# Chapter 1

# Information structure in Sumbawa: A QUD analysis

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This paper describes the constituent ordering and other basic morphosyntactic properties of Sumbawa and their relation to information structure. Our study is based on conversational corpus data and makes use of a novel method of information-structural discourse analysis, which is based on the reconstruction of implicit questions under discussion (QUDs).

## 1 Introduction

Sumbawa (indigenous designation: Samawa; ISO-639-3 code: SMW) is a language spoken in the western part of Sumbawa Island, Indonesia. Sumbawa belongs to the Bali-Sasak-Sumbawa subgroup of the Malayo-Polynesian branch of the Austronesian language family (Adelaar 2005; Mbete 1990: 19). In this paper, we investigate the variation of constituent order in Sumbawa verbal clauses, using transcripts of a spoken conversation. In particular, we are interested in the question how morphosyntactic variation (in particular, pre- and postverbal argument realization as well as the occurrence of clitics) is correlated with information structure, an aspect of Sumbawa about which so far relatively little is known.

In order to understand how information-structural variation is expressed, we use a novel method of textual analysis, developed in Reyle & Riester (2016); Ries-

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ter, Brunetti & De Kuthy (to appear), whose goal it is to identify for each elementary assertion the implicit *question under discussion (QUD)* (van Kuppevelt 1995; Büring 2003; Roberts 2012) to which the assertion provides an answer. Based on these QUDs the information structure of each assertion can be straightforwardly determined. The structure of this article is as follows: Section 2 provides an outline of the verbal clause structure in Sumbawa, with a special focus on syntactically possible constituent-order variation and its correlation with the presence or absence of a clitic pronoun on the predicate, whose dependence on information structure we will explore in the subsequent sections. In Section 3, we will introduce the annotation method we will apply to the conversational data in order to determine the information structure of each utterance. Sections 4 and 5 provide the result of the application: Section 4 gives a rough picture how the three categories *focus, background*, and *contrastive topic* shape the general constituent order of Sumbawa, while Section 5 focuses on the order of argument and predicate in relation to the presence or absence of the clitic pronoun. In Section 6, we will give a summary of the sections and evaluate the effect of the method.

## 2 Constituent order and clitics in Sumbawa

In this section, we discuss the morphosyntax of Sumbawa verbal clauses, with a special focus on syntactically possible constituent order variation and its correlation with the presence or absence of a clitic pronoun on the predicate, largely based on Shiohara (2013b,a), drawing on elicited data.

In Sumbawa, as reported in Shiohara (2013a: 174), sentences can be formed using only a predicate which may carry clitics indicating, for instance, tense and subject/agent. One or several participants of the situation expressed by the predicate can be omitted when their identity is clear from the previous utterance or the utterance situation; see examples (1)-(6).

(1) ka=**ku**=teri'
PST=1SG=fall
'I fell.'

(2) ka=**mu**=teri'
PST=2SG=fall
'You fell.'

(3) ka=teri'
PST=fall
'He/She/They fell.'

(4) ka=**ku**=inum
PST=1SG=drink
'I drank it.[1]'

(5) ka=**mu**=inum
PST=2SG=drink
'You drank it.'

(6) ka=**ya**=inum
PST=3=drink
'He/She/They drank it.'

[1] Something the referent of which is clear from the context

The occurrence of the subject/agent clitic is determined by three factors: (i) (in-) transitivity of the main verb, (ii) the person of the single core intransitive participant (S) or transitive agent (A), and (iii) the overt realization or absence of the argument and its position. The information structure of a clause has an influence on (iii) and, therefore, on the occurrence of the clitic.

Table 1: Sumbawa independent and clitic pronouns

| Person & Number | Free pronoun | Clitic pronoun |
|---|---|---|
| 1SG | aku | ku- |
| 1PL.INCL | kita | tu- |
| 1PL.EXCL | kami | |
| 2SG | kau | mu- |
| 2PL | nènè | nènè- |
| 3 | nya | ya- |

Table 1 shows a list of the clitic and independent pronouns. There is no distinction between singular and plural in the third person. As can be seen in examples (1)-(6), the first and second person clitic pronoun may (but need not) occur both on intransitive and on transitive verbs. The third person clitic *ya* exhibits an exceptional behavior in that it can only occur on transitive, e.g. (6), but not on intransitive verbs, e.g. (3). Sentence (7), in which *ya* co-occurs with an intransitive verb, is not accepted by the speakers.[2]

(7) * ka=ya=teri'
PST=3=fell
Intended meaning: 'He/She/They fell.'

The person of the transitive patient (P) is never coded on the predicate, but can be expressed by use of an independent pronoun (or, of course, a lexical NP). Pronouns and lexical NPs behave syntactically in the same way; see (8).

[2] Unlike some other Austronesian languages, such as Acehnese (Durie 1985) and Tukang Besi (Donohue 1996), which exhibit so-called split-intransitivity, Sumbawa does not make a syntactic distinction between agentive intransitive verbs, which typically denote a volitional action, and non-agentive intransitive verbs, which typically denote a non-volitional situation. Thus, intransitive verbs such as *barari* 'run' or *barnang* 'swim' that denote a volitional action behave in the same way as the non-volitional verb *teri* 'fall', which we use as a representative of intransitive verbs throughout this section.

(8) ya=tari aku / kau / nya / tau nan
3=wait 1SG 2SG 3 person that
'She is waiting for me/you/him/that person.'

The constituents for S, A, or P may principally occur before or after the predicate. However, first and second person pronominal S arguments cannot occur after the predicate. Sentences (9) and (10) are not permitted by the speakers.

(9) * ka=ku=teri' aku
PST=1SG=fall 1SG
Intended meaning: 'I fell.'

(10) * ka=mu=teri' kau
PST=2SG=fall 2SG
Intended meaning: 'You fell.'

By contrast, the S constituent for the third person can occur after the predicate, for instance, as the NP *tódé nan* 'that child' in sentence (11) or *nya* 'he/she/they' in (12).

(11) ka=teri' tódé nan
PST=fall child that
'That child fell'.

(12) ka=teri' nya
PST=fall 3
'He/She/They fell'.

Sumbawa does not exhibit inflectional case marking. Yet, as for the post-predicate constituents, the case frame exhibits an ergative pattern, in that A occurs in a PP form with the preposition *ling*, as shown in examples (13)-(15), while an S constituent, as shown in examples (11) and (12) above, and P, as given in the NP *kawa nan* 'that coffee' in sentences (13)-(15), occurs in the form of an NP.[3]

(13) ka=ku=inum kawa nan ling aku
PST=1SG=drink coffee that by 1SG
'I drank that coffee.'

(14) ka=mu=inum kawa nan ling kau
PST=2SG=drink coffee that by 2SG
'You drank that coffee.'

[3] Strictly speaking, it is only for the third person referent that the ergative pattern is fully observed since, as we already showed in examples (9) and (10), a first or second person S may not occur in post-predicate position. Another split in alignment, which we already mentioned in connection with (3) and (6), is observed with regard to clitic pronouns. The distribution of the first and second person clitic exhibits the accusative pattern in that it may code the person of S and A, but not that of P, while that of the the third person clitic exhibits the ergative pattern in that it may only code the person of A, not that of S and P. A split in alignment determined by person is commonly observed cross-linguistically, cf. Siewierska (2013).

(15) ka=ya=inum kawa nan ling nya Amin
PST=3=drink coffee that by Mr. Amin
'Amin drank that coffee.'

S, A and P may all occur before the predicate, as (16)–(21) show. All arguments are expressed by an NP (i.e. without preposition) in this position. (We omit the second person, since it is analogous to the first.)

(16) aku ka=teri'
1SG PST=fall
'I fell.'

(17) tódé nan ka=teri'
child that PST=fall
'That child fell.'

(18) aku ka=inum kawa nan
1SG PST=drink coffee that
'I drank that coffee.'

(19) nya Amin ka=inum kawa nan
Mr. Amin PST=drink coffee that
'Amin drank that coffee.'

(20) nya ka=inum kawa nan
3 PST=drink coffee that
'He/She/They drank that coffee.'

(21) kawa nan ka=ya=inum ling nya Amin
coffee that PST=3=drink by Mr. Amin
'Amin drank that coffee.'

Whenever the S or A argument occur in pre-predicate position, there is no clitic pronoun on the predicate. In other words, the clitic and the pre-predicate argument are in complementary distribution. Examples (22)-(24) are all ungrammatical. Note that the post-predicate PP indicating A obligatorily occurs with the clitic pronoun, as shown in examples (13)-(15) and (21) above.

(22) * aku ka=ku=teri'
1SG PST=1SG=fall
Intended meaning: 'I fell.'

(23) * aku ka=ku=inum kawa
1SG PST=1SG=drink coffee

(24) * nya Amin ka=ya=inum kawa
Mr. Amin PST=3=drink coffee

Only one NP may be fronted at a time; examples (25) and (26), with two fronted NPs, are not permitted by speakers. This is the only purely syntactic constraint on the relative order of verb and arguments.

(25) * nya Amin kawa nan inum (A P V)
Mr. Amin coffee that drink
Intended meaning: 'Amin is drinking that coffee.'

(26) * kawa nan nya Amin inum (P A V)
coffee that Mr. Amin drink
Intended meaning: 'Amin is drinking that coffee.'

The following tables summarize the complex correlation between the type and location of the S/A argument on the one hand and the occurrence of a clitic pronoun on the verb on the other hand, for intransitive (Table 2) and transitive (Table 3) predicates. The symbols have the following meaning: - "no clitic pronoun", + "a clitic pronoun occurs", * "ungrammatical construction". The examples from above are indicated in brackets.

Table 2: Intransitive predicates: occurrence of clitics, subject type and subject position (examples indicated in brackets)

| | 1st person | 2nd person | 3rd person |
|---|---|---|---|
| No overt subject | + (1) | + (2) | - (3) |
| Post-predicate subject NP | * (9) | * (10) | - (11, 12) |
| Post-predicate "subject PP" | * | * | * |
| Pre-predicate subject NP | - (16) | - | - (17) |

## 3 Information structure theory and questions under discussion

In this section, we change from the grammatical description of Sumbawa to information structure theory, which, as we will show, will later help us account for

Table 3: Transitive predicates: occurrence of clitics, agent type and agent position

| | 1st person | 2nd person | 3rd person |
|---|---|---|---|
| No overt agent | + (4) | + (5) | + (6) |
| Post-predicate agent NP | * | * | * |
| Post-predicate agent PP *(ling)* | + (13) | + (14) | + (15, 21) |
| Pre-predicate agent NP | - (18) | - | - (19, 20) |

the patterns described in the previous section. The central problem when studying the morphosyntactic realization of information structure in any language is the avoidance of circularity. Although variation in the constituent order of sentences often goes hand in hand with a variation of the discourse context in which these sentences occur, there is, at the surface, no syntactic focus-marking strategy that would universally apply in all situations to all languages. First of all, many languages have an *in-situ* focus as a default option, but some also have the possibility to explicitly realize focus clause-finally, by sorting constituents according to their information status or by applying extraposition. The opposite strategy, available in many languages, is the fronting or clefting of the focal constituent. Yet other languages exhibit no or very few morphosyntactic reflexes of information structure but instead mainly rely on intonation or prosodic phrasing to mark a focus that syntactically remains in-situ. For overviews and comparisons see e.g. Zubizarreta (1998); Büring (2009); Skopeteas & Fanselow (2010); Güldemann, Zerbian & Zimmermann (2015); Féry & Ishihara (2016). In general, it is methodologically questionable to use morphosyntactic (or prosodic) indicators for the identification of information structure if, at the outset, little is known about information-structure marking in a particular language.

Information structure is a pragmatic phenomenon, i.e. it is usually described in terms of meaning categories which relate to context. This is what accounts for both its universality and for its somewhat enigmatic status. Throughout the literature, *focus* has – very inconsistently – been described as the answer to a question (Paul 1880; Halliday 1967; Roberts 2012), as alternative-evoking (Rooth 1992), asserted (Lambrecht 1994), new (Halliday 1967; Schwarzschild 1999), identificational (É. Kiss 1998), exhaustive (van Rooij 2008) or contrastive (Katz & Selkirk 2011). A *topic* is usually defined – in a rather noncommittal way – as that which a sentence is "about" (Hockett 1958; Strawson 1964; Reinhart 1981; McNally 1998; Jacobs 2001; Krifka 2008), and the notion of *contrastive topic* has received

a sophisticated characterization in terms of a speaker strategy (Büring 2003) to answer a complex question by working through a list of subquestions. Neither of these concepts easily connects to naturally occurring text or speech data. In order to study the information structure of language data gathered in fieldwork, people have, therefore, typically reverted to question-answer scenarios or other semi-spontaneous methods like the use of pictures or stories (cf. Skopeteas et al. 2006) to elicit controlled, information-structurally relevant material.

In the current study, we will apply a new annotation method based on implicit *questions under discussion (QUDs),* cf. (Stutterheim & Klein 1989; van Kuppevelt 1995; Roberts 2012; Beaver, Roberts, et al. 2017), which enables a pragmatic information-structure analysis of textual fieldwork data. The method, so far, has been mainly applied to French and German (e.g. Riester to appear).[4] Among the aforementioned definitions of focus, we adopt the one that takes focus to be the answer to the current question under discussion.

When investigating dialogues, as we do in this study on Sumbawa, explicit questions, of course, allow us to study the morphosyntactic realization of the background-focus divide. Examples of overt (Q)uestion-(A)nswer pairs are provided in the following Sumbawa examples (27).[5]

(27) $Q_7$: ada ke cabe nana
exist Q chili over.there
'Was there chili over there (in Japan)?'
$A_7$: [ada [si]$_F$ [cabe,]$_T$]$\sim$
exist PTC chili
'There was chili.'

(27) is an example of a polarity question, which triggers a *yes*- or *no*-answer. In this case the addressee answers by means of full clauses, containing a verum focus, which is realized on the particle *si* within the predicate.

As for the information-structural categories and markup we assume the following definitions: the focus (F) of a sentence is that part which answers the question, whereas the remainder (the information already contained within the question itself) is the background. Following Reinhart (1981); Jacobs (2001) or Krifka (2008) we, furthermore, assume that aboutness topics (T) are referential entities (terms) that are properly contained in (and, therefore, potentially smaller

[4] See also Latrouite & Riester (this volume) on the use of QUDs for the description of voice selection in Tagalog.

[5] In this example, the question is signalled by a rising final intonation.

than) the background.[6] Following standard assumptions in Alternative Semantics (Rooth 1992; Büring 2008; 2016), answers (consisting of an obligatory focus and an optional background) are so-called *focus domains*, which are marked by the ∼ symbol.[7] Choice questions (also known as alternative questions) presented as disjunctions may trigger a constituent focus, which is why the answer in (3)[8]is not a polarity focus clause.

(28) $Q_{27}$: no roa tu=satoan tris ke, atau ada waya tu=satoan
NEG possible 1PL=ask always Q or exist time 1PL=ask
'Can we never ask, or is there a (proper) time to ask?'

$A_{27}$: [[Ada waya]$_F$ tu=katoan]∼
exist time 1PL=ask
'There is a time for asking.'

Since both alternatives contain the same verbal element *tu=satoan* '1PL=ask', this element is assumed to figure as the background of the answer. (We will say more on this below, e.g. example (35), when discussing parallel statements.)

Not all assertions, even in dialogues, are made in response to explicit questions, and not all explicit questions in dialogues receive a direct answer. In both cases we need to develop an idea how to reconstruct the *intended* question, lest a large part of the assertions of the discourse will remain unanalyzed. Following Roberts (2012) and earlier work, e.g. by Stutterheim & Klein (1989) or van Kuppevelt (1995), we assume that every assertion in a text is actually the answer to a (typically implicit) *question under discussion (QUD)*. Thus, if we manage to determine the QUD of an assertion, its information-structural analysis (focus, background, aboutness topics) will follow like in the case of overt questions.

The non-trivial part, of course, consists in the identification of the QUDs of predominantly monological passages of text. A solution to the problem is described at length in Riester, Brunetti & De Kuthy (to appear), and we will only shortly sketch it here. First, we segment the text into separate speech acts (which are predominantly assertions). Besides orthographic sentence boundaries we also split coordinated phrases into separate semantic assertions (under the assumption that a coordination is an effective way of communicating a series of state-

[6] Usually, the "comment" is taken to be the complement of a topic. Since we see no use for such a category in our current work, we will ignore it.

[7] In Rooth (1992: 85ff.) ∼ operators are used, among other purposes, to establish question-answer coherence: both questions and focused answers represent sets of alternatives, and the ∼ operator identifies the question set as a proper subset of the focus alternatives.

[8] The alternation *satoan-katoan* seems due to dialectal variation.

ments at one stroke). However, argument clauses will not be separated from their matrix clauses, since this would result in ungrammatical sentence fragments. For instance, (29)-(32) is the result of the segmentation of a short paragraph, where a letter $A$ is assigned to each separate assertion.

(29) A: seandai parak ne ketakit nya
if close ITJ scared 3
'If someone approaches, they get scared.'

(30) A: min ada tau asing ne ketakit nya sate yang de sate
if exist person foreign ITJ scared 3 want like REL want
'If there is a foreigner, they are scared that he is after them like a kidnapper (lit. *a wanter*)'

(31) A: barari
run
'They run away.'

(32) A: nan luk model nan
that way character that
'That's their character.'

As we can see, the conditional clauses in (29) and (30) are not split into parts because this would lead to ungrammaticality: neither of the clauses with the conjunctions *seandai* 'if' in (29) and *min* 'if' in (30) is grammatical in isolation.

The next step consists in the identification of the QUDs. The determination of QUDs in non-parallel text passages follows three basic principles (for a justification see Riester, Brunetti & De Kuthy (to appear) and references therein):

(i) Q-A-Congruence requires that the QUD for an assertion targets an actual constituent of the assertion. (It is not permitted to choose a question which does not ask for at least one constituent of the answer.)

(ii) Q-Givenness says that implicit QUDs can only contain linguistic material that has been mentioned or is salient in the current discourse context.

(iii) Finally, Maximize-Q-Anaphoricity determines that all given material that occurs in the assertion is in fact mentioned in the question, thereby producing a maximally cohesive discourse (and, at the same time, a focus that is as narrow as possible).

For instance, in a small toy discourse $A_0$-$A_1$, the implicit QUD $Q_1$ is the one shown in example (33)[9] and its tree representation in Figure 1.

(33) $A_0$: Last Sunday, we had a picnic in the park.
$Q_1$: **{What about the picnic?}**
$>$ $A_1$: [[The picnic]$_T$ [consisted of sandwiches]$_F$.]$\sim$

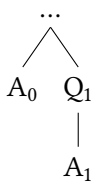


Figure 1: Tree representation of example (33)

In contrast to $Q_1$, the questions in (34) are all invalid because each of them violates at least one of the QUD constraints.

(34) a. Q: {Which park was it?} #Q-A-Congruence
b. Q: {What about the sandwiches?} #Q-Givenness
c. Q: {What happened in the park?} #Maximize-Q-Anaphoricity

The question in (34a) violates Q-A-Congruence because it cannot have $A_1$ as its answer. (34b) contains the discourse-new expression *sandwiches*, thereby violating Q-Givenness and, finally, (34c) and in fact all questions in (34) violate Maximize-Q-Anaphoricity, because neither of them contains the expression *picnic*, which is given in $A_1$, since it already occured in $A_0$.

However, a violation of the principle of Q-Givenness is acceptable in two cases. The first one is the beginning of a text. Here, the implicit QUD sometimes needs to contain linguistic material that is discourse-new (for details on this process of *accommodation*, see Riester, Brunetti and De Kuthy to appear).

The other acceptable violation is found in connection with parallelisms. When a QUD is answered by a series of structurally analogous assertions, the assertions are defined to be parallel. In that case, the corresponding QUD is allowed to contain the shared content, even though it may not be given in the preceding

[9] The indentation symbol ($>$) before $A_1$ indicates that $A_1$ is subordinate to $Q_1$ in the corresponding discourse tree, whereas $A_0$ and $Q_1$ are at the same level. On different tree representation formats see Riester (to appear).

discourse. For example in (35) the verb *ate* is not given in the context, and Q-Givenness would predict question $Q_2$. However, the double occurrence of the verb within two parallel statements (marked as $A_{2.1'}$ and $A_{2.1''}$) licenses the formulation of the more specific QUD $Q_{2.1}$. Note that it is generally the case that a sub-QUD like this is always entailed by the more general one, i.e. every answer to $Q_{2.1}$ is at the same time an answer to $Q_2$, even though $Q_{2.1}$ determines a narrower (here: object) focus.

(35) $A_1$: We had a lot of fun at our picnic.
$Q_2$: {What did we do at the picnic?} (QUD licensed by Q-Givenness)
$>$ $Q_{2.1}$: {What did we **eat** at the picnic?} (sub-QUD, def. by parallelism)
$>>$ $A_{2.1'}$: [[We]$_T$ **ate** [delicious sandwiches]$_F$]$\sim$
$>>$ $A_{2.1''}$: and [[we]$_T$ even **ate** [sashimi]$_F$]$\sim$.

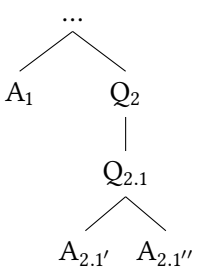


Figure 2: Tree representation of example (35)

Riester, Brunetti & De Kuthy (to appear), following Büring (2003), also postulate a more complex case of parallelism that includes contrastive topics (indexed as CT in the annotation). This type involves two (or more) assertions, which are contrasted against each other at two different positions. An example is given in (36).

(36) $Q_3$: {Who ate what at the picnic?}
$>$ $Q_{3.1}$: {What did my girlfriend eat?}
$>>$ $A_{3.1}$: [[My girlfriend]$_{CT}$ ate [delicious sandwiches]$_F$]$\sim$
$>$ $Q_{3.1}$: {What did I eat?}
$>>$ $A_{3.1}$: and [[I]$_{CT}$ even ate [sashimi]$_F$]$\sim$.

Analogous to example (35) above, the two statements $Q_{3.1}$ and $Q_{3.2}$ in (36) are parallel, because they both describe events of eating, and they answer the same

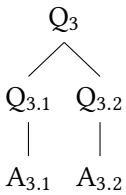


Figure 3: Tree representation of example (36)

QUD $Q_3$. However, the difference to (35) is that the assertions in (36) vary in two positions (here: subject and object), and that $Q_3$ contains two interrogative pronouns instead of one. This is typically a sign that $Q_3$ is not answered directly but broken down into subquestions about a list of salient individuals (here: my girlfriend and I). We shall assume that the elements of the answers which answer $Q_3$ but which are backgrounded with regard to one of the subquestions are so-called *contrastive topics*, whereas those elements which answer both the superquestion $Q_3$ and one of the subquestions are *foci*.

Example (37), cited from the Sumbawa conversation, involves CTs. The conversation topic is about the difficulties Muslims face in connection with Japanese food. In this example, conditional clauses represent the topical options (Haiman 1978; Christian Ebert, Cornelia Ebert & Hinterwimmer 2014) that the speakers are contrasting against each other.[10]

(37) Speaker S:

$Q_3$: {What if we ate pork unwittingly or knowingly?}

$>$ $Q_{3.1}$: {What if we did it unwittingly?}

$>>$ $A_{3.1}$: [o ba terang,]$_{NAI}$ [[lamin nongka tu=sangaja]$_{CT}$
ITJ clear if NEG.PST 1PL=act.deliberately
[terang]$_{NAI}$ [no sikuda]$_{F}$]$\sim$
clear NEG problem
'But it is clear, if we didn't act deliberately, it is clear that it is not a problem.'

Speaker I:

$>>$ $A_{3.1+}$: ya [[lamin nongka tu=sangaja]$_{CT}$ [no sikuda]$_{F}$]$\sim$
yes if NEG.PST 1PL=act.deliberately NEG problem
'Yes, if we didn't act deliberately, it's no problem.'

[10] Note that speaker I. is repeating the statement made by speaker S., which is indicated by a '+' on the index. More on this in example (43) below.

> $Q_{3.2}$: {What if we did it knowingly?}

>> $A_{3.2}$: tapi [[lamin ka=tu=to]$_{CT}$ [kan]$_{NAI}$ [no roa]$_{F}$
but if PST=1PL=know you.know NEG comfortable
[dean nan]$_{T}$]$\sim$
that that
'but if we knew, we are not comfortable with that.'

Finally, an assertion may contain phrases which are neither part of the QUD nor contribute to answering it, i.e. they are neither backgrounded nor focused. We classify such phrases as *non-at-issue (NAI) material*, cf. Tonhauser et al. (2013); AnderBois, Brasoveanu & Henderson (2015). More specifically, we are talking about triggers of conventional implicatures (Potts 2005), which include appositions, non-restrictive relative clauses, parentheticals, speaker-oriented adverbs, evidentials as well as adjunct phrases/clauses, cf. Riester, Brunetti & De Kuthy (to appear) for more details and precise definitions. A few of these, namely the speaker- or addressee-oriented phrases *it is clear that* or *you know* are contained in (37). Another example is shown in (38).

(38) $Q_{19.1}$: {As for work, what attitude do people in Japan have?}

> $A_{19.1}$: [**maklum**]$_{NAI}$ [tau [ana]$_{CT}$ [mega disiplin]$_{F}$]$\sim$ [**sia**]$_{NAI}$
you.know people over.there very disciplined 2PL.HON
'**You know**, **my friend**, people over there are very disciplined.'

# 4 Corpus analysis

## 4.1 The nature of conversational data

The data we are examining is the transcript of a Sumbawa conversation titled *Memory of Japan*, which consists of approximately 1500 words. The conversation took place between two Sumbawa speakers and Shiohara, one of the authors. The main speaker, I., had been working in Japan as a trainee, and is talking about his experiences to Speaker S., one of his friends, and to Shiohara, in reply to their questions.[11]

[11] A transcription and translation will be made available in Shiohara (in preparation). The video recording of the conversation, available on YouTube, was created in collaboration with the Sumbawa Literature Association (Yayasan Bungaku Sumbawa), of which the two speakers and Shiohara are members, cf. `https://www.youtube.com/watch?v=D8gOyhJilVI`

In the conversation, Speaker I. talks about Japanese people, culture and society. The nature of the conversation has a crucial influence on the syntactic and pragmatic properties of the discourse; many clauses have a first person A or S. Since the speaker talks about a number of situations as if they were general facts rather than his personal experiences, he often uses the generic first person plural form for the A and S arguments, especially the clitic *tu*; many verbal clauses carry the clitic pronoun *tu* or the independent pronoun *kita*. (Compare Table 1 in Section 2.) There are only few examples of a first person singular A or S, in which the speaker talks about a specific episode he was part of.

### 4.2 Focus identification

The conversation contains about 100 assertions (or discourse units), which were analyzed according to the guidelines in Riester, Brunetti & De Kuthy (to appear). The general tendency observed in the conversation is that a referent or a situation that has been mentioned in the directly preceding discourse tends not to be expressed in the current clause. Thus, entities in the background are often left unexpressed, and a substantial amount of assertions are only formed by the focal expression itself. Nevertheless, because of the implicit referents, these are strictly speaking not all-focus assertions but rather elliptical clauses with narrow verb focus. $A_{38}$ in example (39) is an example of an assertion that only consists of a focused expression. The silent A argument for this clause is co-referential with the S argument *tau* in $A_{35}$ and *nya* in $A_{36}$.

(39) $A_{35}$: Toyama ta mega tertutup tau
Toyama this very unsocial person
'In Toyama people are very unsocial.'

$Q_{36}$: {What about the people in Toyama?}

$>$ $A_{36'}$: [seandai parak]$_{NAI}$ ne [[ketakit]$_F$ [nya]$_T$]$\sim$
for.example close ITJ scared 3
'For instance, if someone approaches, they get scared.'
[...]

$>$ $Q_{38}$: {What do they do in such a case?}

$>>$ $A_{38}$: [[**barari**]$_F$]$\sim$
run
'They run away.'

A better example of a sentence focus, which shows that the default constituent order of intransitives is V S, is shown in $A_{14}$ of (40).

(40) $Q_{14}$: {What is the situation in winter?}

> $A_{14}$: [[kukir sarea apa godong]$_F$]$\sim$
withered all what leaf
'All leaves are withered.'

The assertions can be classified according to the syntactic range of their focus constituents. In what follows, we will show examples of different types of focus, and we will examine the relative order of focus, background and contrastive topic in clauses with a narrow (or mid-size) focus. Our main interest in this research is the relative order of a predicate and its argument(s), and the effects this has on the presence of a clitic.

### 4.3 Information structure and constituent order

In an argument focus clause, the argument always precedes the background.[12] Two examples of preverbal (patient) argument focus can be observed in $A_{1.1''}$ in (41) and $A_{4.1'}$ in (42).

(41) $Q_{1.1}$: {What (else) can we not eat?}

> $A_{A.1''}$: atau [[apa de terkait ke bawi nan]$_F$ no tu=bau kakan]$\sim$
or what REL related with pig that NEG 1PL=can eat
'also we cannot eat whatever is related to the pig.'

(42) $Q_{4.1}$: {How much salary do we get?}

> $A_{4.1'}$: [[balu-pulu-ribu yen perbulan]$_F$ tu=terima]$\sim$
eighty thousand yen per.month 1PL=receive
'we are getting eighty thousand yen per month'

[12] A fronted NP may be followed by the discourse particle *si*, as observed in elicited sentences like (i). The typical usage of *si* is the indication of a contrast or a situation that is counter to an expectation. This usage was not detected in the current conversation.

(i) *tódé nan si ka=teri'*
child that PTC PST=fell
'That child fell.'

The precise conditions under which *si* occurs other than as a polarity particle need to be addressed in future research.

This generalization holds throughout our data. The only apparent exception occurs in the form of a repetition. The three assertions in (43) below convey the same assertion and are, therefore, labelled as $A_{25.1}$, $A_{25.1+}$ and $A_{25.1++}$.

(43) $Q_{25.1}$: {Which privacy-related issues – said the friend – can you not ask a Japanese person about?}

$>$ $A_{25.1}$: [umpama]$_{NAI}$ [[umir,]$_F$]$\sim$
for.example age
'For example, about the age,'

$>$ $A_{25.1+}$: [[umir nan]$_F$ na coba-coba katoan]$\sim$ [ling]$_{NAI}$
age that NEG.IMP try ask HEARSAY
'don't try to ask about the age, he said.'
[...]

$>$ $A_{25.1++}$: No roa **tu=katoan umir** tau jepang ta,
NEG possible 1PL=ask age person Japan this
'It is not possible that we ask about the age of a Japanese person'

Repetitions, in some sense, defy the rules of proper information transfer because, from a logical point of view, a speaker should not assert something which is already implied by the common ground – which would amount to making an all-given (or focus-less) assertion. Intuitively however, speakers repeat themselves precisely because they are not confident that their interlocutor has already accepted their previous statement. It is, therefore, reasonable to assume that, under normal circumstances, a structurally identical repetition has the same information structure as its previous mention. However, in example (43), the focus argument *umir* 'age' first occurs in an elliptical environment ($A_{25.1}$), it then precedes the background in the second statement $A_{25.1+}$ (an imperative), while in the third, assertive, statement $A_{25.1++}$ it suddenly follows the verb. We believe, since this is the only case of a potential focus argument following a backgrounded verbal predicate, that, by means of the repetition, the speaker frees himself from the pragmatic requirements of the discourse context; thereby performing a kind of "context reset" with regard to the contents of his statement. It is, therefore, possible that the actual information structure of $A_{25.1++}$ is that of an all-new assertion, in which the patient argument follows the verb, as shown below.

(44) Q: {What is the way things are?}

> A: [[No roa tu=katoan umir tau jepang ta,]$_{F}$]∼
NEG possible 1PL=ask age person Japan this

'It is not possible that we ask the age of a Japanese person'

When an argument is backgrounded it follows the predicate in most cases, as shown in in $A_{2.1'''_{+}}$ (a backgrounded subject argument following the focused stative verb *mogang* 'to be light'). Another example of the same kind is $A_{36'}$ / (39), discussed above.

(45) $Q_{2.1}$: {How was the work like?}

[...]

> $A_{2.1''''_{+}}$: [[mogang mogang]$_{F}$ [boat]$_{T}$]∼
light light work

'The work is easy, so easy.'

## 4.4 Contrastive topics

Apart from the conditional clauses previously discussed in (37), Section 3, we do not find in our data any paramount examples of overtly realized pairs of contrastive topics, i.e. those marked on referring argument expressions. What we do find is that, in a few cases, an argument that was given somewhere in the earlier discourse but didn't play a role in the preceding sentence, occurs in pre-predicate position. The question is now whether these entities should be assigned to the background (therefore representing aboutness topics) or not. For instance, in $A_{19.1}$ of (38), repeated in (46), the phrase *people over there* refers to a group given in a distant part of the discourse context. Obviously, the speaker is not using this phrase as a simple aboutness topic. Instead, what he does is implicitly contrast the referent with a different group of people (presumably, those at home). Since we need to account for the topic change anyway, we make use of the structure introduced in Section 3 in connection with contrastive topics, i.e. a question-subquestion tree of which, however, only the first half is overtly realized, compare Riester, Brunetti & De Kuthy (to appear: Sect. 5.2). Since there is no essential discourse-structural difference between such a "new" topic and the contrastive topics introduced above, we also tentatively assign (the contrastive element of) the referring expression the label CT, in the style of Büring (2003: 526).

(46) $Q_{19}$: {As for work, what attitude do different people have?}
$>$ $Q_{19.1}$: {As for work, what attitude do people in Japan have?}
$>>$ $A_{19.1}$: [...] [tau [ana]$_{CT}$ [mega disiplin]$_{F}$]$\sim$ [...]
people over.there very disciplined
'People over there are very disciplined.'

In the very similar case of $A_{17.1}$ / (47), the demonstrative *denan* 'that' is introduced by the form *lamin*, tentatively glossed 'as for' here, and refers to 'the time to get up', which is the P argument of the predicate *determine*. What the speaker wants to express is that this particular issue was not regulated, although other things were, like e.g. the working hours. Again, we represent this in the form of a contrastive / non-continuous topic, which is merely implicitly contrastive.

(47) Speaker S.:
$Q_{17}$: {Which things were regulated?}
$>$ $Q_{17.1}$: [...] waya mleng tunung apa waya, ada ke ya=tentukan
time get.up sleep what time exist Q 3=determine
kalis-kalis ana e
from over.there ITJ
'Is there a regulation when to get up from sleep over there?'

Speaker I.:
$>>$ $A_{17.1}$: [Lamin [denan]$_{CT}$ [no=soka]$_{F}$ ya=tentukan,]$\sim$
as.for that NEG.PST 3=determine
'As for that, they didn't prescribe it.'

Note that examples like these represent a challenge to the rules currently formulated in the guidelines of Riester, Brunetti & De Kuthy (to appear), since the lack of an overt alternative makes the identification of such "implicitly contrastive topics" very difficult. Obviously, the QUD-tree framework needs to be enhanced with clearer rules concerning the identification of such non-continuous, implicitly contrastive topics. Kroeger (2004: 136) provides a brief and clear discussion on a distinction of topic types similar to those observed here. He discusses that "(T)he topic of a sentence, when it is the same as the topic of the preceding sentence, needs no special marking. It can often be referred to with an unstressed pronoun, an agreement marker (as in the 'pro-drop' languages), or even by being omitted entirely ('zero anaphora'). But in certain contexts the topic may require more elaborate marking. This may happen when there is a change in topic, a

contrast between one topic and another, or a choice among several available topics". See also Lambrecht (1994: 117ff.) for a detailed discussion on the distinctions among various types of topics, and *Centering Theory* (Walker, Joshi & Prince 1998) for a closely related discourse approach to topics (or "backward-looking centers").

## 4.5 Other focus types found in the data

In this section, we mention a few other focus types found in our data, before returning to our main issues defined in Section 2, constituent order and clitics. As observed in example (27), Section 4.3, repeated here as (48), a verum focus is realized on the particle *si*.

(48) $Q_7$: ada ke cabe nana
exist Q chili over.there
'Was there chili over there (in Japan)?'

> $A_7$: [ada [si]$_F$ [cabe,]$_T$]$\sim$
exist PTC chili
'There was chili.'

The negative counterpart, a falsum focus, can be seen in $A_{17.1}$ of example (47) in the previous section or, using a slightly different negative element, in $A_{12}$ of (49). In both cases focus is realized on the negative element, which is followed by the predicate.

(49) $Q_{12}$: nka kadu gita cabe pang Jepang ana?
NEG.PST ever see chili in Japan over.there
'Have you never seen chili over there in Japan?'

> $A_{12}$: [[nka]$_F$ kadu gita [puin cabe]$_T$]$\sim$
NEG.PST ever see tree chili
'I have never seen a chili tree.'

In the case of focus on an NP modifier, the modifier retains its canonical (post-nominal) position.[13]

[13] The situation is different with numerals. In $A_{12}$ of example (50), the focal numeral *lima* 'five' precedes the head noun.

(i) *(Speaker talking to himself:)*

(50) $Q_8$ {What kind of chili was there?}
$>$ $Q_{8.1}$: {What about a lot of the chili?}
$>>$ $A_{8.1}$: cuma [de ka [peno]$_{CT}$ cabe ne, **cabe** [**instan**]$_F$]$\sim$
only REL PST many chili ITJ chili instant
'It is just that a lot of chili was instant chili.'

Compare this to assertion $A_{33}$ in example (51), in which a modified phrase with the same word order occurs in an adjunct clause (classified as non-at-issue) that is all-new and, hence, not narrowly focused.

(51) $Q_{33}$: {What do we have to do?}
$>$ $A_{33'}$: [min sate parak ke **tau** **sowai** **gera**]$_{NAI}$ [...] [harus
if want approach with person woman beautiful have.to
[tu=tahan rasa-ate]$_F$]$\sim$
1PL=control emotion
'If we want to approach a beautiful woman, we need to control our emotions.'

# 5 Grammatical relations, person, agreement and constituent order

## 5.1 Intransitives

In section 2, we introduced the basic morphosyntactic rules of Sumbawa – based on elicited data – in which A, S and P are realized. In this section, we will look at how information structure, observed in our annotated data, can explain some of the variation found.

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$Q_{12}$: *jadi ada pida kamar*
then exist how.many room
'Then, how many rooms were there?'
$>$ $A_{12}$: *[[lima]$_F$ kamar]$\sim$ [amen no salah]$_{NAI}$*
five room if NEG wrong
'There were five rooms, if I am not wrong.'

As Shiohara (2014) suggests, the position of a numeral relative to its head noun varies according to its focal status. If a numeral is not in focus, it follows the head noun, like a modifier does, though the data we examined in this article do not include any such example.

According to the rules postulated in Table 2 in Section 2, a first (or second) person S is expected to be realized either as a pronominal clitic or as a pre-predicate argument. The first case is exemplified by (52). The tendency that an entity that was mentioned in the directly preceding utterance or that is generally salient is not overtly expressed applies to all types of arguments. Thus, when the referent of S or A is topical, it is expected to be realized (only) as a clitic pronoun within the predicate in first and second person. This is the case with the first person plural subject in (52).

(52) $Q_{33}$: {What do we have to do?}

$> A_{33''}$: [harus [**tu**=bersabar benar]$_F$]∼ [ampa]$_{NAI}$
have.to 1PL=patient really ITJ
'We need to be really patient.'

An unexpected CT-case, which runs counter to the predictions, is $A_{23.1}$ in example (53), in which S is doubly marked.

(53) $Q_{23}$: {Who does what in the morning?}

$>$ $Q_{23.1}$: {What do we (Muslims) do in the morning?}

$>>$ $A_{23.1}$: [kan]$_{NAI}$ [[**kita**]$_{CT}$ [**tu**=sembayang-subu]$_F$
you.know 1PL.INCL 1PL=do.early-morning-prayer
[dunung,]$_T$]∼
before
'As you know, we first do the early morning prayer.'

As mentioned in section 2, this construction was not accepted by participants in an elicitation task when asked for their grammatical judgment, and was therefore classified as non-canonical, if not ungrammatical. In many languages, the complementary distribution of clitic and argument has made way for a more canonical agreement system, in which the two forms co-occur. We may see the phenomenon in Sumbawa in an ongoing process of a grammatical change.[14] At the present stage of our research, though, we do not have enough data to say more about this.

The third person S is expected to be realized as either a pre-predicate argument, post-predicate argument, or left unexpressed, and all three types are observed

[14] In some Austronesian languages spoken in eastern Indonesia, such as Kambera (Klamer 1998: 69–70) and Bima (Satyawati 2009: 92), this type of co-occurrence of clitic pronoun and argument is permitted.

in the conversation. Examples of post-predicate realization already discussed are the broad-focus example (40) as well as the narrow-verb-focus clauses $A_{36'}$ / (39) and (45). A further example is (54). Zero marking was shown in $A_{38}$ / (39) and can also be witnessed in (55). Finally, pre-predicate subject realization was demonstrated in connection with contrastive-topichood in (46). As expected, there is never a clitic on any of these predicates.

(54) $Q_{41.1}$: {How did the person who came look like?}

$>$ $A_{41.1}$: [[barangkali, lenge benar]$_F$ [ade datang ta]$_T$]$\sim$
maybe ugly really REL come this
'Maybe the person who came was really ugly.'

(55) $Q_{21}$: {How was it to start working at 7:15 a.m.?}

$>$ $A_{21+}$: [[disiplin benar]$_F$]$\sim$
disciplined really
'It was really disciplined.'

## 5.2 Transitives

According to Table 3, Section 2, the A argument can be realized as either a pre-predicate argument, a post-predicate PP, or simply as a pronominal clitic. The post-predicate PP may co-occur with a clitic, while a pre-predicate argument may not. However, post-predicate PPs were not found in our data.[15]

The two remaining options, pre-predicate argument and clitic, are expected to occur in complementary distribution. In our data, clitics are particularly fre-

[15] It can be observed that the post-predicate PP argument typically occurs in narrative sentences, indicating a series of events in which several people take turns at being the agent. In such cases, an agent, despite being salient in the preceding utterance, needs to be expressed for the sake of disambiguation. (i) is a typical example cited from a folktale in Jonker (1934: 214).

(i) *ya=beang mo* ***ling Salam*** *lako guru; meng ka=ya=kakan mo* ***ling guru****:*
3=give PTC by Salam to teacher; when PST=3=eat PTC by teacher
*"e, nyaman tai asu ode"*
ITJ delicious shit dog small
'Salam gave (it) to the teacher. When the teacher ate (it), (he said): "Ah, the shit of the small dog is delicious."'

In our present conversation data the speaker is mainly talking about his own experiences. There are no comparable cases that would require agent disambiguation. Therefore, a broader analysis of narrative data, like folktales, is required to verify this particular function of the post-predicate PP.

quent in combination with a first person A, as shown, for instance, in (51) above. Another example, which shows a clitic on the predicate of the main clause and a preverbal pronoun (no clitic) in the embedded clause, is given in (56).

(56) $Q_3$: {What should we do towards the Japanese people concerning the consumption of pork?}

> $A_{3+}$: [harus [tu=bada]$_F$ [nya]$_T$ luk **kita** no bau kakan nan]$\sim$
have.to 1PL=tell 3 that 1PL.INCL NEG can eat that
'We must tell them that we can't eat that.'

Apparently, the speaker felt the need to realize the – given – agent of the embedded clause by use of the overt pronoun *kita*. Note that in this construction the entire clause is backgrounded. It is very likely that the occurrence of the preverbal pronoun is meant to convey a so-called secondary contrast,[16] i.e. "We must *tell* them that*we* can't eat that (although *you* can)." So, once more, the entity is not just topical but implicitly contrastive.

Furthermore, according to the rules spelled out in Section 2, clitics (in all persons) are expected to appear instead of "zero-marked" transitive clauses, but this is clearly not always the case in our conversation. There are several instances of transitive clauses in which neither a clitic nor an overt agent occurs, like (57).

(57) $Q_9$: {What kind of chili did the speaker see how often?}

> $Q_{9.1}$: {What kind of chili did the speaker see rarely?}

>> $A_{9.1}$: [[jarang]$_{CT}$ **gita** cabe [mira]$_F$]$\sim$
rarely see chili red
'I rarely saw red chili.'

There are also a few preverbal third person A arguments, like (58), which all seem to mark a contrastive (or at least a non-continuous) topic.

[16] The current QUD framework does not consider the phenomenon of *second-occurrence focus* (Beaver & Velleman 2011; Büring 2015; Baumann 2016) and will, therefore, not mark any secondary foci within the background, since there is no nesting of focus domains.

(58) $Q_1$: {What did the people in various places make?}
$>$ $Q_{1.1}$: {What did the people at the factory make?}
$>>$ $A_{1.1}$: [Jadi tau [ana]$_{CT}$ pina, [mara leng tau nana,]$_{NAI}$
then person over.there make like word person over.there
pina [peralatan untuk elepator]$_F$]$\sim$
make tool parts elevator
'At the time, people there, as they said, were making parts for an elevator.'

Finally, the P argument may occur as either pre-predicate argument or post-predicate argument. In all cases found, pre-predicate P arguments either correspond to the focused constituent (argument focus), examples (41) and (42), or to the contrastive topic, $A_{17.1}$ / (47), while a post-predicate P argument either belongs to the background, (49) or (56), is included in a (wide or mid-size) focus spanning the entire VP constituent, (51), or represents the focus in a CT-F combination, as shown in (57) and (58). A zero marked P argument is, as one would expect, one that is always clear from the context, see $A_{11}$ in example (59).

(59) $Q_{11}$: {How did we get there?}
$>$ $A_{11}$: [[olo]$_F$ [pang nan]$_T$]$\sim$
put.in place that
'(They) put **(us)** in that place.'

## 6 Summary and conclusions

We have investigated conversational corpus data from Sumbawa and demonstrated how information structure, determined on the basis of contextual-pragmatic constraints and the concept of questions under discussion, is related to constituent-ordering patterns known from earlier morphosyntactic descriptions of the language. In order to present the findings in a more systematic way, we revisit Tables 2 (now 4) and 3 (now 5) from Section 2 and include our new findings about information structure.

Summarizing, we can say that, by default (i.e. in the case of broad focus), the arguments follow the verbal predicate. Arguments occur pre-predicatively whenever any of them is narrowly focused and there is no contrastive topic present. In addition to that, a contrastive topic may also occur pre-predicatively. We found several candidates for potential contrastive topics. Since in all the cases the contrast can only be construed implicitly, we acknowledge if readers prefer to use

Table 4: Intransitive predicates: constituent order, subject and information structure

| | $1^{st}/2^{nd}$ person | $3^{rd}$ person |
|---|---|---|
| no overt subject | $[[V]_F]\sim$ cf. (52) | (39, 55) |
| post-predicate S-NP | * | $[[V\ S]_F]\sim$ (40, ) |
| | * | $[[V]_F\ [S]_T]\sim$ (39, 45, 54) |
| pre-predicate S-NP | $[[S]_F\ V]\sim$ *(not attested)* | |
| | $[[S]_{CT}\ [V]_F]\sim$ (53) | (46) |

Table 5: Transitive predicates: constituent order, agent and information structure

| | $1^{st}/2^{nd}$ person | $3^{rd}$ person |
|---|---|---|
| no overt agent | $[[V]_F]\sim$ *(not attested)* | |
| | $[[V\ P]_F]\sim$ (51) | |
| | $[[P]_F\ V]\sim$ (41, 42) | |
| | $[[P]_{CT}\ [V]_F]\sim$ | cf. (47) |
| | $[[V]_F\ [P]_T]\sim$ (56) | |
| post-predicate A-PP *(ling)* | *(not enough data)* | |
| pre-predicate A-NP | * | $[[A]_{CT}\ V\ [P]_F]\sim$ (58) *(no other patterns attested)* |

the terminology 'non-continuous topic' instead, although we see no essential difference between a contrastive topic (with or without an overt alternative) and the shift to a new topic since, from a pragmatic point of view, both require the formulation of a new QUD *about* this topical entity. In either case there is no topical continuity. As we said, both focus and contrastive/non-continuous topic may occur in the pre-predicate argument slot. This correspondence is very common cross-linguistically, since "the beginning of a sentence is a highly prominent position" (Kroeger 2004: 139) and both CT and F share the property of evoking alternatives (Büring 2003). However, the two pragmatic roles are usually distinguished phonologically in Sumbawa: a pre-predicate NP in focus occurs with a falling intonation, while the contrastive topic expression occurs with a rising intonation.

We have demonstrated how the use of the QUD-tree framework can be successfully applied to conversational data from a lesser-studied language like Sumbawa. This is the first comprehensive application of this method to a non-European language.[17] Not only were we able to provide an in-depth analysis of the information-structure system of the language but we could also show that the method is generally a valuable instrument to explain some of the constituent-order variation and the occurrence of clitics. With this method, we gain access to the information structure phenomena and corresponding syntactic properties contained in various kinds of text and dialogue data. This means that we are now able to investigate more potential variation on more natural data than when studying information structure only in elicitation experiments. Some of the variety may be explained by semantic-pragmatic factors, while others may reflect an ongoing grammatical change in Sumbawa.

We are confident that the phenomena and variety discovered in this study are the beginning of a series of new discoveries in the field of pragmatic data analysis on larger and more varied natural corpora.

[17] Compare also Latrouite & Riester (this volume).

## Abbreviations

| | |
|---|---|
| ∼ | focus domain |
| CT | contrastive topic |
| EXCL | exclusive |
| F | focus |
| HON | honorific |
| IMP | imperative |
| INCL | inclusive |
| ITJ | interjection |
| NAI | non-at-issue |
| NEG | negation |
| PL | plural |
| PST | past tense |
| Q | question particle |
| QUD | question under discussion |
| REL | relativizer |
| SG | singular |
| T | aboutness topic |

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