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Perfective Aspect and Order of Affixation in Pulaar

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Contents

1

1 Introduction

This paper explores the verbal system and more particularly the perfective aspect of the Pulaar language, which belongs to the Niger-Congo / North-Atlantic language family. In Pulaar, tense, aspect, negation, and voice are all encoded through verbal affixation. I show in this paper that the perfective aspect while informing about the completion of an event also encodes tense information. In the absence of an overt tense marker, I argue for a null tense head that carries a recent past tense feature. Considering the Fixed and Universal Hierarchy of Functional Heads Hypothesis (Cinque 1999) and the Mirror Principle (Baker 1985), I argue for verb movement using evidence from adverb adjunction and from the order of affixation of the perfective *-ii*, negation *-aa* and distant past *-no* morphemes. Moreover, I consider for comparative purposes the imperfective aspect and two varieties of Pulaar (Fuuta and Toore), highlighting differences concerning allomorphy and ordering of the perfective marker *-ii*. Following Alexiadou et al. (2015), I end with a brief discussion of voice and suggest that Pulaar provides evidence for an expletive voice head *-ma* that appears in middle/passive voice and anti-causative contexts, which supports the idea that voice alternation is responsible for the causative/anti-causative verbal variation found cross-linguistically.

The following paradigms[1] illustrate the main questions this paper will examine: tense/aspect information encoded in the perfective aspect and allomorphy triggered in negative constructions. In regard to tense/aspect information in the Pulaar verbal system, it is important to note that aspect is generally indispensable and overtly marked while tense tends to remain silent except for one particular case conveying a relatively distant past meaning.

(1)   a.   Baaba sood-∅-ii-∅   lam-ɗam
             Baaba buy-ACT-PFV-REC salt-NC
             'Father bought salt.'

       b.   Baaba sood-∅-ii-no   lam-ɗam
             Baaba buy-ACT-PFV-PAST salt-NC
             'Father bought salt' (a long time ago).

       c.   Baaba sood-∅-aa-ni-∅   lam-ɗam
             Baaba buy-ACT-NEG-PFV-REC salt-NC
             'Father did not buy salt.'

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[1]ACT = active voice ; DIST = distant past ; EXPL = expletive voice ; NC = noun class ; REC = recent past. (NB: unless specified, abbreviations follow the standards of The Leipzig Glossing Rules).

(1-a) illustrates a common way to use the perfective aspect in Pulaar. The perfective marker *-ii* follows the root of the verb *sood* and indicates the completion of an action. Despite the absence of an overt tense marker, (1-a) is interpreted as communicating not only a completed but also a past action. I will argue that in such cases the perfective marker conveys a recent past meaning.

(1-b) shows the case of an overt tense marker *-no*, which when added to the verbal root *sood* and perfective marker *-ii* is interpreted as a distant past. When *-no* is present, the null recent past tense marker *-∅* seen in (1-a) seems unnecessary, potentially indicating that *-∅* [recent past] and *-no* [distant past] do not co-occur.

(1-c), in comparison with (1-a), allows us to first identify the *-aa* morpheme as the negation marker in Pulaar since its presence or absence seems to represent the main difference between affirmative and negative constructions. Second, the form of the affirmative perfective marker *-ii* in (1-a) seems to change to *-ni* in (1-c), thus indicating that negation triggers allomorphy of the perfective marker. Third, if *-aa* represents indeed the negation marker, *-ni* the negative allomorph of the perfective marker, and considering the Mirror Principle (Baker 1985), one must assume that in Pulaar perfective is located higher than negation, for surface morpheme order shows that the negation marker *-aa* attaches the verbal root *sood* before the negative perfective marker *-ni.*

Considering the Fixed and Universal Hierarchy of Functional Heads Hypothesis (Cinque 1999), the Mirror Principle (Baker 1985), Pulaar surface word/morpheme order, and the proposal that external arguments are base generated in Spec VoiceP (Kratzer 1996)[2]), I suggest for Pulaar the following hierarchy of projections in which negation is optional and located between perfective and imperfective.

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[2]Kratzer (1996) proposes that direct DP objects are located in Spec VP; however, I will assume in this paper that direct objects in Pulaar are verbal complements instead of VP specifiers.

(2)   Proposed Hierarchy of Projections[3] : T > PFV > (Neg) > IPFV > Voice > V
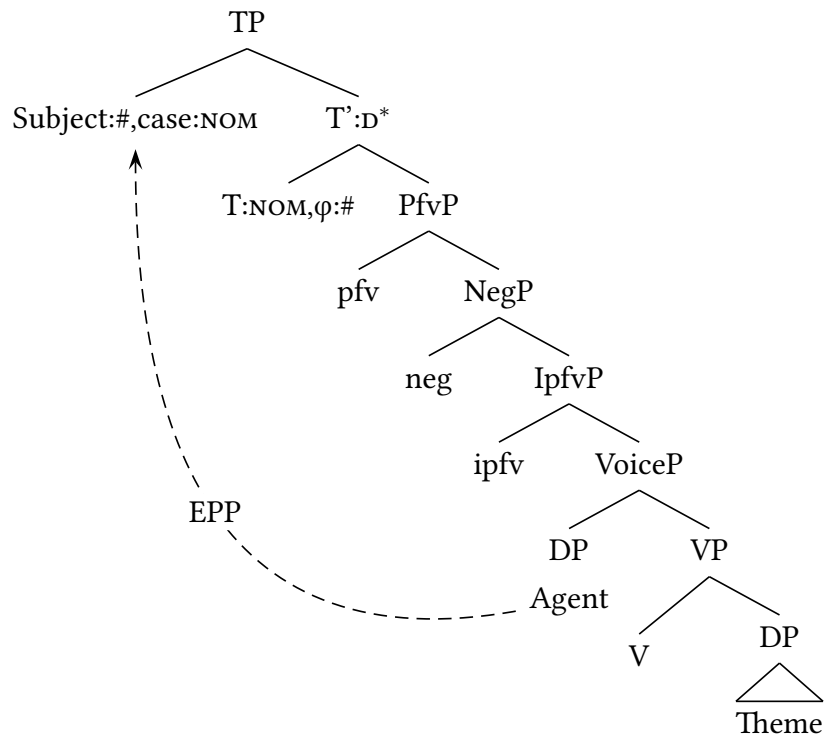
[(2)](#) shows that subject agents start in Spec VoiceP while themes (subjects and objects) start in Comp V. Considering that T assigns nominative case to its specifier and carries a number (#) φ-feature that needs to be checked, I will assume a strong EPP (Extended Projection Principle) feature on T that causes subjects in Pulaar to move to Spec TP. I will now provide some background information on the Pulaar language.

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[3]NB: perfective and imperfective do not co-occur in the Fuuta variety but do in Toore.

2 Background

2.1 Geographic Distribution and Dialects

(3)   Map 1.[4] Geographic Distribution of Pulaar

Due in part to its speakers' traditional lifestyle (semi-nomadic shepherds), maybe one of the most striking features of Pulaar concerns its vast geographical extension, which approximately covers the Sudano-Sahelian strip extending from Mauritania, Northwest Africa to South Sudan, East-Central Africa, and is traversed by important river systems.

Pulaar (ISO 639-3 fuc/fub/ffm/fuh/fuq), thought to belong to the Niger-Congo, Atlantic-Congo, North-Central Atlantic, North Atlantic, Peul-Serer, Fula, Fula-Eastern language families, is spoken by around 30 million people in at least eighteen different African countries.[5]

The name of the language varies greatly. Speakers from the more western part of the extension call their language *pulaar* or *pular* while speakers from the inland delta of the Niger River heading east prefer the term *fulfulde*. Historically, several other names have also been used. French uses the name *peul*, borrowed from the Wolof language while English uses two loanwords: Fulani, borrowed from Hausa, and Fula, borrowed from Malinke. (Mohamadou 2019).

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[4]Source: https://commons.wikimedia.org/wiki/File:Fula_language_map.svg

[5]According to Ethnologue (2021), Pulaar's language status is stable, which is partially due its relatively large speaker population. Nevertheless, Pulaar is a 'minority' language in every country in which it is spoken (McLaughlin 1995). Therefore, while the language as a whole may appear safe, some of its dialects and varieties may be somewhat endangered. For example in Senegal, there is a sociopolitical phenomenon that McLaughlin calls "wolofization" (the spread of Wolof as a lingua franca), which through assimilative forces causes language loss especially among young Pulaar speakers. Moreover, during what has been called "The Other Apartheid" Pulaar speakers have been in recent times oppressed for speaking and teaching their language (Diallo 1993).

Literature about Pulaar is relatively limited, especially in English, and is usually not very recent. It is easier to find literature on Pulaar written in French. Sylla (1982), a comprehensive grammar on modern Pulaar (Fuuta Tooro dialect), is still today the main reference that is often cited in most works. In addition, Sylla (1993) explored Pulaar's contribution to language universals. More recently, Mohamadou (2014) and (2015) described the verbal system and derivational affixes of Fuuta. Concerning works in English, Arnott (1970) wrote about the nominal and verbal system of Pulaar, focusing on the *fulfulde* dialects. Finally, Ba (2013, 2017), respectively analyzed the clause structure and nominalization in the Toore variety of Pulaar.

(4)   Map 2.[6] The Dialects of Pulaar
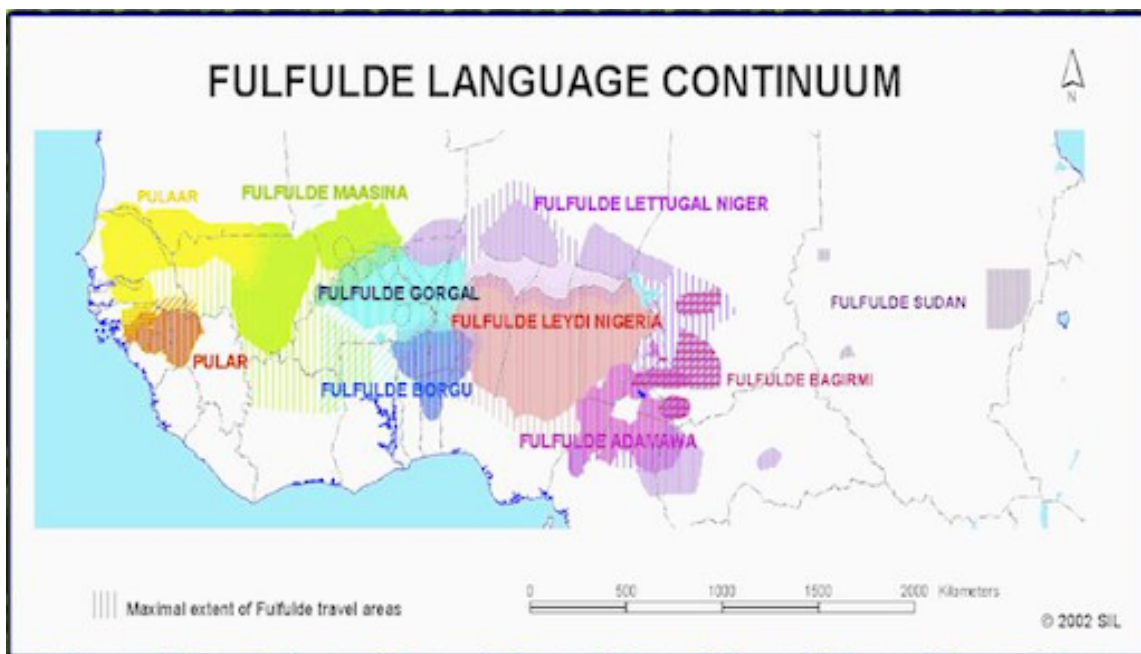
The different dialects of Pulaar, principally written using the Latin and Arabic alphabets[7], can be organized into five main geographical regions: 1) Fuuta Tooro (*pulaar*) in the lower basin of the Senegal River; 2) Fuuta Jaloo (*pular*) on the high plateaus of Guinea

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[6]Source: SIL International.

[7]Because of the limitations involved in using the Latin and/or Arabic alphabets to transcribe Pulaar, two brothers from Guinea, Ibrahima and Abdoulaye Barry, created in the 1980s their own alphabet called ADLaM. However, they faced persecution from their government and one of them, Ibrahima, was even sent to jail. Ibrahima eventually moved to the US and created fonts for the ADLaM alphabet in 2012 (Omniglot 2021).

and its periphery; 3) Maasina around the Niger inland delta; 4) multiple central dialects spoken from South East Mali to South West Niger; and 5) eastern dialects corresponding to the ancient Sokoto Empire and neighboring regions of Estern Niger, Nigeria, Cameroun, Chad, and Central African Republic (Mohamadou 2019). Mutual intelligibility is largely based upon geographical proximity.

This paper mainly focuses on the dialect of the Fuuta Tooro region called pulaar (located in the yellow area in (4) and roughly corresponding to what is today Southern Mauritania, Northern Senegal, and Western Mali) of which I am a heritage speaker. I do possess solid tacit knowledge of the language and was therefore able to collect data using my own understanding of Pulaar. Furthermore, I reviewed the data with my mother, who was born and raised in the Fuuta Tooro region and speaks Pulaar on a daily basis. Conversation and elicitation sessions with my mother were held over the phone and mostly in Pulaar; I did have to occasionally use French to clarify and/or compare ideas. To avoid confusion, I will use the term Fuuta when referring specifically to the variety of Pulaar I am focusing on: spoken in Southern Mauritania, Northern Senegal, and Western Mali. When referring to the language in general; that is, including every dialect and variety, I will use the English proper name Pulaar. Finally, the name Toore will be used for the variety of Pulaar spoken in Southern Senegal.

2.2 Word Order

Pulaar is typically a SVO language. Surface word order shows that sentences usually start with subjects followed by verbs. Complements such as DPs tend to follow verbs in regular constructions.

(5)   a.   Baaba/o   yar-∅-ii-∅   kos-am ɗam
                Baaba/3sg drink-ACT-PFV-REC milk-NC DEF
                'Father/he drank the milk.'

        b.   ko   kos-am ɗam Baaba/o   yar-∅-i-∅
                FOC milk-NC DEF Baaba/3sg drink-ACT-PFV-REC
                'It is the milk that Father/he drank.'

(5-a) illustrates Fuuta's most common subject-verb-object order. Nevertheless, (5-b) shows that word order can be flexible in some cases. Focus seems to cause DP movement, hence allowing complements to precede verbs. In (5-b), we can see that the complement/direct object *kos-am* precedes the verb root *yar*. (5-b) also demonstrates that focus constructions, which can change basic word order, seem to also trigger morphosyntactic changes. From (5-a) to (5-b), we can notice the reduction of the perfective marker *-ii* to *-i*, showing

how Pulaar uses vowel length contrast to distinguish the neutral focus option observed in (5-a) from the term focus one illustrated in (5-b).

(6) a. mi yar-∅-ii-∅   kos-am ɗam
         1SG drink-ACT-PFV-REC milk-NC DEF
         'I drank the milk.'

     b. ko kos-am ɗam njar-∅-∅-∅-mi
         FOC milk-NC DEF drink-ACT-PFV-REC-1SG
         'It is the milk I drank.'

Moreover, (6) shows that the first person subject pronoun *mi* unlike full DPs such as *Baaba* in (5) seems to allow an even more flexible word and morpheme order. With the first person subject pronoun (and also with second person pronouns, including plurals), subject markers such as *mi* can apparently appear post-verbal on the surface. In (6-b), we can see the root of the verb *yar* preceding the subject pronoun *mi*. In addition to the reduction of the perfective marker -*ii* to -∅, focus here seems to also trigger the change of the initial consonant of the verb root *yar-* : [y > nj]. Such consonant mutation seen in (6) and vowel length contrast seen in (5) are in Pulaar recurring phenomena that I will now describe.

2.3   Morpho-phonology

2.3.1   Vowel Length Contrast

As illustrated in (5), vowel length helps determine different focus options, which indicates that Pulaar speakers distinguish vowel length contrast. The following examples show that vowel length alone can indeed change the meaning of a word.

8

(7)   Table 1. Vowel Length Minimal Pairs

V	VV
amde	**aamde**
'to dance'	'to feel weary'
mi **am**-ii	mi **aam**-ii
'I danced'	'I felt weary'
lu**ɓ**de	luu**ɓ**de
'to lend'	'to smell bad'
nane	naane
'left (plural)'	'earlier'
hɩrde	hiirde
'to be jealous'	'to be late'

Table 1 (7) shows that vowel length is contrastive in Pulaar. Although minimal pairs are relatively rare, they indicate that speakers are indeed sensitive to vowel length contrast, which becomes especially relevant when analyzing how Pulaar encodes focus information in its verbal system.

2.3.2   Consonant Mutation

Consonant mutation concerns the changes of initial consonants in Pulaar lexical items. Mutation tends to occur when some type of modification is performed on a lexical item, which is oftentimes a noun but can also be a verbal root (6-b) or a suffix. For example, mutation may or not occur when a singular noun becomes plural: *faɗ-o* (shoe) > *pa-ɗe* (shoes) but *jun-ngo* (hand) > *juu-ɗe* (hands). It is not clear why, but consonant mutation is not seemingly systematic in the language. I suggest a few possible phonological reasons that could explain why mutation may be blocked in certain cases, but I will not explore this question in depth. According to Sylla (1982), the initial root consonant involved in mutation can take up to three forms: level 1 = approximants and fricatives; level 2 = plosives; and level 3 = prenasalized consonants. Sylla (1982, p.35-37) provides various examples of nouns displaying three or two levels of consonant mutation but also of cases where no change occurs:

9

(8)   Table 2. r / d / nd alternation

level 1 (approximant)	**r**awwa-ndu	'dog'
level 2 (plosive)	**d**awa-ngel	'little dog'
level 3 (prenasal)	**nd**awa-kon	'little dogs'

(8) illustrates the three possible levels of consonant mutation: from voiced alveolar trill [r] in level 1 (*rawaa-ndu*) to voiced alveolar stop [d] in level 2 (***d****awa-ngel*) to prenasalized voiced alveolar stop [nd] in level 3 (***nd****awa-kon*).

(9)   Table 3. f / p / p alternation

level 1 (approximant)	**f**aaɓr-u	'frog'
level 2 (plosive)	**p**aaɓ-el	'little frog'
level 2 (plosive)	**p**aaɓ-on	'little frogs'

(9) illustrates only two possible levels of consonant mutation: from voiceless labiodental fricative [f] in level 1 (***f****aabr-u*) to voiceless bilabial stop [p] in level 2 (***p****aaɓ-el/****p****aaɓ-on*). I suspect that level 3 mutation is not available here because Pulaar does not seem to allow word initial prenasalization before voiceless consonants: *[+nasal / #_ [-voice]] > *[#np].

(10)   Table 4. ɓ / ɓ / ɓ conservation

level 2 (plosive)	**ɓ**an-ndu	'body'
level 2 (plosive)	**ɓ**all-i	'bodies'
level 2 (plosive)	**ɓ**al-el	'little body'

Unlike (8) and (9), (10) demonstrates no mutation at all. In (8), consonant mutation seems to occur gradually from level 1 to level 2, and then from level 2 to level 3. Therefore, when an initial consonant such as the voiced bilabial implosive [ɓ] in (10) happens to be a (im)plosive, it automatically starts at level 2, 'skipping' level 1, which is reserved for initial consonants that are approximants or fricatives such as [r] in (8). According to Sylla (1982), [ɓ, ɗ, y, t, m, n, ñ, ŋ, l] never show mutation, possibly confirming that stops skip level 1 and start directly at level 2.

Concerning level 3 mutation, the first three consonants on the list are respectively all implosives: bilabial ɓ, alveolar ɗ, and palatal y. While nasals need a continuous egressive pulmonic air flow, implosives require the closing of the vocal folds, which suggests that

the prenasalization of implosives requires a combination of sounds that is rather difficult to articulate, hence possibly explaining why level 3 mutation is not available in (10).

Regarding [m, n, ñ, ŋ], they all carry a +nasal feature, which potentially prevents prenasalization and therefore level 3 mutation. As for [t] and [l], it seems that Pulaar phonotactics do not allow prenasalization in such contexts : *[#nt] and *[#nl]. These particular types of consonant clusters cannot be found in the language, especially word/root initially, which corresponds to the environment where consonant mutation occurs.

Looking at both (8) and (9), we can note that consonant mutation changes the manner of articulation but conserves for the most part voicing and place of articulation features. Initial consonants in (8) are all voiced alveolars while in (9) they are all voiceless labial sounds. (8), (9), and (10) show that depending on the manner of articulation of the initial consonant, mutation may or may not occur. Moreover, we can confirm that the mutation of initial consonants appears related to the modification process of Pulaar nouns. For example in (8), it is noun modification through suffixation that seems to trigger consonant mutation. The suffix/diminutive -*ngel* conveys 'littleness' (modifying 'dog' to 'little dog') while the suffix -*kon* conveys both 'littleness' and plurality (modifying 'little dog' to 'little dogs').

Focus/word order (6), size and number modification (8) but also part of speech (11) could all possibly play a role in consonant mutation.

(11)   a.   kos-am ɗam wul-∅-ii-∅
             milk-NC DEF be.hot-ACT-PFV-REC
             'The milk became hot.'

       b.   kos-am ngul-ɗam ɗam
             milk-NC hot-NC   DEF
             'The hot milk.'

(11) illustrates how certain adjectives in Pulaar can be derived from verbal roots. The adjective *ngul-ɗam* in (11-b) is formed by taking the verbal root *wul* in (11-a) and by adding the suffix -*ɗam*, which agrees with the noun being modified *kos-am* and seems to trigger the mutation [w > ng] of the initial consonant of the verbal root *wul*. Lexical items such as -*ɗam* in (11-b) or -*ngel* in (8) are called noun class suffixes; they are omnipresent in Pulaar and dictate an important part of the language agreement system. The following section provides a brief overview of the different noun classes that can be found in Fuuta.

2.4 Noun Classes

Fuuta has 21 noun classes while other Pulaar dialects have up to 27 noun classes (Mohamadou 2019). Every noun in the language belongs to a specific class, which governs a system of agreement operating whenever a noun is modified; that is, for example when a definite article (12-b), an adjective (12-c), or a demonstrative pronoun (12-d) is added to modify the noun in question. Definite articles and adjectives follow nouns while demonstratives can either precede or follow nouns. The absence of the definite article in (12-a) conveys indefiniteness.

(12) a. mi yar-∅-ii-∅   kos-am
          1SG drink-ACT-PFV-REC milk-NC
          'I drank milk.'

      b. mi yar-∅-ii-∅   kos-am ɗam
          1SG drink-ACT-PFV-REC milk-NC DEF
          'I drank the milk.'

      c. mi yar-∅-ii-∅   kos-am ngul-ɗam ɗam
          1SG drink-ACT-PFV-REC milk-NC hot-NC   DEF
          'I drank the hot milk.'

      d. mi yar-∅-ii-∅   ɗam kos-am ngul-ɗam
          1SG drink-ACT-PFV-REC DEM milk-NC hot-NC
          'I drank this hot milk.'

It is thought that classes may have originally corresponded to specific semantic categories, but that over time the system of classification became with a few exceptions more obscure (Sylla 1982). Today, nouns with no apparent semantic relationship belong to the same noun class.

(13)   Table 5. Noun Classes in Fuuta (Niang 1997).

Class	Semantic (not exhaustive)	Examples	Gloss
o	humans, loanwords	neɗɗ-**o**	'person'
ɓe	human plurals	yim-**ɓe**	'persons'
nde	object with certain shapes	loo-**nde**	'water vessel'
ndi	male animals, birds	ngaar-**i**	'bull'
ndu	animals, circular objects	rawaa-**ndu**	'dog'
nge	celestials, cattle, abstracts	naa-**nge**	'sun'
ngo	abstracts, animals	hurɓaa-**ngo**	'roar'
ngu	animals, insects	pucc-**u**	'horse'
ngal	body parts, augmentatives	koy-**ngal**	'leg'
ngol	actions, animals,	noddi-**ngol**	'call for prayer'
ba	animals	ngeloo-**ba**	'camel'
ka	objects, abstracts	koor-**ka**	'fasting month'
ki	objects, plants	laɓ-**i**	'knife'
ko	plants	haa-**ko**	'spinach'
ɗum	neuter	koy-**ɗum**	'lightweight'
ɗam	mass, liquids, abstracts	lam-**ɗam**	'salt'
ɗe	objects (plurals), animals	laa-**ɗe**	'pirogues'
ɗi	animals, objects (plurals)	liɗ-**ɗi**	'fish' (plural)
ngel	singular diminutives	cukal-**el**	'infant'
kal	diminutives	ken-**al**	'breeze'
kon	plural diminutives	cukal-**on**	'infants'

As we can see in (13), if noun classes ever corresponded to clear and restricted semantic categories, it is no longer the case, for we can observe much overlap and exceptions among the various classes. For example the words *loo-nde* (water vessel) and *lad-de* (forest) belong to the same *nde* noun class but do not seem to have much in common semantically. Also, the noun class *ɗam* is usually reserved for mass nouns and liquids such as *ndiy-am* (water) or *kos-am* (milk), yet *maay-o* (river) belongs to the *ngo* class which includes abstracts and animals. Nevertheless, a few classes show more consistency concerning their semantic characteristics: *ngel* and *kal* (mass/liquids) appear to be exclusively reserved to denote littleness, that is, they are strictly used as diminutive suffixes.

Moreover, we can note that in their simplest form, nouns in Fuuta consist of a root + a noun class suffix as in *lam-ɗam* = *lam* + *ɗam* = 'salt'. However, in several cases, an element is either added or removed (maybe because the language disfavors certain

13

consonant clusters). In *rawaa-ndu* (dog), a long vowel appears between the root of the noun *raw* and the noun class suffix *-ndu* while in *kos-am* (milk), the form of the noun class suffix *-ɗam* appears reduced. While (12) demonstrates that when a noun is modified, it is the noun class marker that dictates agreement with definite articles, adjectives, and demonstratives, (14) illustrates that failure to show the appropriate noun class agreement leads to ungrammaticality.

(14) a. *mi yar-ø-ii-ø   kos-am ngu
          1SG drink-ACT-PFV-REC milk-NC DEF
          'I drank the hot milk.'

      b. *mi yar-ø-ii-ø   kos-am ngul-ɗum ɗam
          1SG drink-ACT-PFV-REC milk-NC hot-NC   DEF
          'I drank the hot milk.'

In (14-a), the definite article *ngu* does not agree in class with *kos-am*, the noun it modi-fies. In (14-b), it is the adjective *ngul-ɗum* that does not agree in class with *kos-am*. All three lexical items (noun + adjective + definite article) must agree in class; otherwise, the sentence is not acceptable.

(15) a. pucc-u ngu   (16) a. nguu pucc-u
          horse-NC DEF   DEM horse-NC
          'The horse'.   'This horse'.

      b. *ngu pucc-u   b. pucc-u   nguu
          DEF horse-NC   horse-NC DEM
          'The horse'.   'The horse'.

(17) *nguu pucc-u   ngu
      DEM   horse-NC DEF
      'The/this horse.'

As (15-b) illustrates, definite articles cannot precede nouns while (16) shows that demon-stratives can appear either before or after nouns. It is though more common for demon-stratives to precede nouns. When demonstratives follow nouns as in (16-b), more empha-sis is put on the noun, so we could say that (16-b) may be preferred over (16-a) for a focus purpose. Finally, (17) shows that definite articles and demonstratives do not co-occur in Fuuta.

3 The Perfective Aspect

3.1 Perfective clauses and Tense

Although the perfective marker -*ii* may not overtly communicate tense information, it tells us that an action has been recently completed. Since the perfective aspect conveys the completion of an action and because it shows pragmatic restrictions when combined with certain adverbs of time, I argue that the perfective marker -*ii* conveys a recent past meaning.

(18) a. #rawane Baaba sood-ii   lam-ɗam
          last.year Baaba buy-PFV salt-NC
          'Last year, Father bought salt.'

      b. rawane   Baaba sood-ii-no   lam-ɗam
          last.year Baaba buy-PFV-DIST salt-NC
          'Last year, Father bought salt.'

      c. hecanki/hanki/hande   Baaba sood-ii   lam-ɗam
          last.year/yesterday/today Baaba buy-PFV salt-NC
          'Two days ago/yesterday/today, Father bought salt'.

      d. #jango   Baaba sood-ii   lam-ɗam
          tomorrow Baaba buy-PFV salt-NC
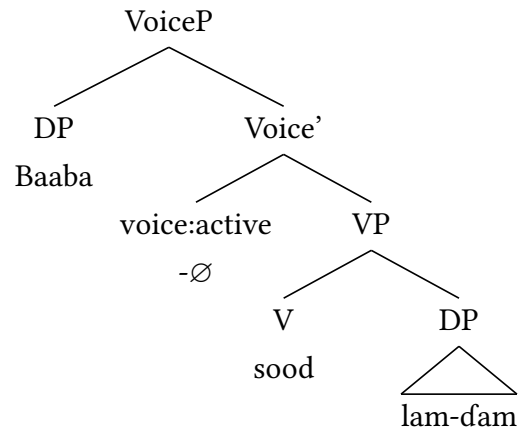   'Tomorrow, Baaba bought salt.'

(18-a) shows that it is not felicitous to use the perfective aspect alone when describing a distant past event. (18-b) corrects the infelicity of (18-a) by adding the overt distant past tense marker -*no* to the perfective marker -*ii*, demonstrating that with the adverb *rawane* (last year), the overt distant past tense marker -*no* is required. (18-c) shows the compatibility of the perfective with adverbs that convey a recent past interpretation. Comparing (18-a), (18-c) and (18-d), we can confirm that the perfective aspect does seem to convey tense information, for it shows compatibility with adverbial expressions such as 'two days ago, yesterday, and today' but incompatibility with 'last year' and 'tomorrow'.

3.2 Perfective clauses and Past Tense

As seen in (18-b), the occurrence of the distant past tense marker -*no* and its order of affixation in relation to the verbal root *sood* and perfective marker -*ii* confirm that tense can be overtly encoded in the Pulaar verbal system and that the hierarchy of projections of the clause structure does include space for a high tense head.

(19) Baaba sood-∅-ii-no   lam-ɗam
      Baaba buy-ACT-PFV-DIST salt-NC
      'Father bought salt' (a long time ago).

(20)

```
                         VoiceP
                        /      \
                      DP        Voice'
                    Baaba      /      \
                         voice:active  VP
                              -∅      /    \
                                     V      DP
                                   sood    /\
                                        lam-ɗam
```

Following the proposal of "Severing the External Argument from its Verb" Kratzer (1996), (20) represents the underlying VoiceP structure of (19) before head movement occurs. With a transitive verb such as *sood*, we expect for the sentence to be grammatical the presence of two arguments: a subject agent *Baaba* located in Spec VoiceP and a direct object *lam-ɗam* appearing in Comp V. As we can see in (19), the presence on the surface of the perfective -*ii* and past -*no* markers following the verbal root *sood* indicates evidence of higher projections than VoiceP.

Cinque (1999) argues for a fixed and universal hierarchy of functional heads. Although debatable, Cinque's hypothesis provides a useful starting point when one is looking at a relatively understudied language such as Pulaar. We can note, however, that in Cinque (1999), the meaning of the various functional heads presented in the hierarchy is not defined. Therefore, it can be challenging in some cases to analyze Cinque's claim when one does not understand the nuances between the different functional heads. For example, what is the difference between "Asp perfect" and "Asp completive"?

(21)   Fixed and Universal Hierarchy of Functional Heads (Cinque 1999, p.76).

Mood speech act > Mood evaluative > Mood evidential > Mod epistemic > **T (Past)** > T(Future) > Mood irrealis > Asp habitual > T(Anterior) > **Asp perfect** > Asp retrospective > Asp durative > **Asp progressive** > Asp prospective / Mod root > **Voice** > Asp celerative > Asp completive > Asp (semel) repetitive > Asp iterative

(21) illustrates the fixed and universal hierarchy of functional heads that Cinque (1999) argues for. Because there is no consensus concerning the terminology of functional heads, I assume here that "Asp perfect" corresponds to Pulaar's perfective aspect while "Asp progressive" coincides with what is called the imperfective aspect in Pulaar. In bold, the functional heads I am analyzing in this paper: T (Past), Asp perfect, Asp progressive, and Voice.

(22)
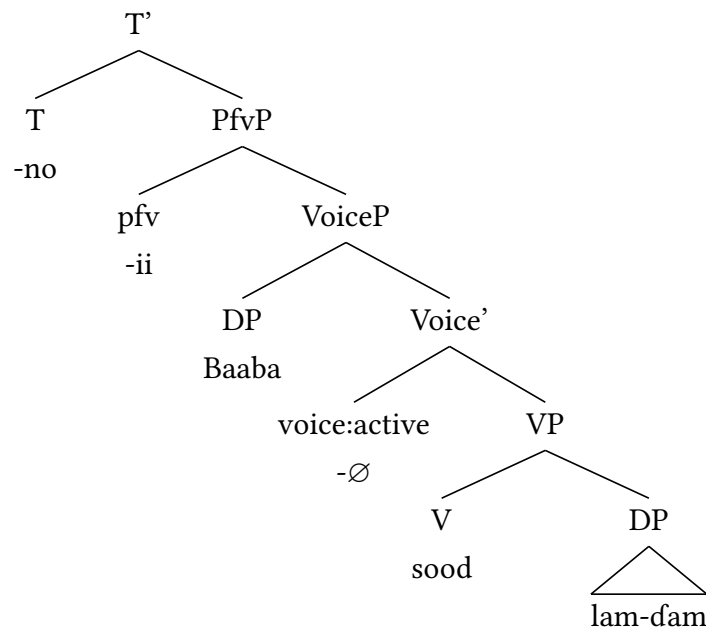
Considering the Fixed and Universal Hierarchy of Functional Heads Hypothesis illustrated in (21), (22) shows the additional internal structure we can assume for Pulaar affirmative perfective constructions. The perfective marker -*ii* is located above the null active voice head -∅ while the distant past tense marker -*no* appears higher than pfv. The location of both perfective and distant past tense markers suggests a derivation involving multiple instances of verb movement.

According to the Mirror Principle (Baker 1985), the surface morpheme order root-voice-aspect-tense seen in (19) corresponds to the tense-aspect-voice-root internal structure in (22), that is, the mirror image of what can be observed on the surface. An X-Y-Z surface morpheme order illustrates in fact a Z-Y-X deep structure, which dictates the order of affixation and suggests recursive leftward verb movement.

(23)
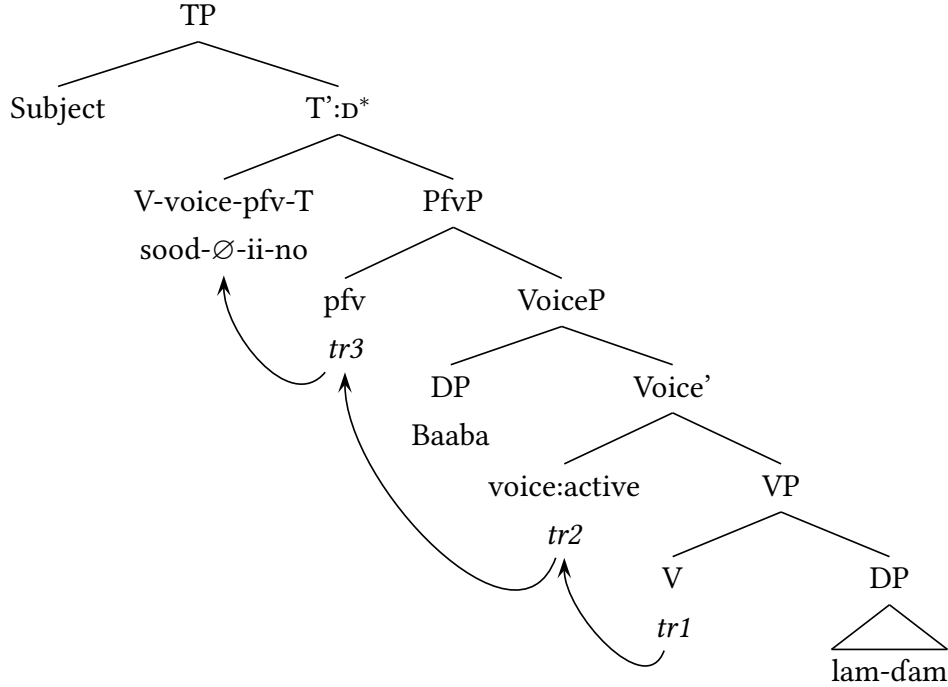
(23) illustrates how the surface morpheme order: root-active-perfective-distant (sood-∅-ii-no) observed in (19) corresponds internally to a distant-perfective-voice-root (-no-ii-∅-sood) hierarchical structure, indicating that Pulaar surface morpheme order in perfective constructions is derived through various instances of verb movements. I will now show evidence of such verb movements, which considering Pulaar SVO surface word order, hints at an additional head movement: DP Agent to Spec TP.

3.3   Perfective clauses and Adverbs

In Fuuta, certain adverbs can intervene between verbs and their complements, which provides evidence for verb movement.

(24) Baaba yar-∅-ii-∅   ˈseese   kos-am ɗam <seese>
      Baaba drink-ACT-PFV-REC slowly milk-NC DEF <slowly>
      'Father slowly drank the milk.'

(24) illustrates one possible location for manner adverbs in Pulaar. More commonly, the adverb *<seese>* would occur at the end of the sentence after the DP complement *kos-am ɗam*. However, (24) shows that it is possible for ˈ*seese* to adjoin sooner in the derivation and appear in the middle of the sentence. Interestingly, the pronunciation of *seese* varies depending on its location in the sentence. It is significantly stressed in (24), possibly putting more emphasis/focus on the 'slowness' of the action being described.

(25)

19
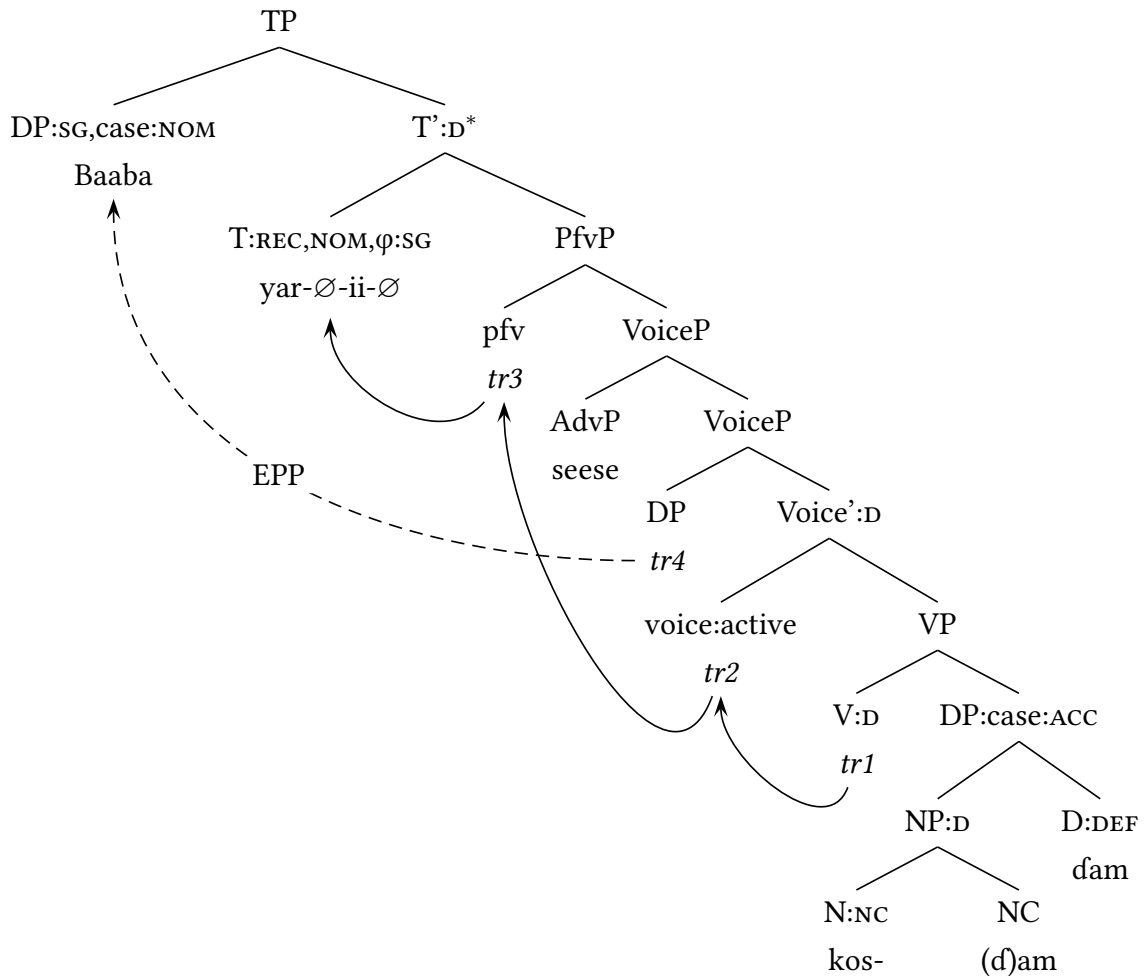
Based on Adger ([2003](#)), [(25)](#) illustrates three main syntactic operations I use to build my trees: Merge, Adjoin, and Agree, which mostly rely on the feature-selectional properties of heads and their checking requirements. In other words, lexical items carry specific features that need to be checked so that grammaticality can be reached. The merge operation takes lexical items and builds larger syntactic structures, allowing one lexical item, a head, to select another lexical item, a complement that carries the appropriate feature. Unchecked features project to higher nodes, so the derivation process continues as long as there are remaining features that need to be checked.

As previously mentioned, Pulaar is a language with noun classes. In Fuuta, every noun root is always followed by a noun class suffix, suggesting that it is possibly the noun root *kos* (milk) that carries a noun class feature (NC:) that needs to be checked before Merge operates. If NC: is not checked, the derivation crashes either because N is missing its noun class suffix or because it receives the wrong noun class suffix. I showed in §[2.4](#) how the lack of noun class agreement led to ungrammaticality.

Also, I am assuming that nouns in Pulaar carry a D: feature that corresponds to various noun modification options: for example choosing between definite, indefinite, or demonstrative features. After N (*kos*) merges with the appropriate noun class marker *(d)am*, the derivation continues because there are more features waiting to be checked. Therefore NP *kos-am* merges with D *dam*, which carries the 'definite' feature NP *kos-am* was looking for. Again, we can note that the definite article *dam* must show class agreement with *kos-am* for the Merge operation to succeed. When there are no more features to be checked, we arrive at the end of the DP projection.

Once our DP is fully formed thanks to two Merge operations, it can merge with V, which carries various features. Transitive verb roots like [*yar*] (drink) require two arguments (a theme complement and an agent specifier). Missing arguments and unchecked D: features explain the ungrammaticality of [(26)](#).

(26)   a.   *mi   sood-∅-ii-∅
             1SG buy-ACT-PFV-REC
             'I bought'.

       b.   *sood-∅-ii-∅   lam-dam dam
             buy-ACT-PFV-REC salt-NC   DEF
             'bought the salt'.

When the DP complement [*kos-am dam*] (the milk) merges with V, it receives accusative case from V. Evidence of case in Pulaar can be found when comparing subject and object pronouns:

(27) a. o   ɗoft-∅-ii-∅-mo
         3SG accompany-ACT-PFV-REC-3SG.OBJ
         'She[8] accompanied him.'

    b. *mo   ɗoft-∅-ii-∅-o
        3SG.OBJ accompany-ACT-PFV-REC-3SG
        'Him accompanied she.'

The different forms of the subject and object pronouns in (27-a) and the ungrammaticality of (27-b) suggest that verbal complements receive accusative case while subjects raised to Spec TP receive nominative case. After merging with its DP complement and assigning it accusative case, V then merges with the null active voice morpheme -∅ before VoiceP, according to Kratzer (1996), introduces in its specifier DP agent [*Baaba*] (Father).

The next step does not require the use of categorial selectional features because adjuncts such as adverbs and adjectives are optional elements in the derivation, providing additional but not mandatory information. The Adjoin operation simply attaches AdvP [*seese*] to VoiceP [*yar kos-am ɗam*].

Next, the Agree operations illustrate the need for verbs in Pulaar to receive overtly or covertly voice, aspect, tense, and number information. Considering the Fixed and Universal Hierarchy of Projection of Functional Heads Hypothesis (Cinque 1999) and the Mirror Principle (Baker 1985), V [*yar*] must move upward to check the inflection features (Infl:) it carries.

Consequently, when V [yar] moves up and attaches the null active voice head [-∅], the voice inflection feature is valued/checked (> Inf: active). In a similar fashion and for analogous reasons, V-voice [*yar-∅*] moves up and joins the perfective marker *-ii*, which allows the aspect inflection feature to be valued and checked (> Infl: pfv). V-voice-pfv [*yar-∅-ii*] then moves up and attaches the null recent past T head [-∅] so that its tense inflection feature is valued/checked (> Infl: recent past).

When tense is not overtly marked, Pulaar morpheme order does not seem to indicate V to T movement. However, as shown in §3.1, felicity tests do indicate that although not overtly, such perfective clauses do carry recent past tense information, which could help motivate V to T movement even when surface morpheme order does not provide enough evidence. I therefore argue that T is here occupied by a null tense marker.

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[8]NB: pronouns in Pulaar do not actually distinguish gender.

(28)   *Baaba hande sood-ii   lam-ɗam
       Baaba   today   buy-PFV salt-NC
       'Today, Father bought salt'.

The ungrammaticality of (28) may be evidence for the presence of a null T head motivating V to T movement since it is not possible to adjoin an adverb between the verb and its subject; the position seems to be covertly occupied. After V to T movement, a final head movement is needed to explain that in Pulaar, subjects usually precede verbs. Because V-voice-pfv moved to T, we need to explain why the subject needs to move all the way up to Spec TP. Considering that T assigns nominative case to its specifier while carrying a φ-feature (φ:) that needs to be checked, I assume that T carries as well a strong EPP feature (D*) that causes subjects in Pulaar to move to Spec TP. As shown in (27), there is evidence of case assignment in Fuuta. While V assigns accusative to its DP complement, T seems to assign nominative case to its DP specifier. The Strong EPP feature on T causes DP [*Baaba*] to move to Spec TP, allowing DP [*Baaba*] to receive nominative case from T.

Next, after moving to Spec TP and receiving nominative case from T, DP [*Baaba*] in return allows the φ: feature on T to be valued and checked. It is usually consonant mutation, which I described in §2.3.2 that indicates subject-verb agreement. The fact that in Pulaar subjects and verbs need to agree in number supports the hypothesis of a null T head that carries a φ-feature.

(29)   a.   Baaba yar-∅-ii-∅   kos-am
            Father drink-ACT-PFV-REC milk-NC
            'Father drank milk.'

       b.   sukaa-ɓe   ɓe njar-∅-ii-∅   kos-am
            children-NC 3PL drink-ACT-PFV-REC milk-NC
            'The children drank milk.'

(29) demonstrates subject-verb agreement via consonant mutation. When the singular subject (29-a) becomes plural (29-b), the initial consonant of the verb root changes: [y > nj], providing evidence for a null T head that not only carries tense and case information but also a φ feature. When φ: on T is valued by the singular feature carried by DP [*Baaba*] (> φ: SG), which moved to Spec TP, making sure V-voice-pfv-recent [*yar-∅-ii-∅*] agrees in number with DP [*Baaba*], the derivation is finally complete, for all features have been checked.

Considering where AdvP adjoins, V must leave VoiceP and move up to reflect surface word order. Moreover, even in the absence of an overt tense head, V to T movement can still be motivated by the presence of an inflection tense feature on V that is valued by the recent past tense feature carried by T, suggesting that V to T movement allows

the valuing and checking of the inflection tense feature on V. I will now provide further evidence of verb movement using the order of affixation of the negation morpheme -*aa*.

3.4   Perfective clauses and Negation

We can note that considering the Fixed and Universal Hierarchy of Functional Heads Hypothesis (Cinque 1999), the Mirror Principle (Baker 1985), and the surface morpheme order in affirmative or negative constructions, with or without an overt tense marker, perfective clauses seem to always suggest verb movement.

(30)   a.   Baaba sood-∅-ii-∅   lam-ɗam
            Baaba buy-ACT-PFV-REC salt-NC
            'Father bought salt.'

       b.   Baaba sood-∅-aa-ni-∅   lam-ɗam
            Baaba buy-ACT-NEG-PFV-REC salt-NC
            'Father did not buy salt.'

(30-a) illustrates how the order of affixation of the perfective marker -*ii* following the verb root *sood* can alone motivate verb movement because considering that perfective is located higher than VP, V must move up to attach the perfective marker. For similar reasons, (30-b) confirms the need for verb movement because on the surface the negation marker -*aa* follows the verb root *sood*. So considering that negation is located higher than VoiceP, V must move up to attach the negation morpheme -*aa*.

Moreover, (30-b) suggests that: 1: perfective is higher than negation and 2: negation triggers allomorphy of the perfective marker [-*ii* > -*ni*]. We can note that in (30-b), negation alone does not indicate V to T movement. Morpheme word order only hints V movement to the perfective marker -*ii*. To find evidence of verb movement to T from morpheme order in negative constructions, it is necessary to look at perfective clauses displaying the distant past marker -*no*.

(31)   Baaba sood-aa-∅-no   lam-ɗam
       Baaba buy-ACT-NEG-PFV-past salt-NC
       'Father did not buy salt' (a long time ago).

Assuming that -*no* is located in T, (31) provides evidence of V movement to T from morpheme order in negative constructions.

(32)
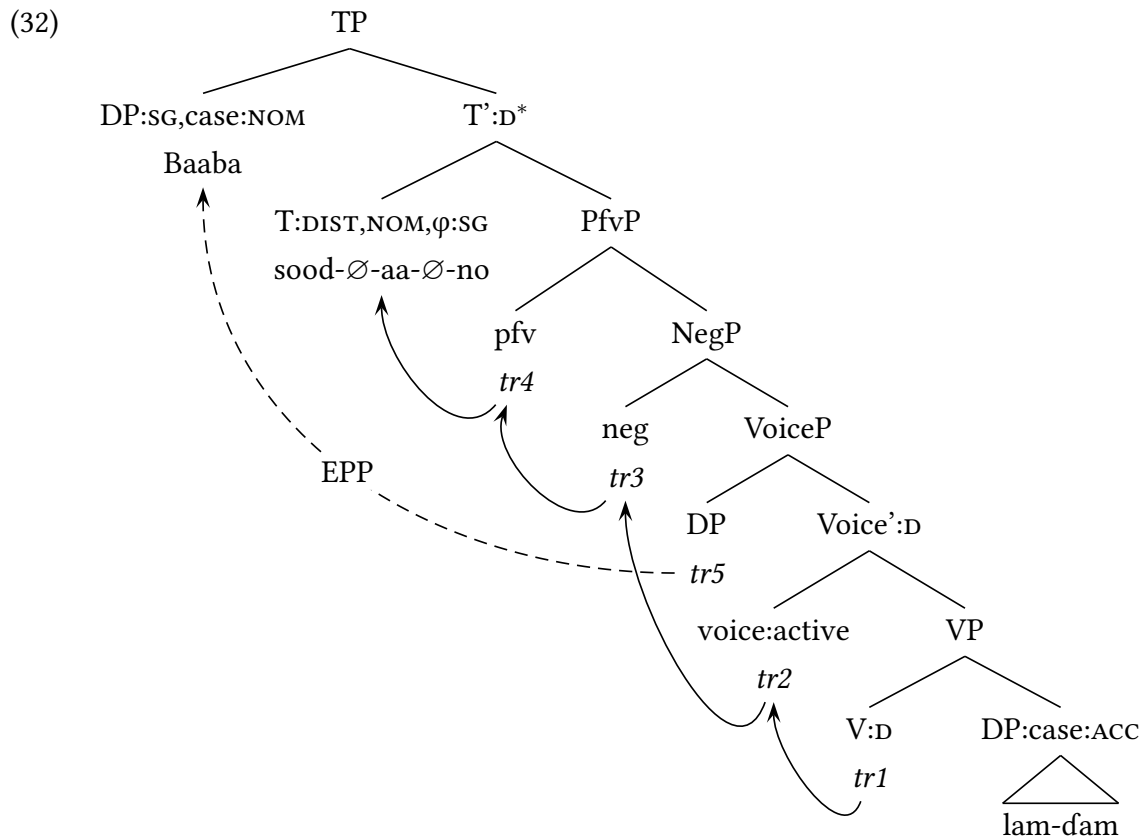
(32) shows how the Agree operation triggers verb movement. V carries inflection features for voice, negation, aspect, and tense. Considering that these functional heads are located above VoiceP, V must move upward so that inflection features can be checked. With the presence of the distant past tense morpheme *-no* and considering the Mirror Principle (Baker 1985), V to T movement seems somewhat inevitable. Moreover, both (31) and (32) suggest that the negative perfective marker *-ni* does not co-occur with the distant past marker *-no*. In (30-b), we see that *-ni* can co-occur with the negation morpheme *-aa*, but when *-no* is added to the derivation, the negative perfective marker *-ni* is dropped. I will now look at the imperfective aspect and show that unlike the perfective, the imperfective marker can co-occur with *-no* in negative clauses.

4 Imperfective

While the perfective aspect conveys the completion of an action and the recent/distant past, the imperfective indicates that an action has not been completed, thus often indicating the present or future tense. I assume that the imperfective aspect in Pulaar corresponds to what Cinque (1999) calls the progressive aspect. Although Cinque deliberately omits negation in the Fixed and Universal Hierarchy of Functional Heads Hypothesis (21), explaining that cross-linguistically, negation functional heads can occupy various syntactic positions and can even co-occur in some cases, I will argue that negation in Fuuta is located between perfective and imperfective.

(33) a. jango   Baaba sood-∅-at-∅   lam-ɗam
          tomorrow Baaba buy-ACT-IPFV-FUT salt-NC
          'Tomorrow, Father will buy salt.'

      b. jango Baaba sood-∅-at-aa-∅   lam-ɗam
          jango Baaba buy-ACT-IPFV-NEG-FUT salt-NC
          'Tomorrow, Father will not buy salt.'

(33) shows that unlike with the perfective, negation does not trigger allomorphy of the imperfective marker. Whether in affirmative clauses (33-a) or in negative clauses (33-b), the form of the imperfective marker -*at* remains identical. Another difference between perfective and imperfective concerns the co-occurence of the imperfective -*at* and distant past -*no* markers in negative clauses.

(34) a. Baaba sood-∅-at-no   lam-ɗam
          Baaba buy-ACT-IPFV-DIST salt-NC
          'Father would buy salt' (a long time ago).

      b. Baaba sood-∅-at-aa-no   lam-ɗam
          Baaba buy-ACT-IPFV-NEG-PAST salt-NC
          'Father would not buy salt' (a long time ago).

(34-b) shows that unlike the perfective, the imperfective can co-occur with the distant past marker -*no*. From (34-a) to (34-b), the verb root + null active voice and imperfective markers [*sood-ø-at*] seems to simply move up and attach the negation morpheme -*aa* before moving to T and attach the distant past marker -*no*. Considering how the order of affixation works with the imperfective, we could expect the following example to be possible:

(35)   *Baaba sood-∅-aa-ni-no lam-ɗam
        Baaba buy-ACT-NEG-PFV-DIST salt-NC
        'Father did not buy salt' (a long time ago).

Nevertheless, (35) is ungrammatical, confirming the incompatibility of negative perfective -*ni* with distant past -*no* and showing that affixation with the imperfective operates differently than with the perfective. The following examples illustrate how negation indicates two different syntactic positions for perfective and imperfective in Fuuta.

(36)   a.   Baaba sood-∅-aa-ni-∅   lam-ɗam
              Baaba buy-ACT-NEG-PFV-REC salt-NC
              'Father did not buy salt.'

        b.   Baaba sood-∅-at-aa-∅   lam-ɗam
              Baaba buy-ACT-IPFV-NEG-FUT salt-NC
              'Father will not buy salt.'

In (36-a), we see the negative marker -*aa* preceding the perfective marker -*ni* while in (36-b), we see the imperfective marker -*at* preceding the negative marker -*aa*. Although both perfective and imperfective markers seem to similarly convey aspectual and tense information, Pulaar surface morpheme order indicates that perfective is located higher than negation while imperfective appears lower than negation. We can note that it is the presence of negation that unveils this variation. In affirmative sentences, perfective and imperfective markers appear on the surface to occupy the same position, simply attaching the root of the verb as suffixes (cf. (30-a) and (33-a)).

    The co-occurence of perfective and imperfective affixes in Fuuta would support the idea that perfective and imperfective do occupy different syntactic positions; yet, Fuuta does not show such evidence. However, according to Ba (2013), Toore, a close variety of Fuuta spoken in Southern Senegal, does display perfective and imperfective co-occurrence:

(37)   a.   mi loot-∅-oto-no
              1sg wash-ACT-IPFV-DIST
              'I used to wash myself / I would wash myself (habitual).'

        b.   mi loot-at-noo-m
              1sg shower-IMPERF-PAST-PERF
              'I used to shower / I would shower (habitual).'

(37) illustrates that in Fuuta (37-a), one must choose between perfective and imperfective

while in Toore (37-b)[9] from Ba (2013), speakers seem to have the possibility in certain cases to combine both aspects. (37-b) shows that in Toore, perfective and imperfective can indeed co-occur, possibly providing evidence for a hierarchy of projection where in Fuuta perfective is higher than imperfective. Nevertheless, we can note that when Toore shows co-occurrence of perfective, imperfective, and past markers (37-b), Fuuta (37-a) only uses the imperfective and past markers to convey a similar meaning.

Although Fuuta and Toore belong to the same Fuuta Tooro dialect and are spoken in relatively nearby regions, the two variants display significant differences. On one hand, Toore provides evidence that could explain why perfective and imperfective seem to occupy distinct positions in Fuuta. On the other hand, considering Ba (2013), Toore shows a contrasting surface morpheme order, which compared to Fuuta, suggests a different hierarchical structure for the two varieties.

(38)   a.   mi suuɗ-∅-ii-no-mo
            1sg hide-ACT-PFV-DIST-3SG.OBJ
            'I hid it' (a long time ago).

       b.   mi suuɗ-no-moo-m
            1sg hide-DIST-3SG.OBJ-PFV
            'I hid it' (a long time ago).

       c.   *mi suuɗ-∅-no-mo-ii
            1sg hide-ACT-DIST-3SG.OBJ-PFV
            'not intelligible'

Based on the surface morpheme order Ba (2013) describes for Toore: Verb-Tense-Object-Perfective, (38) illustrates how Fuuta (38-a) and Toore (38-b) surface morpheme orders differ. First, we can note that although the forms of the past and object markers are almost identical in both varieties, the perfective markers are not alike: -ii in Fuuta but -m in Toore. More importantly, while Toore displays a Verb-Past-Object-Perfective order, Fuuta shows a Verb-Perfective-Past-Object order. As Ba (2013) argues, evidence such as (38-b) suggests that in Toore perfective is higher than T.

However, in Fuuta, there is no such evidence that perfective could be located higher than T, hence contradicting the Fixed and Universal Hierarchy of Functional Heads Hypothesis (Cinque 1999). (38-c) shows that using Toore morpheme order in Fuuta leads to ungrammaticality and unintelligibility, confirming significant contrast between the two varieties. I will now end this paper with a brief discussion of voice, suggesting that Pulaar provides cross-linguistic evidence for the expletive voice head proposed by Alexiadou et

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[9]Ba (2013) uses the abbreviation PERF for the perfective and IMPERF for the imperfective. Also, Ba chooses the expression 'shower' as a translation of the reflexive verb *loot-aa-de* (to wash oneself).

al. (2015).

5 Voice

Pulaar uses a three-voice system: active, middle, and passive. While certain verbs such as
loot-de (to wash) / *loot-aa-de* (to wash oneself) / *loot-ee-de* (to be washed) are compatible
with all voices, others such as *siw-de* (to pour) / *siw-ee-de* (to be poured) or *yeet-aa-de* (to
arrive) are compatible with only two or one voice option. The uses of the middle voice
in Pulaar are various, but I will focus on the reflexive and anti-causative interpretations.

(39) a. Baaba loot-∅-ii-no   pucc-u   ngu
          Baaba wash-ACT-PFV-DIST horse-NC DEF
          'Father washed the horse' (a long time ago).

      b. Baaba loot-∅-ii-no-ma
          Baaba wash-MID-PFV-DIST-EXPL
          'Father washed himself' (a long time ago).

      c. pucc-u   ngu loot-∅-aa-no-ma
          horse-NC DEF wash-PASS-PFV-DIST-EXPL
          'The horse was washed' (a long time ago).

Using the verb root *loot* (wash), compatible with all three voices, (39) illustrates how
voice is encoded in Pulaar. (39-a) shows that no overt marker conveying the active voice
can be seen on the surface. However, in both middle (39-b) and passive voice (39-c)
contexts, we can observe the addition of the *-ma* morpheme, which seems to indicate the
shift from active to middle/passive voice. We can also note in (39-c) the different form of
the perfective marker (*-ii* > *-aa*), indicating that not only negation but also passive voice
triggers allomorphy of the perfective marker *-ii*. Also, considering its order of affixation
(always appearing on the surface as the last verbal affix) and the Mirror Principle (Baker
1985), *-ma* seems to occupy a rather high position, higher than perfective and tense,
which contradicts the hierarchy of projections I proposed for Pulaar and generates the
-ma problem: what is the function of the *-ma* morpheme in Pulaar? Why is it present in
both middle and passive voice contexts? Where is it located in the syntactic hierarchical
structure?

Alexiadou et al. (2015),[10] following the idea that VoiceP introduces external argu-
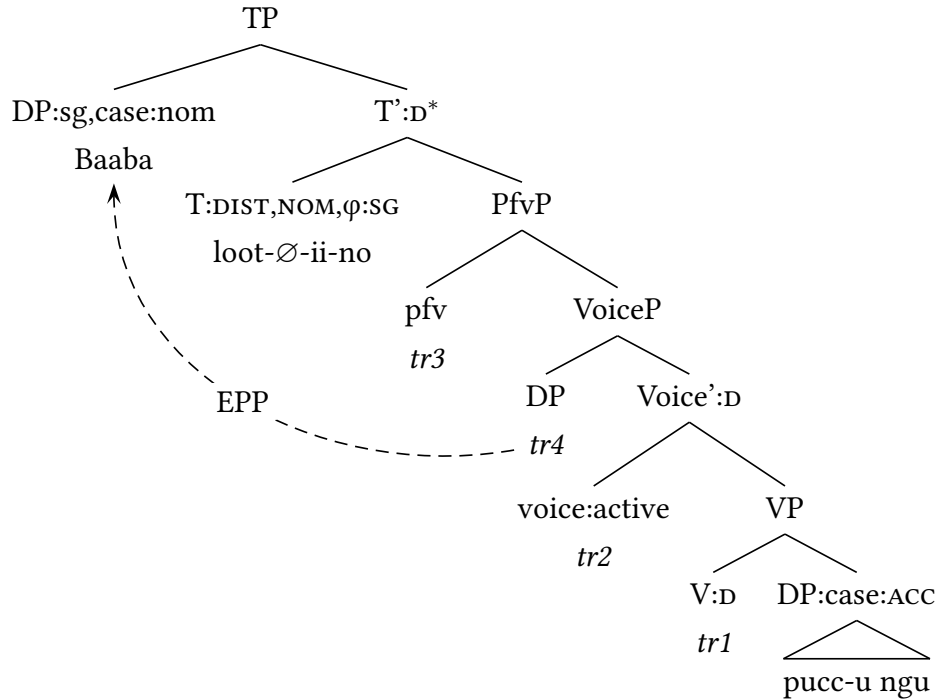ments (Kratzer 1996), explores the syntax of external arguments in transitivity alterna-

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[10] Alexiadou et al. (2015) centers on English, German, and Greek but also mentions Romance and Semitic
languages for comparative purposes.

tions and suggests that voice is responsible for the causative/anti-causative verbal variation. To explain why in certain languages anti-causative, passive, and reflexive constructions are marked with the same morphology, Alexiadou et al. (2015) proposes an expletive voice head (located in Spec VoiceP) that reflects the lack of an overt external argument in such contexts.

(40) a. Baaba uddit-∅-ii-no   dam-al ngal
          Baaba open-ACT-PFV-DIST door-NC DEF
          'Baaba opened the door' (a long time ago).

     b. dam-al   ngal uddit-∅-ii-no-ma
          door-NC DEF open-MID-PFV-DIST-EXPL
          'The door opened' (a long time ago).

(40) shows that the -*ma* morpheme also occurs in anti-causative constructions in addition to appearing in middle/passive voice contexts, and apparently at the same exact position: final verbal affix. Because the common denominator in middle (39-b), passive (39-c) and anti-causatives (40-b) is the lack of an overt external argument, I suggest that Pulaar provides evidence for Alexiadou et al. (2015), which 1. claims that the causative/anti-causative variation is in fact a voice alternation and 2. that the occurrence of an expletive voice head can explain why in certain languages such as Pulaar, the same morphology such as the -*ma* morpheme can be found in anti-causative, reflexive, and passive constructions.
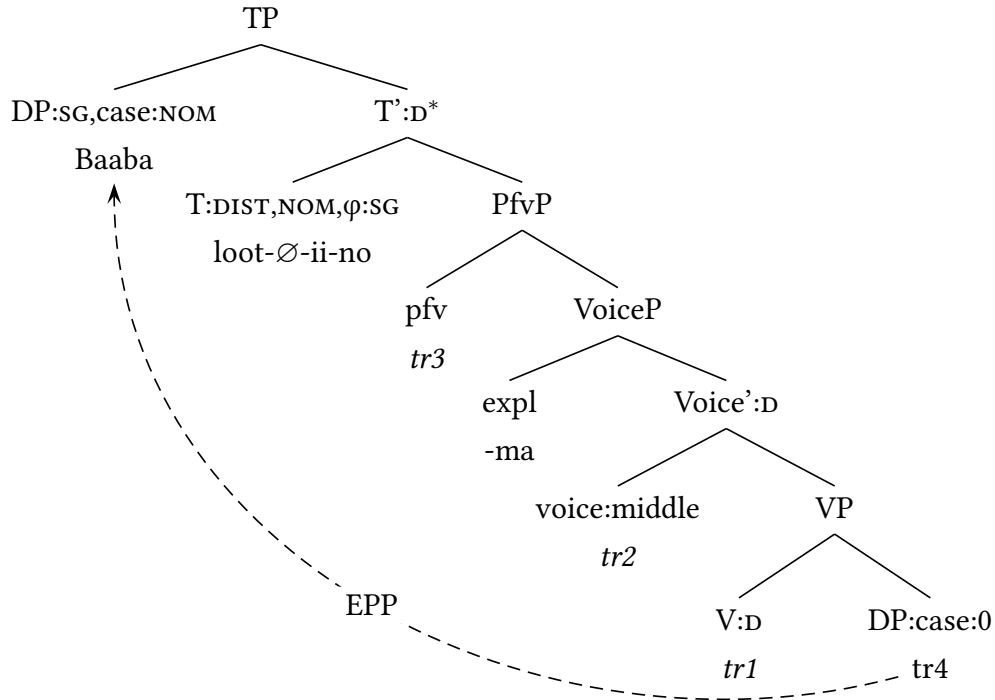
(41)

```
                              TP
                   ┌───────────┴───────────┐
            DP:sg,case:nom              T':D*
               Baaba           ┌───────────┴───────────┐
                  ↑       T:DIST,NOM,φ:SG            PfvP
                  │         loot-∅-ii-no      ┌────────┴────────┐
                  │                          pfv            VoiceP
                  │                          tr3        ┌──────┴──────┐
                 EPP                                   DP         Voice':D
                  └─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ tr4      ┌─────┴─────┐
                                              voice:active      VP
                                                 tr2      ┌──────┴──────┐
                                                         V:D        DP:case:ACC
                                                         tr1         ╱‾‾‾‾╲
                                                                  pucc-u ngu
```

(41) illustrates the deep structure of (39-a) and shows that in an active voice context, a transitive verb like *loot-de* (to wash) merges first with its DP direct object *pucc-u ngu* (the horse), assigning it accusative case while its DP agent *Baaba*, following Kratzer (1996), is introduced in a high verbal projection, that is, Spec VoiceP. Next, *Baaba* must move all the way up to Spec TP because of the strong EPP feature on T. Once *Baaba* is in Spec TP, the case: feature on *Baaba* and φ: on T can be valued and checked.

Nevertheless, in middle/passive constructions such as in (39-b) and (39-c), there is no overt external argument, which is why according to Alexiadou et al. (2015), an expletive voice head is needed to indicate that the verbs *loot-aa-de* (to wash oneself) and *loot-ee-de* (to be washed) remain syntactically transitive and therefore still require Spec VoiceP to be occupied so that the derivation could continue and not crash.

(42)

```
                                TP
              ┌──────────────────┴──────────────────┐
       DP:SG,case:NOM                            T’:D*
          Baaba                        ┌───────────┴───────────┐
            ↑                   T:DIST,NOM,φ:SG              PfvP
            ┆                     loot-∅-ii-no        ┌────────┴────────┐
            ┆                                        pfv            VoiceP
            ┆                                        tr3       ┌──────┴──────┐
            ┆                                               expl          Voice’:D
            ┆                                                -ma     ┌───────┴───────┐
            ┆                                                   voice:middle       VP
            ┆                                                      tr2        ┌─────┴─────┐
            ┆        EPP                                                    V:D      DP:case:0
            └┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄     tr1        tr4
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(41.b) illustrates (39-b) and shows that *-ma* is potentially a filler for the missing external argument. In a middle voice context, V still merges first with its DP object but is not able to assign it accusative case because although *-ma* is syntactically active and replaces the external argument, it is semantically inert, suggesting that V can assign accusative case to its DP complement only when Spec VoiceP is occupied by a DP with an agentive feature, i.e., a DP that is semantically active. We can perhaps think of Burzio's Generalization and consider that *-ma*, as an expletive voice head, is semantically inert and does not carry a theta-role feature that needs to be checked or a φ-feature that will value the φ: feature on T. Therefore, V/VoiceP cannot assign a θ-role to *-ma* nor accusative case to its DP complement *Baaba*.

Consequently, DP *Baaba* in Comp V, which carries a case: feature that needs to be checked, becomes the best candidate available to move to Spec TP when the strong EPP feature on T causes T to probe downward and find a DP with the right features. Because of proximity, *-ma* should have priority over *Baaba*, but T is looking for a DP that not only carries an unvalued case: feature but also a φ-feature that will allow the φ: feature on T to be valued and checked. Unlike *-ma*, which is skipped by T, *Baaba* does carry an unvalued case: feature and a singular φ-feature, which is exactly what T is looking for;

31

therefore, it is *Baaba*, not *-ma*, that moves to Spec TP. A similar argument can explain the function of the *-ma* morpheme in passive constructions.

(43)
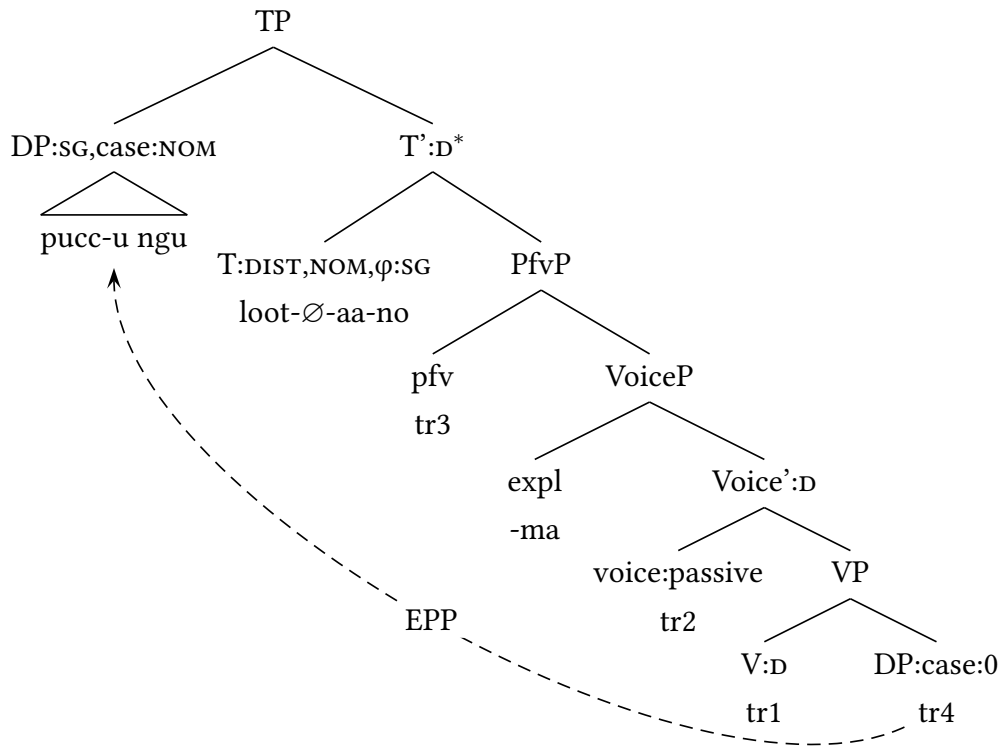
(41.c) illustrates (39-c) and shows that an expletive voice head in passive constructions could as well reflect the lack of an overt external argument, which prevents V to assign accusative case to its DP complement. Consequently, DP complement *pucc-u ngu* (the horse) moves to Spec TP to receive nominative case and help value and check the φ: feature on T. Again *-ma* is skipped by the probing T head because as an expletive head, *-ma* is not a valid candidate for moving to Spec TP.

(44) sukaa-ɓe ɓe loot-∅-ii-no-ma
      children-NC DEF wash-MID-PFV-DIST-EXPL
      'The children washed themselves' (a long time ago).

(44) seems to confirm that *-ma* is indeed semantically inert. In a middle voice context conveying reflexiveness, we can argue that both external (agent) and internal (theme) arguments represent the same plural entity: the children, who as agents are 'doing the

washing' while also 'undergoing/experiencing the washing' as theme or patient. Nevertheless, comparing (44) with (39-b), we can observe that in the same context, the form of -*ma*, which replaces *Baaba* in (39-b) but 'the children' in (44) does not vary whether the external argument is singular or plural, suggesting that -*ma* does not carry any φ-feature.

Similarly in passive constructions (39-c), the form of -*ma*, which marks the implicit agent, seems invariable. Whether 'the horse' is washed by a single person or by multiple individuals, the form of -*ma* does not change. I do not provide such example because to my knowledge it is not possible in Pulaar passive constructions to introduce implicit agents with a by-phrase.

If the function of -*ma* is purely syntactic: replacing the missing external argument of transitive verbs, we can wonder what distinguishes the various semantics of reflexives (39-b), passives (39-c), and of anti-causatives (40-b). For passives, we can maybe suggest that the passive allomorph -*aa* of the perfective marker -*ii* is alone enough to encode the passive voice and inform Pulaar speakers of the presence of an implicit agent. However, I am not quite sure how one identifies reflexive from anti-causative information, for their verbal forms are identical. Context or tacit knowledge of the language could likely help. A Pulaar speaker may have the intuition that a verb such as *uddit-de* (to open) is not compatible with a reflexive interpretation while a verb such as *loot-aa-de* (to wash oneself) is not quite compatible with an anti-causative reading. Also, since -*ma* appears to be semantically empty, it is not clear how in reflexive constructions external and internal arguments are co-indexed. Speakers must have a way to understand that with reflexive verbs, the external (-*ma*) and internal arguments (DP theme) refer to the same entity.

6 Conclusion

By demonstrating pragmatic restrictions when combined with certain adverbs of time, I have shown how the perfective aspect in Fuuta conveyed a recent past meaning in the absence of the distant past marker *-no*. Based on Adger (2003), I provided evidence for verb movement using adverbial adjunction and the order of affixation of the perfectíve *-ii*, negation *-aa* and distant past *-no* morphemes. Considering that T assigns nominative case to its specifier and that subjects and verbs agree in number, I adopted V to T movement and a strong EPP feature on T that causes subjects to move to Spec TP. I also discussed the imperfective aspect, which revealed significant differences regarding allomorphy of the perfective marker *-ii* and as well the overall affix ordering system of Fuuta. Unlike with the perfective marker *-ii*, negation does not trigger allomorphy of the imperfective morpheme *-at*. Also, while the distant past marker *-no* is not compatible with negative perfective *-ni*, imperfective marker *-at* does not show such restriction. Comparing Fuuta with Toore provided partial evidence for my proposed hierarchy of projections in which negation is optional and located between perfective and imperfective, but more importantly, it uncovered clear syntactic differences between the two varieties. I believe that further research is needed to better understand the structural divergence between Fuuta and Toore. Finally, I showed how voice information was encoded in the verbal system of Fuuta, and following Alexiadou et al. (2015), I suggested that the *-ma* morpheme could represent an expletive voice head that reflects the lack of overt external arguments in middle/passive and anti-causative constructions.

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