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Transitivity and incorporation in Soninke (West Mande)

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1. Introduction

Soninke (**sòonìnkànqánnè**), spoken by approximately 2 million speakers living mainly in Mali, Mauritania, Senegal, and The Gambia, belongs to the Soninke-Bozo sub-branch of the western branch of the Mande language family. Soninke does not have a standard variety. The data analyzed in this paper is from the variety spoken in Diafounou (**Jàahúnú**), a traditional Soninke province whose center is the town of Tambacara (Mali), but a similar organization of transitivity-related phenomena and similar incorporation mechanisms can be found in the other Soninke varieties for which we have data: Kaédi Soninké (Y. Diagana (1990, 1994), M. Diagana (1984, 1995), Creissels (1991)), Bakel Soninke (Creissels and Diagne (2013) and field notes), and Kingi Soninke (field notes).

Noun incorporation is a morphological operation combining a nominal lexeme and a verbal lexeme into a compound verbal lexeme (Mithun 1984, 1986). In most Subsaharan languages, incorporation is very marginal or even inexistent, but Soninke is an exception, since several productive types of incorporation are found in this language.[1]

In this paper, building on the afore-mentioned publications and on Dramé (2015), after presenting the verbal predicative constructions of Soninke, the valency alternations found in this language, and the division of verbs into valency classes, we analyze the relationship between transitivity and the various subtypes of incorporation found in Soninke.

2. Transitive and intransitive predicative constructions

In Soninke, as in the other Mande languages, verbal predication is characterized by a rigid constituent order that can be schematized as **S pm (O) V (X)**.[2] The subject (S) is the only nominal term of the construction whose presence is an absolute requirement in independent assertive or interrogative clauses. Predicative markers (pm) are grammatical words occupying a fixed position immediately after the subject. They express grammaticalized TAM distinctions and polarity (positive vs. negative), and also participate in transitivity marking – see below. There is no indexation of the core syntactic terms **S** and **O**, and core term flagging is limited to an enclitic **-n** that attaches exclusively to interrogative phrases or focalized noun phrases in subject function.

Ex. (1) and (2) illustrate intransitive and transitive verbal predication with the following two predicative markers: **má** 'completive, negative', and the locative copula **wá** (negative **ntá**) fulfilling the function of incompletive auxiliary. With the locative copula used as an

[1] Noun incorporation is also found in Manding (a set of closely related languages included in another branch of West Mande). Cf. in particular Creissels and Sambou (2013: 303-310) on Mandinka. There are however important differences in the productivity of the individual subtypes of incorporation. In particular, object incorporation as described in this paper for Soninke is very marginal in Mandinka.

[2] S = subject, pm = predicative marker, O = object, V = verb, X = oblique.

incompletive auxiliary, the verb is in the form we call gerundive, otherwise it occurs in its bare lexical form.

(1a) **Ké yúgó má qàrà.**
DEM man CPL.NEG study
S pm V
'This man did not study.'

(1b) **À wá táaxú-nú dàagó-n kànmá.**
1SG LOCCOP sit-GER mat-D on
S pm V X
'He is sitting on the mat.'

(2a) **Lémúnù-n má qálìsí kìtà.**
child.PL-D CPL.NEG money get
S pm O V
'The children haven't got money.'

(2b) **À wá dòròkê-n qóbó-nó yàxàré-n dà.**
1SG LOCCOP dress-D buy-GER woman-D for
S pm O V X
'He will buy a dress for the woman.'

Predicative constructions with two or more terms encoded in the same way as the patient of typical monotransitive verbs (so-called 'multiple object constructions') are not possible, and in the construction of semantically trivalent verbs like **kínì** 'give' in Ex. (3), one of the arguments (here, the recipient) is an 'oblique argument' that nothing distinguishes from adjuncts: like adjuncts, oblique arguments are encoded as postpositional phrases that follow the verb.

(3) **Múusá dì qálìsî-n kínì Dénbà yí.**
Moussa TR money-D give Demba POSTP
S pm O V X
'Moussa gave the money to Demba.'

Oblique arguments are found with some semantically bivalent verbs too. In Soninke, not all bivalent verbs can be constructed transitively: some of them, like **mùngú** 'forget' in Ex. (4), select an 'extended intransitive' coding frame with one of the two arguments encoded as the subject, and the other one encoded as an oblique.

(4) **Ń Ø mùngú dò ké léménè tòxó-n ŋà.**
1SG forget with DEM child name-D POSTP
S pm V X
'I have forgotten the name of this child.'

A salient feature of Soninke is the particularly clear-cut distinction between transitive and intransitive predications, due to the following three phenomena:

– in the completive positive and in the imperative plural, a morpheme **dì** analyzed here as a transitivity marker is obligatorily found in transitive constructions, but does not occur in the corresponding intransitive constructions – Ex. (5); [3]
– the subjunctive positive is marked by **nà** in transitive constructions and **nàn** in intransitive constructions – Ex. (6); [4]
– in clauses including a focalized term, the locational copula **wá** used as an incompletive marker has two variants depending on the transitivity of the construction: **Ø** in intransitive constructions, and **nà** (homonymous with the subjunctive positive marker) in transitive constructions – Ex. (7).

(5a) **Ń gìdá dàgá Hàráncì.**
1SG elder_brother go France
'My elder brother went to France.'

(5b) **Yàxàré-n dì cíyè-n qóbó sáxà-n dí.**
woman-D TR meat-D buy market-D in
'The woman bought meat at the market.'

(5c) **Qà dì léménè-n dèemá!**
2PL.IMPER TR child-D help
'Help$_{pl}$ the child!'

(6a) **Lémúnù-n nàn táaxú yíttè-n ŋùré.**
child.PL-D SUBJ.INTR sit tree-D under
'The children should sit under the tree.'

(6b) **Lémúnù-n nà cíyè-n ñígá.** [5]
child.PL-D SUBJ.TR meat-D eat
'The children should eat meat.'

(7a) **À wá sállì-ní.**
3SG LOCCOP pray-GER
'He is praying.'

(7b) **À Ø sállì-ní yà.**
3SG pray-GER FOC
'He is PRAYING.'

[3] **Dì** is sometimes labeled 'completive positive marker', but this label is hardly compatible with its use in the imperative plural. Alternatively, given its position, it could be analyzed as an ergative postposition or accusative preposition with a restricted distribution. We prefer the more neutral label 'transitivity marker', since there is no decisive evidence for analyzing **dì** as forming a phrase with either the subject or the object.
[4] The form labeled here 'subjunctive' combines with noun phrases in subject function in uses broadly similar to those fulfilled by forms traditionally labeled 'subjunctives' in grammars of European languages, but it is also found without an overt subject in uses broadly similar to those of European infinitives.
[5] **Yígá** 'eat' occurs here as **ñígá** because of an alternation that automatically modifies the initial of Soninke words in contact with a nasal belonging to the preceding word. In this context, **r** → **l**, **w** → **ŋ**, **y** → **ñ**, **s** → **c**, **h** → **p**, and an initial **ŋ** is added to the words that have no initial consonant.

(7c) **À wá hèrê-n gáagà-ná.**
3SG LOCCOP donkey-D sell-GER
'He is selling the donkey.'

(7d) **À nà hèrê-n gáagà-ná yà.**
3SG LOCCOP donkey-d sell-GER FOC
'He is SELLING the donkey.'

A crucial point in the analysis of the predicative constructions of Soninke is that the position occupied by the predicative markers rules out an analysis according to which clauses such as (8b), with a bivalent verb preceded by a single noun phrase representing the patient-like participant, might have a transitive construction with a null subject. In such clauses, the predicative markers occur after the unique noun-phrase preceding the verb, not before it, as it should be the case if this noun phrase occupied the object position in a transitive construction with a null subject.

(8a) **Múusá wá ké dáagó bòyì-ní.**
Moussa LOCCOP DEM mat lay_out-GER
'Moussa will lay out this mat.'

(8b) **Ké dáagó wá bòyì-ní.**
DEM mat LOCCOP lay_out-GER
'This mat will be laid out.'

(8c) ***Ø Wá ké dáagó bòyì-ní.**
LOCCOP DEM mat lay_out-GER

The analysis of clauses such as (8b) as intransitive clauses with the patient in subject function is confirmed by the absence of the transitivity marker **dì** in the completive positive and the choice of the intransitive variant of the predicative markers that have distinct forms in transitive and intransitive clauses. In other words, Soninke has morphologically unmarked passive constructions. We will return to this question in Section 4.4.

3. Morphologically coded valency alternations

3.1. The detransitivizing suffix -i

Most verbs that have a transitive stem ending with **a**, **o**, or **u** also have an intransitive stem that can be analyzed as derived from the transitive stem by the addition of a tonally neutral detransitivizing marker whose underlying form is /**i**/. However, this detransitivizing marker surfaces as a distinct segment (**-yi**) with monosyllabic stems only (for example **tù-yí** 'be known' < **`tú** 'know'). With non-monosyllabic stems, its presence is manifested by the following changes in the last vowel of the stem (and sometimes also in the preceding vowel):

a + **i** → **e** as in **ñèmé** 'finish (intr.)' < **ñàmá** 'finish (tr.)'
o + **i** → **e** as in **sòxé** 'be cultivated' < **sòxó** 'cultivate'
u + **i** → i as in **kétí** 'be hit' < **kétú** 'hit'

One can therefore argue that the impossibility of forming detransitivized forms of non-monosyllabic verbs ending with **e** or **i** by means of this suffix follows from the fact that the phonological process manifesting its presence would apply vacuously to such stems.

Functionally, **-i** may express various detransitivizing operations, but it is not equally productive in all its possible uses. Agent demotion is by far its most productive use. Two semantic subtypes can be recognized. In the anticausative subtype, the agent is suppressed from argument structure, and the event is presented as occurring spontaneously, or at least without the involvement of an agent, as in Ex. (9b). In the passive subtype, the agent is semantically maintained, but it is not expressed, as in Ex. (10b).

(9a) **Léménè-n dì qóllè-n kárá.**
child-D TR calabash-D break
'The child broke the calabash.'

(9b) **Qóllè-n kéré.**
calabash-D break.DETR
'The calabash broke.'

(10a) **Yàxàré-n dì yìllé-n gòró.**
woman-D TR millet-D pound
'The woman pounded the millet.'

(10b). **Yìllé-n gòré.**
millet-D pound.DETR
'The millet was pounded.'

This distinction between agent-backgrounding and agent-suppressing deagentive derivation is not rigid. With many verbs, both readings are equally available, depending on the context. What seems to be crucial is the semantic distinction between processes easily conceived as occurring spontaneously (such as 'drown') and processes that require the intervention of an agent (such as 'become pounded').

With a few verbs among those that can combine with the detransitivizing marker **-i** in deagentive function, the same form also has a reflexive or autocausative use, as illustrated by **bóorè** 'undress oneself' < **bóorà** 'undress (tr.)' in Ex. (11). [6]

(11a) **Yúgò-n dì í rèmmê-n bóorà.**
man-D TR REFL son-D undress
'The man undressed his son.'

(11b) **Yúgò-n bóorè.**
man-D undress.DETR
'The man undressed.'

The detransitivizing marker **-i** may also have a depatientive function, for which it is in competition with the dedicated antipassive suffix **-ndì**. There is a clear asymmetry between the deagentive and depatientive uses of **-i**: many of the intransitive verbs derived by means of

[6] Soninke has two pronouns used productively to express reflexivity: **í** is a long-distance reflexive used in logophoric contexts, and as a reflexive possessive (as in (10a)), whereas **dú** is a local reflexive used for object or oblique reflexivization.

-i can only be used in deagentive function, but none can be used exclusively in depatientive function. As illustrated by **yígé** < **yígá** 'eat' – Ex. (12) – the intransitive verbs derived by means of **-i** that can be used in depatientive function also have a deagentive (anticausative or passive) use.

(12a) **Lémúnù-n dì cíyè-n ñígá.**
child.PL-D TR meat-D eat
'The children ate the meat.'

(12b) **Lémúnù-n ñígé.**
child.PL-D eat.DETR
'The children ate.'

(12c) **Cíyè-n ñígé.**
meat-D eat.DETR
'The meat was eaten.'

3.2. The antipassive suffix -ndì

The basic form of the antipassive suffix can be analyzed as **-ndì**. It has a dissyllabic allomorph with monosyllabic stems (for example **kè-yìndí** < **`ká** 'insult'). With non-monosyllabic stems, it may surface as **-ndì** or **-ndí** (depending on the tone pattern of the stem), and triggers no segmental modification of the stem.

The antipassive suffix **-ndì** is exclusively used in depatientive function, as in Ex. (12), and it is very productive. The transitive verbs that can be used intransitively in their underived form with a subject representing the agent are quite marginal, the transitive verbs with which the detransitivizing marker **-i** can be used in depatientive function are not very numerous either, and all transitive verbs that do not belong to one of these two subsets are compatible with the antipassive marker **-ndì**.

(13a) **Súmáqqè-n dì léménè-n qíñí.**
snake-D TR child-D bite
'The snake bit the child.'

(13b) **Súmáqqè-n qíñí-ndì.**
snake-D bite-ANTIP
'The snake bit (someone).'

3.3. The causative suffix -ndí

The causative suffix **-ndí** has a dissyllabic allomorph with monosyllabic stems (for example **tù-yìndí** 'inform' < **`tú** 'know'). With non-monosyllabic stems, it is invariably realized as **-ndí** and triggers no segmental modification of the stem.

As illustrated by Ex. (14), causativization by means of the causative suffix **-ndí** is fully productive with verbs used intransitively in their non-derived form.

(14a) **Léménè-n cóxú.**
child-D lie_down
'The child went to bed.'

(14b) **Yàxàré-n dì léménè-n cóxú-ndí.**
woman-D TR child-D lie_down-CAUS
'The woman put the child to bed.'

Morphological causativization of transitive verbs, illustrated in Ex. (15) by **yígá** 'eat', is possible for a restricted number of transitive verbs only. When transitive verbs are causativized, the object of the causative verb may represent the causee, but the initial object can also be maintained as the object of the causative verb.

(15a) **Léménè-n dì cíyè-n ñígá.**
child-D TR meat-D eat
'The child ate meat.'

(15b) **Hàatú dì léménè-n ñígá-ndí.**
Fatou TR child-D eat-CAUS
'Fatou made the child eat.'

(15c) **Hàatú dì cíyè-n ñígá-ndí léménè-n ŋá.**
Fatou TR meat-D eat-CAUS child-D POSTP
'Fatou made the child eat meat.'

4. Valency classes

4.1. Labile vs. non-labile verbs

As discussed by Creissels (2014), in many languages, depending on the formal characteristics of transitive and intransitive verbal predication, the recognition of A-labile or P-labile verbs may be problematic. However, in Mande languages in general, and more particularly in Soninke, due to the proliferation of transitivity marking in this language, it is equally unproblematic to distinguish A-labile and P-labile verbs from strictly transitive and strictly intransitive verbs. The only problem is that polysemous verbs may have different transitivity properties in their different meanings, so that the different (although related) meanings of such verbs must be considered separately.

4.2. Non-labile verbs

Soninke has strictly intransitive verbs (for example **bíré** 'live' or **bònó** 'become spoilt'), which in their underived form can only be used intransitively, and strictly transitive verbs (for example **yígá** 'eat' or **séllà** 'sweep'), which in their underived form can only be used transitively. As illustrated by Ex. (16), strictly transitive verbs must undergo morphological derivation before being used in intransitive constructions, whatever the semantic nature of the intransitive construction.

(16a) **Hàatú dì kónpè-n céllà.**
Fatou TR room-D sweep
'Fatou swept the room.'

(16b) **Hàatú séllá-ndì.**
Fatou sweep-ANTIP
'Fatou did the sweeping.'

(16c) **Kónpè-n céllè.**
Fatou sweep.DETR
'The room was swept.'

4.3. A-labile verbs

A-labile verbs can be used in their underived form either transitively, or intransitively with a subject representing the same agent-like participant as the subject of the transitive construction, but must undergo a detransitivizing derivation in order to be used intransitively with a subject representing the same patient-like participant as the object of the transitive construction. This behavior, illustrated in Ex. (17) by **sòxó** 'cultivate', is extremely rare among Soninke verbs.

(17a) **Múusá dì té-n còxó.**
Moussa TR field-D cultivate
'Moussa has cultivated the field.'

(17b) **Múusá sòxó.**
Moussa cultivate
'Moussa has cultivated.'

(17c) **Té-n còxé.**
field-D cultivate.DETR
'The field has been cultivated.'

4.4. P-labile verbs

P-labile verbs can be used in their underived form either transitively, or intransitively with a subject representing the same patient-like participant as the object of the same verb used transitively, but must undergo a detransitivizing derivation in order to be used intransitively with a subject corresponding to the subject of the transitive construction. In all cases, the intransitive form is derived by means of the antipassive suffix **-ndì**. This behavior, very common among Soninke verbs, can be illustrated by **ŋèrí** 'see' – Ex. (18).

(18a) **Dénbà dì Hàatú ŋèrí sáxà-n dí.**
Demba TR Fatou see market-D in
'Demba saw Fatou at the market.'

(18b) **Hàatú ŋèrí sáxà-n dí.**
Fatou see market-D in
'Fatou was seen at the market.'

(18c) **Hìnkìntê-n ntá ŋèrì-ndì-nì.**
blind-D LOCCOP.NEG see-ANTIP-GER
'The blind do not see.'

Semantically, two varieties of P-lability can be distinguished: causative / anticausative lability, if the subject of the intransitive construction represents a participant undergoing the same process as the object of the transitive construction, but not necessarily as the result of

the action of an agent, and active / passive lability, if the intransitive construction implies the participation of an unexpressed agent.

Cross-linguistically, active / passive lability is rare, but Mande languages constitute an exception to this generalization (Lüpke (2007), Cobbinah and Lüpke (2009)). Mandinka (Creissels & Sambou (2013)) illustrates the extreme case of a language with no strictly transitive verb and a very restricted class of A-labile verbs, but in which all the verbs that have a transitive use can be used intransitively in their underived form with a passive reading.

Active / passive lability is found in Soninke too, but in Soninke, contrary to Mandinka, it is restricted to a subset of the verbs that can be used transitively. Moreover, it is striking that the vast majority of P-labile verbs end with **i** or **e**, and conversely, it seems that all the verbs that end with **i** or **e** and can be used transitively are P-labile, which raises the question whether this is really P-lability, or perhaps rather vacuous detransitivization, since Soninke has a detransitivizing suffix **-i**.

4.5. Reflexive lability

Yánqí 'wash', is the only verb in our data that can be used intransitively in its underived form, not only with a passive reading, but also with a reflexive reading.

4.6. A/P-labile verbs

A/P-labile verbs have three possible types of uses in their underived form: they can be used transitively, intransitively with a subject corresponding semantically to the subject of the transitive construction, and intransitively with a subject corresponding to the object. This behavior, illustrated in Ex. (19) by **mìní** 'drink', is extremely rare among Soninke verbs.

(19a) **Léménè-n dì qátì-n mìní bà?**
child-D TR milk-D drink Q
'Did the child drink the milk?'

(19b) **Léménè-n mìní bà?**
child-D drink Q
'Did the child drink?'

(19c) **Qátì-n mìní bà?**
milk-D drink Q
'Was the milk drunk?'

4.7. Summary: deagentive and depatientive uses of transitive verbs

The verbs that have the ability to be used transitively in their underived form (i.e., that are not strict intransitive verbs) can be divided into sub-classes according to their ability to be used intransitively with a subject representing either their agent-like or patient-like participant.

The deagentive use of transitive verbs may be morphologically unmarked, or marked by the addition of **-i**, whereas the depatientive use may be morphologically unmarked, marked by the addition of **-i**, or marked by the addition of **-ndì**, which gives six logical possibilities. However, four of these six logical possibilities are either marginal, or even unattested. The two productive patterns are:

– the pattern illustrated by **ŋèrí** ‘see’ – Ex. (18), with the deagentive use unmarked, and the depatientive use marked by the dedicated antipassive marker **-ndì**;
– the pattern illustrated by **séllà** ‘sweep’ – Ex. (16), with the deagentive use marked by the detransitivization marker **-i**, and the depatientive use marked by the dedicated antipassive marker **-ndì**.

The two productive patterns have in common the use of a dedicated antipassive form in depatientive function, they differ in that the deagentive use may be morphologically marked or not. However, almost all the verbs following the pattern with the same form in transitive and deagentive use end with **i** or **e**, and there is no verb ending with **i** or **e** among those following the pattern with three distinct forms. Consequently, it can be argued that Soninke has just one productive pattern, the one in which the deagentive use is marked by **-i** and the depatientive use is marked by **-ndì**, and the apparent productivity of the pattern with the deagentive use unmarked is simply due to the fact that the phonological process distinguishing bare verb stems from verb stems modified by the detransitivization marker **-i** applies vacuously to non-monosyllabic stems ending with **i** or **e**.

5. Incorporation as a morphological operation

In Soninke, incorporation can be defined as a morphological operation that creates compound verbal lexemes by attaching the non-autonomous form of a nominal lexeme to the left of a verbal lexeme. Incorporated nouns precede the verbal lexeme with which they form a compound, and the distinction between incorporated nouns and nouns occupying a syntactic position immediately to the left of the verb is ensured by the following two particularities of nominal and verbal morphology in Soninke:

(a) most nouns have a non-autonomous form distinct from their free form, and this non-autonomous form is used whenever nouns occur as non-final formatives within compound or derived lexemes. For example, the non-autonomous form of **séllìnŋé** ‘chicken’ (plural **séllìnŋú**) is **séllín-**;
(b) in some conditions (for example, in combination with some negative markers) the inherent tonal melody of the verb is replaced by an entirely low melody, and this tonal change affects incorporated nouns as part of a compound verb stem, but not nouns occupying a syntactic position immediately to the left of the verb – Ex. (22).

(20a) **Ì wá séllìnŋû-n gáagà-ná.**
3PL LOCCOP chicken.PL-D sell-GER
‘They are selling the chickens.’

(20b) **Ì ntá séllìnŋú-n gàagà-nà.**
3PL LOCCOP.NEG chicken.PL-D sell-GER^{L}
‘They are not selling the chickens.’

(20c) **Ì wá séllín-gáagè-né.**
3PL LOCCOP chicken-sell.DETR-GER
‘They sell chickens.’

(20d) **Ì ntá sèllìn-gàagè-nè.**
3PL LOCCOP.NEG chicken-sell.DETR-GER^{L}
‘They don’t sell chickens.’

In addition to the neutralization of the singular vs. plural distinction, a general characteristic on incorporation is that it excludes the presence of the various types of adnominals that may modify non-incorporated nouns.

6. Functional subtypes of incorporation

Three functional subtypes of incorporation can be distinguished in Soninke: possessive incorporation, object incorporation, and oblique incorporation:

– in possessive incorporation, the construction with an incorporated noun can be paraphrased by a construction in which this noun is the head of a noun phrase in subject function, with a genitival modifier corresponding to the subject of the compound verb – Ex. (21);
– in object incorporation, the construction with an incorporated noun can be paraphrased by a construction in which this noun is the head of a noun phrase in object function – Ex. (22);
– in oblique incorporation, the construction with an incorporated noun can be paraphrased by a construction in which this noun is the head of a noun phrase in oblique function – Ex. (23).

(21a) **Múusá bùttê-n bí.**
Moussa liver-D burn
Moussa got furious.'
lit. 'Moussa's liver burnt.'

(21b) **Múusá búttí-n-bí.**
Moussa liver-EP-burn
'Moussa got furious.'
lit. 'Moussa liver-burnt.'

(22a) **Yàxàrú-n dì kónpè-n céllà.**
woman.PL-D TR room-D sweep
'The women swept the room.'

(22b) **Yàxàrû-n kónpó-séllè.**
woman.PL-D room-sweep.DETR
'The women did room sweeping.'

(23a) **À yèxí qóò qùsô.**
3SG get_married like girl.D
'He got married like a girl (i.e. very early).'

(23b) **À qùsù-n-ñèxí.**
3SG girl-EP-get_married
'He got married like a girl (i.e. very early).'
lit. 'He got girl-married.'

As illustrated by these examples, this functional distinction has two morphological correlates:

– in possessive incorporation and oblique incorporation (but not in object incorporation) a linking (or epenthetic) **-n-** (glossed EP) occurs between the two formatives of the compound verb;
– in object incorporation (but not in possessive incorporation or oblique incorporation), the verbal lexeme that constitutes the second formative of the compound verb is marked as detransitivized.

The presence of the linking **-n-** can only be detected if the non-autonomous form of the incorporated noun does not end with a nasal. The linking **-n-** also occurs in some types of nominal compounds, but as discussed by Diagana (1995), its occurrence cannot be predicted by a general rule. It must be emphasized that it is probably not cognate with the determination marker **-n** suffixed to nouns, since the determination marker includes a floating L tone, whereas the linking **-n-** is tonally inert.

Interestingly, the presence vs. absence of the linking **-n-** may be the only clue to the distinction between object incorporation, as in (24b), and the incorporation of an adjunct to the detransitivized form of the same verb, as in (25b).

(24a) **Múusá dì hèrû-n kétú.**
Moussa TR donkey.PL-D beat
'Moussa beat the donkeys.'

(24b) **Múusá hèrì-kétí.**
Moussa donkey-beat.DETR
'Moussa did donkey beating.'

(25a) **Múusá kétí qóò hèrê.**
Moussa beat.DETR like donkey-D
'Moussa was beaten like a donkey.'

(25b) **Múusá hèrì-n-kétí.**
Moussa donkey-EP-beat.DETR
'Moussa was beaten like a donkey.'
lit. 'Moussa was donkey-beaten.'

7. Possessive incorporation

In our data, possessive incorporation always involves intransitive verbs, and the incorporated noun is always a body part noun. There seems to be no semantic distinction between possessive incorporation constructions and their paraphrases. Possessive incorporation does not affect the transitivity of the construction. Morphologically, as can be seen from Ex. (26), the syntactic rearrangement that characterizes possessive incorporation is particularly apparent if a third person pronoun is involved, since in Soninke, third person pronouns have a L tone in subject or object function, and a H tone in genitive function. In this example, it is also possible to observe a change in the tone of the noun 'liver', due to the fact that, in Soninke, nouns heading a genitival construction take a grammatical LH pattern analyzable as the mark of a construct form of nouns.

(26a) **Á bùttê-n bí.**
3SG liver-D burn
'(S)he got furious.'
lit. 'His/her liver burnt.'

(26b) **À búttí-n-bí.**
3SG liver-EP-burn
'(S)he got furious.'
lit. 'He/she liver-burnt.'

8. Object incorporation

Semantically, object incorporation implies a generic reading of the incorporated noun. Syntactically, all the mechanisms sensitive to transitivity unambiguously show that object incorporation yields intransitive compound verbs, and this is consistent with the detransitivization marking observed in object incorporation.

However, although object incorporation can be analyzed functionally as a variety of antipassive (since it detransitivizes transitive verbs without changing the semantic role of their subject), detransitivization marking in object incorporation is not identical to antipassive marking. In the antipassive, the general rule is the use of the dedicated antipassive marker **-ndì**, with the exception of a limited number of transitive verbs that have an antipassive form in **-i**. In object incorporation, the detransitivization marker **-i** can be used with all verbs ending with **a**, **o**, or **u**; with verbs ending with **i** or **e**, the antipassive marker **-ndì** may be used, but its use is optional. Ex. (27) illustrates the case of a transitive verb whose detransitivization is marked differently in antipassive derivation and in object incorporation.

(27a) **À wá yìràamû-n gáagà-ná.**
3SG LOCCOP cloth.PL-D sell-GEN
'(S)he sells (the) clothes.'

(27b) **À wá yìràn-gáagè-né.**
3SG LOCCOP cloth-sell.DETR-GER
'(S)he sells clothes.'
or 'She does cloth selling.'

(27c) **À wá gáagá-ndì-ní.**
3SG LOCCOP sell.ANTIP-GER
'(S)he sells things.'
or 'She does selling.'

9. Oblique incorporation

Oblique incorporation is productive with similative adjuncts, temporal adjuncts, and reduplicated numerals used adverbially with a distributive meaning. It operates on transitive and intransitive verbs without affecting their valency properties.

9.1. Similative incorporation

9.1.1. Similative incorporation with intransitive verbs

As illustrated by Ex. (28), in this kind of incorporation, the incorporated noun is semantically equivalent to a similative adjunct introduced by the preposition **qóò** 'like'. There seems to be no semantic difference between the two constructions, except from the fact that incorporation excludes a specific reading of the incorporated noun.

(28a) **À wùrú qóò yàxàrê.**
3SG run like woman.D
'He ran like a woman.'

(28b) **À yàxàrì-n-ŋùrú.**
3SG woman-EP-run
'He ran like a woman.'
lit. 'He woman-ran.'

9.1.2. Similative incorporation with transitive verbs

Ex. (29) illustrates the same mechanism with a transitive verb, showing that similative incorporation has no incidence on transitivity. Note that, semantically, the incorporated noun describes the way the referent of the object participates in the event: the meaning of sentence (29b) is '... like one kills dogs', not '... like dogs kill'.

(29a) **À wá sòró-n kèrì-ní qóò wùllû.**
3SG LOCCOP person.PL-D kill-GER like dog.PL.D
'He kills the people like dogs.'

(29b) **À wá sòró-n ŋùllì-n-kèrì-ní.**
3SG LOCCOP person.PL-D dog-EP-kill-GER
'He kills the people like dogs.'
lit. 'He dog-kills the people.'

Ex. (30) shows that similative incorporation (30b) has no incidence on the behavior of transitive verbs with respect to antipassive (30c) and passive (30d) derivations.

(30a) **Ì dì Múusá kétú qóò hèrê.**
3PL TR Moussa beat like donkey.D
'They beat Moussa like a donkey.'

(30b) **Ì dì Múusá hèrì-n-kétú.**
3PL TR Moussa donkey-EP-beat
'They beat Moussa like a donkey.'
lit. 'They donkey-beat Moussa.'

(30c) **Ì hèrì-n-kétú-ndì.**
3PL donkey-EP-beat-ANTIP
'They beat people like donkeys.'

(30d) **Múusá hèrì-n-kétí.**
Moussa donkey-EP-beat.DETR
'Moussa was beaten like a donkey.'
lit. 'Moussa was donkey-beaten.'

9.2. Incorporation of temporal adjuncts

9.2.1. Incorporation of temporal adjuncts with intransitive verbs

As illustrated by Ex. (31), in this kind of incorporation, the incorporated noun is interpreted in the same way as when it occurs in post-verbal position as a temporal adjunct. There seems to be no semantic difference between the two constructions.

(31a) **À dàgá sùxúbà.**
3SG leave morning
'(S)he left in the morning.'

(31b) **À sùxùbà-n-dàgá.**
3SG morning-EP-leave
'(S)he left in the morning.'
lit. '(S)he morning-left.'

9.2.2. Incorporation of temporal adjuncts with transitive verbs

Ex. (32) illustrates the same mechanism with a transitive verb, and Ex. (32c-d) show that similative incorporation has no incidence on the behavior of transitive verbs with respect to antipassive and passive derivations.

(32a) **À dì kónpè-n céllà sùxúbà.**
3SG TR room-D sweep morning
'(S)he swept the room in the morning.'

(32b) **À dì kónpè-n cùxùbà-n-céllà.**
3SG TR room-D morning-EP-sweep
'(S)he swept the room in the morning.'
lit. '(S)he morning-swept the room.'

(32c) **À sùxùbà-n-céllá-ndì.**
3SG morning-EP-sweep-ANTIP
'(S)he did the sweeping in the morning.'

(32d) **Kónpè-n cùxùbà-n-céllè.**
room-D morning-EP-sweep.DETR
'The room was swept in the morning.'

9.3. Distributive incorporation

Distributive incorporation is not strictly speaking a variety of noun incorporation, since it involves reduplicated numerals, and numerals are not nouns. However, the mechanism is exactly the same as with other types of oblique incorporation.

9.3.1. Distributive incorporation with intransitive verbs

As illustrated by Ex. (33), in this kind of incorporation, a reduplicated numeral is incorporated, carrying the same distributive meaning as when reduplicated numerals follow the verb. There seems to be no semantic difference between the two constructions.

Morphologically, reduplicated numerals take a special form when incorporated. We leave open the question of explaining why the linking **-n** occurs sometimes twice (as in (33b)) and sometimes once (as in (34b)), because our observations on this point do not seem to be fully consistent, and further investigation would be necessary before putting forward a rule.

(33a) **Ì qènqé báané báané.**
3PL sleep one one
'They slept one by one.'

(33b) **Ì báaná-n-báaná-n-qénqé.**
3PL one-EP-one-EP-sleep
'They slept one by one.'

(34a) **Ì dàgá hílló hílló.**
3PL go two two
'They went two by two.'

(34b) **Ì híllí-híllí-n-dágá.**
3PL two-two-EP-go
'They went two by two.'

9.3.2. Distributive incorporation with transitive verbs

Ex. (35) illustrates the same mechanism with a transitive verb, showing that distributive incorporation has no incidence on transitivity.

(35a) **À wá ménténŋù-n gáagà-ná sìkkó sìkkó.**
3SG LOCCOP tomato.PL-D sell-GER three three
'She sells the tomatoes three by three.'

(35b) **À wá ménténŋù-n cìkkì-n-cìkkì-n-gáagà-ná.**
3SG LOCCOP tomato.PL-D three-EP-three-EP-sell-GER
'She sells the tomatoes three by three.'

(35c) **Ménténŋù-n ŋá sìkkì-sìkkì-n-gáagè-né.**
tomato.PL-D LOCCOP three-EP-three-EP-sell.DETR-GER
'The tomatoes are sold three by three.'

10. Multiple incorporation

In this section, we illustrate the combination of various types of incorporation in the formation of a single compound verb. However, we limit the illustrations to compound verbs combining two incorporation mechanisms, because we are not in a position to tell to what extent more complex cases would be natural or not in spontaneous discourse.

10.1. Similative incorporation + object incorporation

As illustrated by Ex. (36) and (37), the linear order in compound verbs combining similative incorporation and object incorporation may be either N_{obj} + N_{sim} + **n** + V or N_{sim} + **n** + N_{obj} + V, which reflects a semantically relevant distinction in the underlying structure. The N_{obj} + N_{sim} + **n** + V order implies that N_{sim} characterizes the involvement of the object in the event, suggesting that similative incorporation operates first, followed by object incorporation – Ex. (36). By contrast, the N_{sim} + **n** + N_{obj} + V order implies that N_{sim} characterizes the involvement of the object, which suggests that object incorporation operates first, and quite regularly, N_{sim} characterizes the involvement of the subject of the intransitive verb resulting from object incorporation.

(36a) **À wá sòrô-n kétú-nú qóò hèrû.**
3SG LOCCOP person.PL-D beat-GER like donkey.PL.D
'He beats the people like donkeys.'

(36b) **À wá sòró-n pèrì-n-kétú-nú.**
3SG LOCCOP person.PL-D donkey-EP-beat-GER
'He beats the people like donkeys.'
lit. 'He donkey-beats the people.'

(36c) **À wá sèrì-hèrì-n-kétí-ní.**
3SG LOCCOP person-donkey-EP-beat.DETR-GER
'He beats the people like donkeys.'
lit. 'He people-donkey-beats.'

(37a) **À dì í yàaxê-n dándá qóò yàxàrê.**
3SG TR REFL eye-D widen like woman.D
'He widened his eyes like a woman.'

(37b) **À yáaxá-dándé qóò yàxàrê.**
3SG eye-widen.DETR like woman.D
'He widened his eyes like a woman.'
lit. 'He eye-widened like a woman.'

(37c) **À yàxàrì-n-ñáaxá-dándé.**
3SG woman-EP-eye-widen.DETR
'He widened his eyes like a woman.'
lit. 'He woman-eye-widened.'

10.2. Temporal adjunct incorporation + object incorporation

As illustrated by Ex. (38), compound verbs combining temporal incorporation and object incorporation have the structure N_{obj} + N_{temp} + **n** + V.

(38a) **Yàxàrú-n dì kónpè-n céllà sùxúbà.**
woman.PL-D TR room-D sweep morning
'The women swept the room in the morning.'

(38b) **Yàxàrú-n dì kónpè-n cùxùbà-n-céllà.**
woman.PL-D TR room-D morning-EP-sweep
'The women swept the room in the morning.'
lit. 'The women morning-swept the room.'

(38c) **Yàxàrû-n kónpó-súxúbá-n-céllè.**
woman.PL-D room-morning-EP-sweep
'The women did room sweeping in the morning.'
lit. 'The women room-morning-swept.'

10.3. Distributive incorporation + object incorporation

As illustrated by Ex. (39), compound verbs combining distributive incorporation and object incorporation have the structure N_{obj} + Num_{distr} + **n** + V.

(39a) **Ó dì hèrú-n cìití báané báané.**
1PL TR donkey.PL-D tie one one
'We tied the donkeys one by one.'

(39b) **Ó dì hèrú-n báaná-n-báaná-n-cíití.**
1PL TR donkey.PL-D one-EP-one-EP-tie
'We tied the donkeys one by one.'
lit. 'We one-one-tied the donkeys.'

(39c) **Ó hèrì-báaná-n-báaná-n-cíití-ndì.**
1PL donkey-one-EP-one-EP-tie-ANTIP
'We tied donkeys one by one.'
lit. 'We donkey-one-one-tied.'

10.4. Temporal adjunct incorporation + distributive incorporation

As illustrated by Ex. (40), compound verbs combining temporal adjunct incorporation and distributive incorporation have the structure Num_{distr} + **n** + N_{temp} + **n** + V.

(40a) **Ì dàgá sùxúbà hílló hílló.**
3PL leave morning two two
'They left in the morning two by two.'

(40b) **Ì sùxùbà-n-dàgá hílló hílló.**
3PL morning-EP-leave two two
'They left in the morning two by two.'
lit. 'They morning-left two by two.'

(40c) **Ì híllí-híllí-n-cúxúbá-n-dágá.**
3PL two-two-EP-morning-EP-leave
'They left in the morning two by two.'
lit. 'They two-two-morning-left.'

11. Conclusion

In this paper, we have analyzed the way transitivity is organized and regulated in Soninke, with a special emphasis on the relationship between transitivity and incorporation. The main conclusions are as follows:

- Soninke is a language with a particularly clear-cut distinction between transitive and intransitive predicative constructions.
- As regards morphologically coded valency alternations, a salient feature of Soninke is the productivity of antipassive derivation, correlated to the fact that, with very few exceptions, transitive verbs cannot be used intransitively to encode indetermination on the identity of their patient-like argument.
- As regards the division of verbal lexemes into valency classes, Soninke has two major classes of transitive verbs: strictly transitive verbs, with which agent and patient demotion must equally be marked morphologically, and P-labile verbs, which can be used intransitively in their underived form with an anticausative or passive reading. However, this distinction is conditioned phonologically: as a rule, transitive verbs whose final vowel is **a**, **o** or **u** are strictly transitive, whereas transitive verbs ending with **e** or **i** are P-labile.
- Soninke has several productive types of incorporation, among which object incorporation, whose analysis as a mechanism yielding intransitive compound verbs is facilitated in Soninke by the proliferation of transitivity marking.
- Multiple incorporation is possible in Soninke, and the order of the incorporated elements can be analyzed as reflecting successive stages in the formation of the compound verb.

Abbreviations

ANTIP = antipassive, CAUS = causative, CPL = completive, D = determination marker, DEM = demonstrative, DETR = detransitivization marker, distr = incorporated distributive adjunct, EP = epenthetic **n**,FOC = focus marker, GER = gerundive, IMPER = imperative, INTR = intransitive, L = low morphotoneme, LOCCOP = locational copula, N = noun, NEG = negative, Num = numeral, O = object, obj = incorporated object, PL = plural, pm = predicative marker, POSTP = multifunction postposition, Q = question marker, REFL = reflexive, S = subject, SG = singular, sim = incorporated similative adjunct, SUBJ = subjunctive, temp = incorporated temporal adjunct, TR = transitivity marker, X = oblique.

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