Haspelmath ‘rock’
9. open (intr. / tr.)
10. split (intr. / tr.)
11. spoil (intr. / tr.) – cf. Haspelmath ‘destroy’
12. spread (intr. / tr.)
13. turn upside down (intr. / tr.) – cf. Haspelmath ‘turn’

This questionnaire makes apparent, for example, the strong preference for the lability strategy found in English (12 pairs out of 13), the strong preference for the decausativization strategy found in Rumanian (12 pairs out of 13), or the strong preference for the causativization strategy found in Akhvakh (Nakh-Daghestanian: 11 pairs out of 13).

3. The language sample

The language sample includes 30 languages belonging to 15 distinct genetic units (either independent language families, or subfamilies of one of the three phyla variously recognized by specialists of the historical study of Subsaharan languages – Afroasiatic, Nilo-Saharan, and Niger-Congo).[1]

(3) The language sample and the sources

Atlantic	Balant Ganja	own data
	Fula (Adamawa)	Noye (1990), Henry Tourneux (pers.com.), Jean-Pierre Boutché (pers.com.)
	Jóola Fóoñi	own data
	Sereer	Crétois (1972-1977)
	Wolof	Diouf (2003)
Benue-Congo	Emai	Schaefer & Egbokhare (2007)
	Herero	The World Atlas of Transitivity Pairs
	Lingala	Ngalasso Mwatha (2013)
	Swahili	The World Atlas of Transitivity Pairs
	Tswana	own data
Central Sudanic	Sar	Palayer (1992)
Chadic	Hausa	Caron & Amfani (1997), Newman (2000), Newman (2007)
Cushitic	Afar	Parker & Hayward (1985)
	Sidaama	The World Atlas of Transitivity Pairs
Dogon	Jamsay	Heath (n.d.), Jeffrey Heath (pers.com.)
Eastern Sudanic	Kupsabiny	The World Atlas of Transitivity Pairs
Gur	Minyanka	Sékou Coulibaly (pers.com.)
Kwa	Baule	Tymian & al. (2003), Jérémie Kouadio (pers .com.)
	Fon	Segurola & Rassinoux (2000)
Mande	Bambara	Bailleul (2007), Dumestre (2011), Valentin Vydrine (pers.com.)
	Kakabe	Aleksandra Vydrina (2017)
	Mandinka	own data
	Mano	Maria Khachaturyan (pers.com.)
	Soninke	own data
Saharan	Kanuri	Cyffer & Hutchinson (1990)
Sandawe	Sandawe	Ehret & Ehret (2012)
Semitic	Amharic	The World Atlas of Transitivity Pairs
Songhay	Humburi Senni	Heath (2015)

[1] A fourth phylum (Khoisan) was proposed by Joseph Greenberg, but most specialists agree now that the evidence of a genetic relationship between the languages and language families grouped into the Khoisan phylum by Joseph Greenberg is not sufficient to accept this hypothesis. As regards the Nilo-Saharan and Niger-Congo phyla, many specialists consider that convincing evidence of genetic relationships exists only for a subset of the language families grouped by Joseph Greenberg into each of these two phyla, and consequently propose a narrower delimitation – cf. Dimmendaal (2011).

Ubangian	Koroboro Senni Gbaya	Prost (1956), Heath (1998) Roulon-Doko (2008), Paulette Roulon-Doko (pers.com.)

This is a convenience sample. In addition to the Subsaharan data already published in the World Atlas of Transitivity pairs, my own data on Balant Ganja, Jóola Fóoñi, Tswana, Mandinka, and Soninke, and data provided by experts of other languages, I consulted all the dictionaries of African languages to which I had relatively easy access, and the languages in the sample are simply those for which the following two conditions were met: (a) I was able to fill the questionnaire without any gaps, and (b) in the case of languages with more or less complex morphophonological processes, I had the morphological information necessary to characterize the pairs as belonging to one of the five basic types without the risk or errors.[2]

4. The cross-linguistic variation

4.1. Introductory remarks

The coding of the 13 noncausal-causal pairs of verb meanings in the 30 languages of the sample is summarized in Appendix 1. Within the limits of the sample, the average value for each of the five possible types of strategies is as follows:

(4) Average values for each of the five possible types of strategies

nC = C (lability)	5.1 out of 13
nC < C (decausativization)	3.2 out of 13
nC > C (causativization)	2.6 out of 13
nC ~ C (equipollence)	1.5 out of 13
nC ≠ C (suppletivism)	0.5 out of 13

Since the average value for the suppletivism strategy is particularly low, and none of the languages in the sample has more than 3 suppletive pairs, the suppletivism strategy will not be considered in the characterization of the individual languages in terms of relative prominence of particular strategies. Within the limits of the sample, each of the other four strategies can be viewed as relatively prominent in a given language if its value in the language in question exceeds the following threshold:

7 for the lability strategy
5 for the decausativization strategy
4 for the causativization strategy
3 for the equipollence strategy

[2] For example, without a good knowledge of Soninke morphology, it is impossible to take the correct decision about Soninke pairs such as **káré / kárá´** 'break (intr. / tr.)' and **kàrá / kàrí** 'go out / put out (fire)'. At first sight, both pairs look like equipollent pairs, but **káré / kárá** must be analyzed as a decausative pair (since Soninke has a detransitivization marker **-i** that fuses with the last vowel of non-monosyllabic stems, and **e** is the regular outcome of the fusion of this marker with a stem-final **a**), whereas **kàrá / kàrí** must be analyzed as a suppletive pair (since there is no other case of an **a** (intr.) / **i** (tr.) alternation in the lexicon of Soninke).

4.2. The relative prominence of the four main strategies in the languages of the sample

4.2.1. Languages with no particularly prominent strategy

In 4 languages, none of the strategies exceeds its average value significantly: Wolof (Atlantic), Soninke (Mande), Koroboro Senni (Songhay), and Humburi Senni (Songhay).

4.2.2. Languages with one particularly prominent strategy

Most of the languages of the sample can be viewed as having one (and only one) relatively prominent strategy for the coding of noncausal-causal pairs.

4.2.2.1. Languages with a relatively high proportion of causative pairs

The sample includes just one language characterized by the relative prominence of causativization only: Swahili (Benue-Congo). Note that, even in Swahili, the number of causative pairs in the questionnaire is not very high: 6 out of 13, to be compared with the 8.5 causative pairs found in Mongolian, or the 11 causatives pairs found in Akhvakh (Nakh-Daghestanian) on the basis of the same questionnaire.

The sample also includes four languages with a proportion of causative pairs of the same range as that found in Swahili (between 5 and 7), but in which another strategy can also be viewed as relatively prominent – cf. 4.2.3.

4.2.2.2. Languages with a relatively high proportion of decausative pairs

7 languages belonging to 5 of the 15 genetic units represented in the sample show a relative prominence of decausativization only: Jóola Fóoñi (Atlantic), Sereer (Atlantic), Lingala (Benue-Congo), Tswana (Benue-Congo), Sidaama (Cushitic), Kupsabiny (Eastern Sudanic), and Kanuri (Saharan). The number of decausative pairs is particularly high in Kupsabiny: 10 out of the 13 pairs of the questionnaire, i.e. exactly the same number as in Russian. Other languages with a marked prominence of the decausativization strategy include Jóola Fóoñi (8 decausative pairs), Sereer (9 decausative pairs), and Kanuri (8 decausative pairs).

4.2.2.3. Languages with a relatively high proportion of labile pairs

10 languages belonging to 7 of the 15 genetic units represented in the sample show a relative prominence of lability only: Emai (Benue-Congo), Sar (Central Sudanic), Jamsay (Dogon), Minyanka (Gur), Baule (Kwa), Fon (Kwa), Bambara (Mande), Kakabe (Mande), Mano (Mande), and Gbaya (Ubangian). All of them have a very high proportion of labile pairs, of the same range as that found for example in English (between 10 and 12 out of 13).

4.2.2.3. Languages with a relatively high proportion of equipollent pairs

Two languages show a relative prominence of the equipollence strategy only: Adamawa Fula (Atlantic) and Hausa (Chadic). Unsurprisingly, a salient characteristic shared by Fula and Hausa is the existence of a system of conjugation classes (or inflectional voices). Hausa has

several verb classes (traditionally called 'grades') that differ primarily in the forms that verbs take depending on their objects or lack of objects.[3] Fula has three verb classes (traditionally called 'voices') that differ in the forms of the TAM and polarity markers. In both cases, conjugation class change is a common way of coding the noncausal-causal alternation.[4]

Among the languages of the sample, a system of conjugation classes (or inflectional voices) is also found in Balant Ganja (Atlantic), but in Balant Ganja, the coding of the noncausal-causal alternation often involves both conjugation class change and the addition of a decausativization marker.

4.2.3. Languages with two relatively prominent strategies

Amharic (Semitic) and Sandawe (isolate) have a relatively high proportion of both causative and decausative pairs (and consequently very few undirected pairs, or not at all).

Mandinka (Mande) has a relatively high proportion of both causative and labile pairs.

Herero (Benue-Congo) and Afar (Cushitic) show a relative prominence of both causativization and equipollence.

Balant Ganja (Atlantic) shows a relative prominence of both decausativization and equipollence.

None of the languages of the sample shows a relative prominence of both lability and equipollence, in line with one of the correlations put forward by Nichols & al. (2004: 165).

4.3. Concluding remarks

4.3.1. The decausativization strategy in the languages of the sample

As already mentioned above, at least for the semantic type of causal-noncausal pairs investigated in this study, some of the languages in the sample show a strong preference for decausativization. Among the languages for which I have partial data, the preference for decausativization is obvious in Ibibio (Benue-Congo).

However, languages with no decausative pair at all within the limits of the questionnaire are very common too (13 out of 30), which sharply contrasts with the scarcity of such languages in the language sample analyzed by Haspelmath (1993).

Consistently with Nichols & al.'s (2004) hypothesis that decausativization is favored by high morphological complexity, all the languages in the sample that have a relatively high proportion of decausative pairs are morphologically complex, whereas most of the languages that have a very low proportion of decausative pairs or no decausative pair at all within the limits of the questionnaire are morphologically simple. Interestingly, the three languages in the sample that combine high morphological complexity and strong dispreference for decausativization (Fula, Herero and Hausa) also share a relatively high proportion of equipollent pairs.

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[3] Some of the Hausa 'grades' are traditionally considered as basic, and others as derived, but this distinction is based on semantic rather than formal considerations: as a rule, verb stems found in 'derived' grade show a relatively constant element of meaning associated with the grade form which is absent in the 'basic' grades.

[4] Note, however, that the vehicular / urban variety of Adamawa Fula tends to lose the middle voice and to replace it by the active voice, which results in a reduction of the proportion of equipollent pairs, and an increase in the proportion of labile pairs – Henry Tourneux (pers.com.), Jean-Pierre Boutché (pers.com.).

Another correlation within the limits of the sample is that the total lack of decausative pairs is particularly common among the languages showing a marked preference for lability.

4.3.2. The lability strategy in the languages of the sample

As already mentioned above, 10 out of the 30 languages that constitute the sample have a very high proportion of labile pairs, and this is also the case for several languages that I did not include in the sample because of some gaps in the data: Samba Leko (Adamawa), Yoruba (Benue-Congo), Ikposo (Kwa), Bisa (Mande), Dan (Mande), Sango (Ubangian).

In this respect, the sample of 30 Subsaharan languages analyzed here sharply contrasts with the sample of 21 mainly Eurasian languages analyzed by Haspelmath (1993), within which English is the only language with such a high proportion of labile pairs.

However, the language sample also includes 9 languages with no labile pair at all within the limits of the questionnaire: Jóola Fóoñi (Atlantic), Lingala (Benue-Congo), Swahili (Benue-Congo), Afar (Cushitic), Sidaama (Cushitic), Kupsabiny (Eastern Sudanic), Kanuri (Saharan), Sandawe (isolate), and Amharic (Semitic).

4.3.3. The causativization strategy in the languages of the sample

As already mentioned above, none of the languages in the sample shows a proportion of causative pairs in the same range as that found in an extremely causativizing language such as Akhvakh (Nakh-Daghestanian). The languages for which I have partial data confirm this observation. In some of them, for example Dida (Kru) or Bete (Kru), the prominence of the causativization strategy is obvious, but in all cases, the data I have been able to gather exclude the possibility of an extremely high proportion of causative pairs.

Interestingly, the total lack of causative pairs within the limits of the questionnaire can be found even in languages that have an otherwise relatively productive mechanism of morphological causativization. Bambara is a case in point. This means that, in the languages in question, causative derivation is productive with other semantic types of noncausal-causal pairs, but not with the type dealt with in this study.

According to Nichols & al. (2004: 172), causativization prominence for inanimate noncausal-causal pairs is found mainly in languages that don't have "passive or other A-removing or A-demoting processes". Among the languages of the sample that have a relatively high proportion of causative pairs, Mandinka is the only one verifying this prediction; the other five (Herero, Swahali, Afar, Sandawe, and Amharic) all have productive morphological mechanisms of passive and/or anticausative derivation.

4.3.4. Valency orientation and alignment

Nichols & al. (2004: 168-169) observe that, in their worldwide sample, ergative alignment is found in 6 out of the 9 languages they analyze as having high numbers of undirected inanimate verb pairs. On this basis, they put forward the following generalization: "The directed types significantly disfavor ergativity while undirected ones significantly favor it".

This prediction is clearly not borne out by the sample of Subsaharan languages analyzed here, since none of the languages in the sample shows ergative alignment, and in 12 of them out of 30, the proportion of undirected pairs exceeds 2/3.

4.3.5. Genetic relationships and the variation in the coding of causal-noncausal pairs

Three language families are represented in the sample by more than 2 of their members: Atlantic (5), Benue-Congo (5), and Mande (5).

4.3.5.1. The Benue-Congo family

Four out of the five Benue-Congo languages included in the sample belong to the Bantu group, a low-level genetic subgroup within the Benue-Congo family. Consequently, it is not surprising that, apart from the scarcity of decausative pairs in Herero, these four languages do not differ much in the coding of noncausal-causal pairs (with a high proportion of both causative and decausative pairs and very few undirected pairs), whereas Emai, which belongs to another branch of Benue-Congo, shows a very different profile. Among the non-Bantu Benue-Congo languages for which I have partial data, the data are sufficient to characterize Yoruba as a language with a strong prevalence of lability (like Emai), Degema as a language with a moderate prevalence of causativization, and Ibibio as a language with a strong prevalence of decausativization.

4.3.5.2. The Mande family

The five Mande languages included in the sample seem to be representative of the diversity across Mande languages. One of them (Soninke) has no particularly prominent strategy, another (Mandinka) shows approximately equal prominence of causativization and lability, whereas the other three (Bambara, Kakabe and Mano) show a very strong prevalence of lability. This last configuration seems to be particularly widespread among Mande languages. Among the Mande languages for which I have been able to find between 10 and 12 of the noncausal-causal pairs that constitute the questionnaire, Bisa and Dan show a strong prevalence of lability, whereas Soso seems to have a configuration similar to that of Mandinka, and Bozo and Bobo seem to have a configuration similar to that of Soninke.

4.3.5.3. The Atlantic family

The sample includes an Atlantic language with no particularly prominent strategy (Wolof), two languages with a marked prevalence of decausativization (Jóola Fóoñi and Sereer), a language with a marked prevalence of equipollence and no decausative pair at all within the limits of the questionnaire (Fula), and a language with a relative prominence of both decausativization and equipollence (Balant Ganja). Balant Ganja is also the only Atlantic language in the sample in which the number of causative pairs departs from the average significantly, with just one causative pair within the limits of the questionnaire.

4.3.5.4. Genetic proximity, contact, and the coding of noncausal-causal pairs

The language sample selected for this study is not sufficient for an in-depth investigation of the possible relationships between the typology of the coding of noncausal-causal pairs in Subsaharan languages, their genetic affiliation, and their contact history. Unsurprisingly,

closely related languages (such as Lingala and Tswana, Humburi Senni and Koroboro Senni, or Bambara and Kakabe) often show similar configurations, but the sample also includes two cases of very closely related languages with significantly different configurations, which suggests that, in the history of languages, the coding of noncausal-causal pairs may be subject to relatively abrupt changes, whatever the possible reasons for such changes.

The first such case is that of Fula and Sereer, which constitute a subgroup within the Atlantic family. Within the limits of the questionnaire, Fula and Sereer have an approximately equal number of causative pairs, but Sereer shows a very strong prevalence of the decausativization strategy and has no equipollent pair at all, whereas Fula shows a strong prevalence of the equipollence strategy and has no decausative pair at all. This contrast is quite obviously related to the fact that Fula morphosyntax combines valency-changing derivations with a system of conjugation classes semantically similar to that of Ancient Greek, whereas Sereer has a rich and productive system of valency-changing derivations, but no system of conjugation classes. Unfortunately, I am aware of no evidence that could help to reconstitute the historical scenario responsible for this contrast.

The second case is that of Bambara and Mandinka, two Mande languages whose genetic closeness is so obvious that they are often presented as two dialects of the same macro-language. Within the limits of the questionnaire, Bambara has 12 labile pairs and no causative pair, whereas Mandinka has 7.5 labile pairs and 5.5 causative pairs. Moreover, the relatively high number of causative pairs found in Mandinka, unusual for a Mande language, has no obvious explanation in terms of language contact, in spite of the fact that Mandinka differs from the other Mande languages by the importance of its contacts with Atlantic languages. The point is that all the Atlantic languages in the sample show a proportion of causative pairs lower that that found in Mandinka; in fact, contact with Atlantic languages should rather have favored the emergence of decausative pairs, which are not attested at all in Mandinka.

An even sharper contrast can be found between Emai and Degema, which both belong to the Edoid group within the Benue-Congo family. Degema is not included in the sample because of some gaps in the data, but the partial data I have for this language include 4.5 decausative pairs, 5.5 causative pairs, and no undirected pair, whereas Emai (included in the sample) has 12 labile pairs and 1 suppletive pair.

5. Prevailing tendencies in the coding of individual noncausal-causal pairs

A chart of the expression types by verb pairs is given in Appendix 2.

5.1. Variation in the ratio of undirected to directed pairs

For the vast majority of the pairs included in the questionnaire, the ratio of undirected to directed pairs within the limits of the sample is comprised between 14/16 and 18.5/11.5, with an average value of approximately 16/14. Only two pairs show a ratio significantly different from the average: ‘dry (intr./tr.)’ and ‘go out / put out (fire)’.

5.1.1. The case of ‘dry (intr./tr.)’

The ratio of undirected to directed pairs is much lower for ‘dry (intr./tr.)’ than for any of the other pairs included in the questionnaire: 7.5/22.5. Another striking characteristic of ‘dry

(intr./tr.)' is an extremely low ratio of decausative to causative pairs (1/21.5). Interestingly, in the sample of 21 mainly Eurasian languages analyzed by Haspelmath (1993), 'dry (intr./tr.)' also shows a particularly low ratio of decausative to causative pairs (3/10), but its ratio of undirected to directed pairs (7/13) has nothing exceptional in comparison with to that found for other pairs (cf. for example 5.5/15.5 for 'melt (intr./tr.)'.

5.1.2. The case of 'go out / put out (fire)'

The ratio of undirected to directed pairs is much higher for 'go out / put out (fire)' than for any of the other pairs included in the questionnaire: 23/7. This particularity of 'go out / put out (fire)' is not found in the sample analyzed by Haspelmath (1993), in which the ratio of undirected to directed pairs for 'go out / put out (fire)' is 10.5/10.5, not very different from that of for example 'burn (intr./tr.)' (9/12).

The very high proportion of undirected pairs for 'go out / put out (fire)' in the Subsaharan sample is due to an unusually high number of languages that have a suppletive pair for 'go out / put out (fire)'. The explanation is that the colexification of 'go out / put out (fire)' with 'die / kill' is a common colexification pattern among the languages of Subsaharan Africa, and the coding of 'die / kill' by means of suppletive pairs is also particularly common, in Subsaharan languages as in the languages spoken in other parts of the world. Cf. for example the Koroboro Senni pair **buu / wii** 'die / kill' and 'go out / put out (fire)' quoted in (1), or the Soninke pair **kàrá / kàrí** 'die / kill' and 'go out / put out (fire)' quoted in footnote 2.

5.1.3. Noncausal-causal pairs with an average ratio of undirected to directed pairs

The remaining 11 pairs can be ranked as shown in (5) according to the ratio of decausative to causative pairs.[5] (6) resumes the corresponding data for the Haspelmath sample.

(5) The ranking of the eleven verb meanings showing an average ratio of undirected to directed pairs according to the ratio of decausative to causative pairs

	nC < C / nC > C	%
• melt	1.5 / 13.5	0.11
• burn	3 / 8,5	0.35
• increase	6.5 / 8.5	0.68
• spread	7 / 6	1.1
• turn over	8 / 5	1.6
• spoil	8 / 5	1.6
• move	9 / 4	2.2
• split	11 / 2	5.5
• close	13 / 1	13
• open	12.5 / 0	—
• break	13 / 0	—

[5] Given the low proportion of directed pairs for 'go out / put out (fire)', it would not make sense to compare its ratio of decausative to causative pairs (3/4) to that of the other pairs included in the questionnaire.

(6) The ranking of the same verb meanings (or their near equivalents) according to Haspelmath (1993)

	nC < C / nC > C	%
• melt	5 / 10.5	0.48
• turn	8 / 7.5	1.07
• burn	7 / 5	1.40
• destroy	8.5 / 5.5	1.55
• spread	11 / 6	1.83
• develop	10 / 5	2
• rock	12 / 4	3
• open	13 / 1.5	8.67
• break	12.5 / 1	12.50
• close	15.5 / 1	15.50
• split	11.5 / 0.5	23

The two rankings do not fully coincide, but can nevertheless be viewed as consistent with each other, since in both rankings, 'melt (intr./tr.)' shows a particularly low ratio of decausative to causative pairs, and the following four pairs or verb meanings can be grouped together as showing a particularly high ratio of decausative to causative pairs: 'split (intr./tr.)', 'close (intr./tr.)', 'open (intr./tr.)', and 'break (intr./tr.)'

6. Conclusion

The variation observed in the sample of 30 Subsaharan languages is broadly comparable to that observed for the same pairs (or their near equivalents) in the sample of 21 mainly Eurasian language analyzed by Haspelmath (1993), with, however, some interesting contrasts. Overall, the ratio of decausative to causative pairs is very similar in the two samples, but the ratio of undirected to directed pairs is much higher in the Subsaharan sample, within which lability ranks first, whereas it ranks fourth in the Haspelmath sample. The Subsaharan sample includes several languages with an extreme degree of preference for lability, but no language with an extreme degree of preference for causativization.

As regards the ranking of the pairs of verb meanings included in the questionnaire according to the ratio of decausative to causative pairs, the results are broadly similar to those provided by Haspelmath (1993). By contrast, the very low ratio of undirected to directed pairs for 'dry (intr./tr.)' and the very high ratio of undirected to directed pairs for 'go out / put out (fire)' observed in the Subsaharan corpus have no equivalent in the Haspelmath sample.

As regards possible typological correlations, the data are consistent with the hypothesis that lability and double derivation are incompatible (Nichols & al. 2004: 165) and with the hypothesis that high morphological complexity favors decausativization (Nichols & al. 2004: 166). By contrast, they contradict the hypothesis of a correlation between causativization prominence for inanimate pairs and the lack of A-removing/demoting processes (Nichols & al. 2004: 172), as well as the hypothesis of a correlation between the preference for undirected inanimate verb pairs and ergative alignement (Nichols & al. (2004: 168-169).

As regards possible relationships between the coding of noncausal-causal pairs, the genetic affiliation of languages and their contact history, the data are not sufficient to draw general conclusions. However, they illustrate the diversity in the coding of inanimate noncausal-causal pairs in two language families (Atlantic and Mande), suggesting the possibility of relatively abrupt changes in the history of languages, since the sample includes two pairs of languages with very different profiles with respect to valency orientation in spite of their relative close genetic relationship: Sereer / Fula (Atlantic) and Mandinka / Bambara (Mande).

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Appendix 1: Summary of the coding of the 13 noncausal-causal pairs of verb meanings in the 30 languages of the sample. Boldface signals values that significantly exceed the average value.

		nC > C	nC < C	nC = C	nC ~ C	nC ≠ C	total undir.
Atlantic	Balant Ganja	1	**6**	2	**4**	0	6
	Fula (Adamawa)	4	0	3	**6**	0	9
	Jóola Fóoñi	3	**8**	0	2	0	2
	Sereer	3	**9**	1	0	0	1
	Wolof	2	5	5	1	0	6
Benue-Congo	Emai	0	0	**12**	0	1	13
	Herero	**6**	0.5	1	**5.5**	0	6.5
	Lingala	4	**7**	0	2	0	2
	Swahili	**6**	5	0	2	0	2
	Tswana	4	**6**	1	2	0	3
Central Sudanic	Sar	0	0	**11**	1	1	13
Chadic	Hausa	0	0	3	**8**	2	13
Cushitic	Afar	**6.5**	3	0	**3.5**	0	3.5
	Sidaama	3	**7.5**	0	0.5	2	2.5
Dogon	Jamsay	2	0	**11**	0	0	11
Eastern Sudanic	Kupsabiny	0.5	**10**	0	2.5	0	2.5
Gur	Minyanka	1	0	**12**	0	0	12
Kwa	Baule	1	0	**12**	0	0	12
	Fon	1	0	**11**	1	0	12
Mande	Bambara	0	0	**12**	0	1	13
	Kakabe	2	0	**10**	0	1	11
	Mandinka	**5.5**	0	**7.5**	0	0	7.5
	Mano	1	0	**12**	0	0	12
	Soninke	3	5	4	0	1	5
Saharan	Kanuri	2	**8**	0	0	3	3
Sandawe	Sandawe	**6**	**7**	0	0	0	0
Semitic	Amharic	**5.5**	**5.5**	0	2	0	2
Songhay	Humburi Senni	2	2.5	5.5	2	1	8.5
	Koroboro Senni	4	1.5	6.5	0	1	7.5
Ubangian	Gbaya	1	0	**11**	0	1	12

Appendix 2: Summary of the distribution of undirected, decausative and causative pairs for each of the pairs of verb meanings included in the questionnaire. Boldface signals ratios that depart from the average ratio significantly.

	undir. / dir.	decaus. / caus.
• break	17 / 13 (1.3)	**13 / 0**
• burn	18.5 / 11.5 (1.6)	3 / 8,5 (0.35)
• close	16 / 14 (1.1)	**13 / 1 (13)**
• dry	**7.5 / 22.5 (0.3)**	**1 / 21.5 (0.05)**
• go out / put out (fire)	**23 / 7 (3.2)**	3 / 4 (0.75)
• increase	14 / 16 (0.8)	6.5 / 9.5 (0.68)
• melt	15 / 15 (1)	**1.5 / 13.5 (0.11)**
• move without changing place	17 / 13 (1.3)	9 / 4 (2.2)
• open	17.5 / 12.5 (1.4)	**12.5 / 0**
• split	17 / 13 (1.3)	**11 / 2 (5.5)**
• spoil	17 / 13 (1.3)	8 / 5 (1.6)
• spread	17 / 13 (1.3)	7 / 6 (1.1)
• turn upside down	17 / 13 (1.3)	8 / 5 (1.6)