Chapter 1

The role of information structure for morphosyntactic choices in Tagalog

Anja Latrouite
Heinrich-Heine-Universität Düsseldorf

Arndt Riester
Universität Stuttgart

In this paper we investigate the influence of two information structure (IS) related aspects on the choice of voice form and sentence structure by Tagalog speakers. The first is the information status of argument referents. Tagalog is a multiple voice language, so almost every semantic argument in a sentence can be turned into the privileged syntactic argument (or subject) and be rendered salient. Information status of the undergoer has been argued to play an important role in voice and subject selection. The second IS-related aspect is the inherent structure of a discourse as determined by the implicit questions under discussion (QUDs) that are answered with each subsequent sentence in a text. The default sentence in Tagalog starts with a verb. Inversion constructions, i.e. sentences that start with an argument phrase instead of a verb, are described as motivated by information structure considerations such as focus-background or contrastive-topic-focus packaging. Based on a novel QUD approach, we will work out the discourse structure and at-issue contents of five short texts and show the important role of implicit QUDs and parallelisms on the choice of voice and constituent order.

1 Tagalog: Voice, information structure and inversion

1.1 Multiple voice system

Tagalog is a verb-initial language known for its multiple voice system. For an incremental theme verb like */sulat/* (actor voice: *sumulat*; undergoer voice: *sulatin*) 'to write' we find a set of voice affixes on the verb that may pick out the

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semantic core arguments or one of the peripheral arguments as the privileged syntactic argument (PSA) – the subject – of the respective sentence. The PSA is marked by *ang* if it is a common noun and *si* if it is a personal name. The *ang*- or *si*-marked reference phrases (RPs, cf. Van Valin 2008) tend to receive a definite or at least specific interpretation, and usually appear after the other core arguments, as shown in (1). Actor and undergoer voice sentences differ in that undergoers[1] expressed by common nouns preferably get an indefinite (and maybe even non-specific) reading in actor voice sentences, e.g. *ng liham* in (1a), while they preferably receive a definite or specific reading in undergoer voice sentences, e.g. *ang liham* in (1b).[2] Note that the actor tends to receive a definite reading regardless of case marking.

(1) /sulat/ 'write'

a. **um-: actor voice**
Hindi s<**um**>ulat [ng liham]$_{UG}$ kay Lisa **[ang babae]**$_{ACT}$.
NEG <AV.RLS>write GEN letter DAT Lisa NOM woman
'**The woman** did not write a(ny) letter/letters to Lisa.'

b. **–in: (incremental) theme voice**
Hindi s<**in**>ulat [ng babae]$_{ACT}$ kay Lisa **[ang liham]**$_{UG}$.
NEG <UV.RLS>write GEN woman DAT Lisa NOM letter
'The woman did not write **the letter/a (certain) letter** to Lisa.'

As mentioned above, it is not only the agent or the theme argument that may be singled out as salient with a verb like *write*, as the examples in (2) show. Note that if an argument other than the agent or the theme is chosen as PSA, the information status of the theme argument is unspecified. Sentence (2b) exemplifies that thematic role labels (here: *theme*) are sometimes not fine-grained enough to capture the semantic properties that the voice affixes pick out. We will not be concerned with the intricacies of so-called peripheral voice forms in this paper.

[1] As it is common, we use the macro-role label *undergoer* to refer to various non-actor roles.

[2] The (specific) indefinite reading of the undergoer can be enforced by inserting the numeral *isa-ng* 'one'.

(i) ***–in: (incremental) theme voice***
Hindi s<in>ulat ng babae kay Lisa ***ang isa-ng liham***
NEG <UV.RLS>write GEN woman DAT Lisa NOM one-LK letter
'The woman did not write **a certain letter** to Lisa.'

The examples are only meant to show that the voice system serves first and foremost to make different semantic arguments in a sentence salient and that only one argument at a time may be marked as salient in a sentence.

(2) a. **–an: goal voice**
S<in>ulat-**an** ng babae ng liham **si Lisa**.
<UV.RLS>write-GV GEN woman GEN letter NOM Lisa
'The woman wrote **Lisa** a/the letter/letters.'

b. **i-: (transferred) theme voice**
I-s<in>ulat ng babae **ang pangalan ni Lisa** sa papel.
TV-<UV.RLS>write GEN woman NOM name GEN Lisa DAT paper
'The woman wrote **Lisa's name** on (the) paper.'

c. **i-pan(g)-: instrument voice**
I-p<in>**an**-sulat ng babae kay Lisa ng liham **ang**
IV-APPL$_{INSTR}$<UV.RLS>-write GEN woman DAT Lisa GEN letter NOM
lapis mo.
pencil your
'The woman wrote the/a letter/letters to Lisa **with your pencil**.'

So far there are no elaborate corpus studies exploring whether the definiteness/specificity associated with *ang*-marking is about uniqueness, identifiability, familiarity, givenness, a certain kind of accessibility or other information-structurally relevant features. In this paper we are going to approach the problem from the other side. We will analyze the information structure and discourse structure of textual data and subsequently study the influence of information-structural constellations on voice selection. By *constellation* we mean, in particular, the focus-background structure of the entire clause within its discourse context rather than isolated properties such as the givenness of a single argument. The goal is to make further contributions to the investigation of which discourse properties exactly motivate voice and construction selection in a given text. To this end we will look at the results of a Tagalog translation and evaluation study aimed at getting speakers to produce and rate the same sentence in five contexts that differ with respect to the givenness of the arguments and the overall discourse structure. Before we turn to this study, however, a few more words need to be said about what has been found so far with respect to voice, constituent order and information structure coding in Tagalog.

1.2 Preliminary assumptions on information status, event type, information structure and the prominence of the undergoer

Philippine languages have been characterized as patient-prominent languages by Cena (1977), De Guzman (1992) and others, in the sense that undergoer voice has been said to be more frequent than actor voice in text counts, at least in transitive sentences (cf. Payne 1994; Sells 2001). Maclachlan (2002) among others argues that this observation does not hold unequivocally for Tagalog. Investigating several Philippine languages, Nolasco (2005), who proposes an ergative analysis of Tagalog, characterizes Philippine ergativity as speakers giving "the highest degree of prominence to the most affected entity" (ibid, p. 236), i.e. the entity viewed as most saliently affected by the event is said to receive the absolutive[3] case (*ang*-marking). For the most part, the most affected argument in transitive scenarios is the undergoer, but may be the actor if the undergoer is less identifiable. So, basically, he also recurs to the degree of referentiality (i.e. the information status) of the undergoer as one of the essential factors for voice selection. The idea of *ang*-marking as prominence marking is taken up by Latrouite (2011), who suggests three levels of evaluation with respect to the relative prominence of an argument: (i) the referential level, (ii) the event-structural level, and (iii) the information-structural level.

With respect to the referential level there are two possible scenarios: (i) one argument is higher on the scale of referentiality than the other (given > familiar > unfamiliar > non-unique > non-specific)[4] and, therefore, considered to be more prominent, or (ii) both are equally referential, but the referentiality of one of the arguments is less expected and, therefore, this information is treated as more salient. Expectancy is based on the frequency of a pattern. As Primus (2012) and others have pointed out, actors tend to be referentially independent and definite, while undergoers tend to be referentially dependent on the actor and are less often definite. Therefore, we find cross-linguistically a tendency to develop marked morphosyntactic coding for definite undergoers.

With respect to the level of event-structural prominence, we can distinguish undergoer- from actor-prominent and neutral verbs. Clearly undergoer-oriented verbs are change-of-state verbs like *to scare* or *to kill* that only provide information on the result state of the undergoer, but no information regarding the specific activity of the actor. Actor-oriented verbs are manner of action verbs (e.g. *to devour*) and certain stative verbs (e.g. *to fear*), and neutral verbs comprise

[3] Since we do not subscribe to the ergative analysis, we will gloss *ang* as *nominative* instead.

[4] Compare also the givenness hierarchy by Gundel, Hedberg & Zacharski (1993) and the comprehensive overview on information status by Baumann & Riester (2012).

punctual contact verbs like *to hit*. Schachter & Otanes (1972) provide examples showing that an undergoer-oriented verb like *to kill* or *to scare* cannot be used with actor voice in an unmarked, verb-initial sentence, as exemplified in (3a), but only with undergoer voice, as in (3b).

(3) a. * T<um>akot sa mga babae si Lena.
<AV.RLS>scare DAT PL woman NOM Lena
Intended: 'Lena scared the women.'

b. T<in>akot ni Lena ang isa-ng babae.
<UV.RLS>scare GEN Lena NOM ONE-LK woman
'Lena scared a woman.'

This suggests that the voice alternation we are interested in is not available for these verbs. Note, however, that there are examples of actor voice forms of these verbs, even with definite undergoers, as example (4b) shows. The sequence in (4) is taken from a blog discussing a movie. The movie is about sisters that suffer from different kinds of traumas.

(4) a. Kay Angel, ang multo ay ang pagiging alipin sa alak at
DAT Angel, NOM ghost INV NOM developing slave DAT alcohol and
sigarilyo.
cigarette
'For Angel, the ghost is the developing addiction to alcohol and cigarettes.'

b. [Kay Sylvia,]$_{UG}$ t<**um**>a-takot [sa kaniya]$_{UG}$ [ang
DAT Sylvia <AV.RLS>IPFV.scare DAT her NOM
pagpapalaglag sa kanya-ng magiging anak]$_{ACT}$.
abortion DAT her-LK developing child
'As for Sylvia, the abortion of her developing child scares (is haunting) her.'
http://panitikanngpilipinas17.blogspot.de

Latrouite (2011) observes that some kind of event-related markedness seems to be necessary to license actor voice of an inherently undergoer-oriented verb in a verb-initial clause. In her examples, the verb is always marked for imperfective aspect, inducing a habitual reading, and the actor argument is an inanimate causer rather than a volitional, controlling agent. She suggests that it is these divergent properties that license the use of the marked actor voice form. Note

that in the example given in (4b), the sentence is also information-structurally marked, as the undergoer is a contrastive topic and appears in the left periphery. The new, focal information in (4b) is, thus, provided by the actor phrase *the abortion of her developing child*. The example is couched in a series of contrasting sentences, one of which is given in (4a), listing the afflictions and problems the – previously introduced – protagonists are haunted by. Latrouite (2011) suggests that considerations with respect to the level of information-structural prominence outrank considerations regarding the other two levels (event type and information status of arguments). Based on examples like (4b) as well as examples discussed further down below, it is argued that information structure plays an important role with respect to voice selection. However, there is no systematic corpus study to back-up the proposal as of yet and no detailed information-structural analysis of the data. This paper is meant to further investigate the claim that not only givenness and topicality, but also focality plays an important role for voice selection and, therefore, for PSA-marking.

Note that for the two not very frequent peripheral voice forms, instrument voice and causative voice, Nuhn (2016) finds textual givenness of the PSA to be a prerequisite in his preliminary corpus study. It seems to make sense that undergoer arguments can only be realized as the PSA if they are prementioned. However, note that the licensing of actor voice in (4b) rather points to focality of the actor as the decisive factor, since it is chosen over a given undergoer.

Latrouite (2016) finds that the textual givenness of undergoers is not sufficient to make speakers choose undergoer voice. For instance, in the target sentence (5c) the prementioned undergoer (experiencer) *mga negosyante* 'the negotiators' (see context in 5a) is not marked by *ang*; rather it is the inanimate actor argument *the rallies* which receives *ang*. As we have just pointed out, */takot/ (tumakot, takutin)* 'to scare' is clearly undergoer-oriented. So not only based on the givenness of the undergoer but also based on event-structural prominence considerations, the undergoer argument would be expected to turn into the PSA. However, once again, we find actor voice and, once again, the sentence is information-structurally marked. It negates the truth of the previous sentence, and the follow-up sentence shows that the reason for the negotiators' fear is not the rallies but Erap.[5] It is therefore possible that it is the contrast between the actor arguments that licenses the chosen actor voice form.

[5] *Erap* is the nickname of Joseph Estrada, at the time President of the Philippines. Note, furthermore, that the form *yung* is very often used instead of *ang* in spoken Tagalog and seems to find its way into written Tagalog as well.

(5) Actor voice despite prementioned undergoer:

a. **Context (undergoer voice) providing *rallies* and *negosyante*:**
Sabat naman ni Executive Sec. Ronaldo Zamora,
answer likewise GEN Executive Sec. Ronaldo Zamora
t<in>a-takot lang ng rallies ang mga negosyante.
<UV>IPFV-scare just GEN rallies NOM PL negotiators
'According to Executive Sec. Ronaldo Zamora, the rallies just frighten the negotiators/businessmen.'

b. **Additional context:**
'And according to the postscript by Education Sec. Andrew Gonzales, it is forbidden for teachers to accompany the students to the rally, and a discussion regarding impeachment (from class) comes on top [...] What is this, martial law?'

c. **Target sentence:**
Hindi totoo-ng t<**um**>a-takot [ng mga negosyante]$_{UG}$ [ang
Not true-LK <AV.RLS>IPFV-scare GEN PL negotiator NOM
rallies]$_{ACT}$.
rallies
'It is not true that the rallies frighten the negotiators/businessmen.'

d. **Continuation:**
Ang t<**um**>a-takot [sa kanila]$_{UG}$, [yung pananatili ni Erap
NOM <AV.RLS>IPFV-scare DAT them NOM staying GEN Erap
sa puwesto]$_{ACT}$.
DAT spot
'What scares them is Erap's staying on his spot.'
(Pilipino Star Ngayon, December 12, 2000, *Mag – rally or tumahimik*)

The sentence in (6) shows an example pointing in a similar direction. The example is taken from the Tagalog translation of the *Hunger Games* by Suzanne Collins (2009). In the preceding paragraph the reader learns that the narrator is on her way to the woods to go hunting, which is illegal and may result in her getting killed. The narrator muses about the dangers she is putting herself into and how she cannot be open and truthful with anyone, not even her closest family members. In this context the following sentence is uttered.[6]

[6] English original: "In the woods waits the only person with whom I can be myself: Gale."

(6) Nag-hi-hintay [sa akin]$_{UG}$ sa gubat [ang nagiisa-ng tao-ng
AV.RLS-IPFV-wait DAT 1SG DAT forest NOM alone-LK man-LK
puwede ko-ng pa-kita-an ng tunay na ako – si
can 1SG.GEN-LK CAUS-visible-LV GEN true LK 1SG.NOM NOM
Gale]$_{ACT}$.
Gale
'Waiting for me in the woods is the only person I can show my true self to – Gale' (*Yung Hunger Games*, p. 4)

The actor phrase *the only person [I can show my true self to]: Gale* is newly introduced and, based on the relative clause, also starkly contrasted to the previously mentioned family members that the narrator cannot confide in. The undergoer argument is the narrator herself, so she is clearly given. Despite this fact, actor voice is chosen and the new, contrasted actor argument Gale is chosen as subject.[7] Examples like these lead Latrouite (2011) to the conclusion that the focality of the actor argument may result in actor voice selection, a pattern that cannot be predicted from the information status of the undergoer alone.It has been noted before that there is a default mapping between givenness/topicality and the macro-role *actor* on the one hand, and newness/focality and the macro-role *undergoer* on the other hand (e.g. Lambrecht 1994 among others), and that divergence from this default mapping often results in a specific morphosyntactic marking in the languages of the world, cf. Güldemann, Zerbian & Zimmermann (2015) on African languages.[8] Therefore, it is worthwhile exploring whether the sentences above are exceptions or whether they point to a more systematic pattern.

[7] Note that without further context the undergoer voice form would be preferred by speakers if the undergoer is highly referential (active, salient, given).

(i) *H<in>intay ako ng isa-ng lalaki / ni Gale.*
<UV.RLS>wait 1SG.NOM GEN one-LK man GEN Gale
'A man/Gale waited for me.'

[8] The reason for this default mapping, at least in narratives, may very well be that stories tend to center around a small number of protagonists that engage in various activities with objects and people they encounter in the course of a story, so that the information packaging of a default sentence is Actor (topical) Verb (focal) Undergoer (focal).

1.3 Hypotheses on information structure and voice marking

Given the asymmetry with respect to the default mapping of macro-roles and information-structural values, the characterization of information-structural prominence needs to be stated as follows:

(7) **Information-structural prominence (characterization)**:
A core argument is IS-prominent if it has a non-default IS value (whereby the default value for actors is *+topical* and the default value for undergoers is *+focal* in a transitive sentence).

Based on the actor focus examples above and cross-linguistic findings that information-structural prominence as characterized in (7) is oftentimes reflected morphosyntactically in the languages of the world, we can formulate the hypothesis that information-structural prominence may indeed be a decisive factor for voice selection in Tagalog. If voice selection is influenced by prominence considerations and IS-prominence is an important factor, we expect the following correlation:

(8) IS-influenced tendencies w.r.t. voice selection with two-place predicates:
   a. If the undergoer is topical (given), undergoer voice is preferred.
   b. If the actor is focal (new), actor voice is preferred

It is important to note that research on information structure of the past decades has made it reasonably clear that the conceptual pairs *focal* vs. *new* (as well as *topical* vs. *given*) are closely related yet not identical to each other, see e.g. Beaver & Velleman (2011) or Riester & Baumann (2013). This is why, in Section 2.1, we are going to switch to a question-based definition of focus. In the current section, however, and with regard to the examples introduced so far, a novelty-based definition of focus is sufficient and, perhaps, easier to comprehend.

The tendencies stated in (8) render clear predictions if the actor and the undergoer do not differ in status with respect to information structure, i.e. if both are topical or both are focal. If both are topical, only the undergoer is considered information-structurally prominent based on (7). If both are focal, only the actor is considered information-structurally prominent. As a first hypothesis to be checked we suggest the following:

Hypothesis (i)

If the actor is focal (contrary to the default mapping) and the undergoer is focal (in accordance with the default mapping), then actor voice is chosen:

Actor_{F} $\text{Undergoer}_{\text{F}} \rightarrow$ Actor Voice *(preliminary)*

The situation described in Hypothesis (i) that will come to mind at first is probably so-called *broad focus* although the hypothesis can, for instance, also be applied to situations in which the undergoer is a (focus-like) contrastive topic and the actor is a focus, as witnessed in example (4b). We will say more on contrastive topics in Section 1.4. A second hypothesis to be checked is:

Hypothesis (ii)

> If the actor is topical (according to the default mapping) and the undergoer is topical (contrary to the default mapping), then undergoer voice is chosen:
>
> $\text{Actor}_{\text{T}}\ \text{Undergoer}_{\text{T}} \rightarrow \text{Undergoer Voice}$

Undergoer voice could then be expected to be the preferred choice in sentences in which the verb or some non-core argument is focal, but both actor and undergoer are old information.

There are two more possible scenarios. The first scenario is the default mapping: actor (topical) – undergoer (focal). Neither argument is information-structurally prominent according to (7) in this scenario. Therefore, the choice of the respective voice form will have to be based on prominence considerations at a different level. The default for discourse-new undergoers is that they are indefinite, i.e. not referentially prominent. Based on the referential prominence considerations mentioned above, we expect actor voice to be frequent in this scenario, as shown, for instance, in (1a); cf. Primus (2012) on definiteness as a generally marked option for undergoers/objects. However, also undergoer voice is found in this constellation; compare (3b). Therefore, the only claim made in Hypothesis (iii) is that voice selection in this scenario involves information from a different level.

Hypothesis (iii)

> If the actor is topical (according to the default mapping) and the undergoer is focal (according to the default mapping), then both voice forms may be used. The final choice will depend on prominence considerations at a different level (i.e. referential prominence or event-structural prominence).
>
> $\text{Actor}_{\text{T}}\ \text{Undergoer}_{\text{F}} \rightarrow \text{Actor Voice} \vee \text{Undergoer Voice}$

The last possible scenario is a very marked one: both actor and undergoer are information-structurally prominent given the characterization in (7). In view of the fact that a given undergoer is not only IS-prominent but also prominent at the referential level, we might expect undergoer voice to be preferred over

actor voice in this case. However, as we have already seen in examples (5d) and (6) above, a given undergoer does not necessarily enforce undergoer voice, so focality of the actor seems to outrank the topicality of the undergoer in quite a few instances.

Hypothesis (iv)

$\text{Actor}_{\text{F}}\ \text{Undergoer}_{\text{T}} \rightarrow \text{Actor voice} > \text{Undergoer Voice}$ *(preliminary)*

Morphological marking on the verb is not the only possibility to overtly express IS-prominence. Many languages use fronting and inversion constructions as well as prosody to mark IS-prominence, and so does Tagalog. Therefore, we can expect that speakers may be able to express the IS-prominence of both arguments, albeit with different means: for instance, voice marking for one of the arguments and inversion for the other one. This is indeed found, as discussed in Section 1.4.

In order to factor out event-structural prominence and to highlight the role of information structure, Latrouite (2016) construed contexts for one and the same target sentence, containing the same verb and reference phrases. The contexts were meant to clearly determine the information status of the reference phrases and narrow down the set of possible implicit questions the target sentence could be an answer to. In this article, these contexts will be be examined from a discourse-structural perspective. Before we turn to the study, however, we need to take a look at constituent order and information structure in Tagalog and lay out our question-under-discussion approach which we utilize to determine the information structure of an utterance.

1.4 Constituent order, prosody and inversion constructions

In this section, we turn our attention to other means of information-structure marking than voice. Kaufman (2005) puts forward what he calls the "double focus" construction in (9b), in which only the (non-focal) actor argument[9] is signaled on the verb via voice morphology, while the two focal undergoer arguments in-situ are marked by prosodic stress. Given what has been just laid out in Section 1.3, we would not expect focal undergoers to trigger undergoer voice, so the data do not yet pose a challenge. There have been no claims so far with respect to how contrast should be marked. Prosody (indicated by capital letters) seems to be a possible option.

[9] (9b) shows that a pronominal (in contrast to a nominal) PSA does not occur sentence-finally and is not *ang*-marked.

(9) **"Double focus" (Kaufman 2005: 187ff.)**

a. Dapat ba-ng mag-bigay ng pera sa mga guro?
should Q-LK AV-give GEN money DAT PL teacher
'Should one give money to the teachers?'

b. Hinde, mag-bigay ka na lang [ng KENDI]$_F$ [sa mga
NEG AV-give 2SG.NOM only GEN candy DAT PL
BATA]$_F$.
child
'No, (you) just give CANDY to the KIDS.'

Very often the phenomenon that some people call "double focus" is actually a combination of a contrastive topic (Büring 2003) plus a (contrastive) focus.[10] Contrastive topics have pragmatically a lot in common with foci (both of them give rise to alternatives, cf. Rooth 1992). We therefore expect that our hypotheses made with respect to focality (in particular, Hypothesis i) also cover contrastive topics. For instance, in (4b) we already saw actor-voice marking in combination with a contrastive topic and a focus.

A rather special means of focus/contrast marking is shown in example (10b), by Kaufman (2005: 194): the contrastive, genitive-marked actor appears in an extraordinary position at the end of the sentence and receives prosodic stress, while the undergoer is given. Thus, according to Hypothesis (iv), we would expect actor voice. However, in (10b) undergoer voice is found, indicating that special word order choices seem to have an influence on voice selection as well.

(10) a. K<in>a-usap ng bawat propeso ang mga estudyante, di ba?
<UV>COM-speak GEN each professor NOM PL student, NEG Q
'Each professor spoke with the students, right?'

b. Hindi. Hindi k<in>a-usap ang mga estudyante ni [PROPESOR
NEG NEG <UV>COM-speak NOM PL student GEN Prof.
MARTINEZ]$_F$.
Martinez
'No. PROFESSOR MARTINEZ did NOT speak with the students.'

Note that the actual information structure of (10b) is in fact a bit unclear. It is quite likely that, other than what is assumed in Kaufman (2005), the extraposed

[10] True instances of "double focus", which may also be characterized as two parts of a single, discontinuous *complex focus* (Krifka 1992), are rare in comparison with the rather frequent CT-F pairs. See also the discussion in Riester & Baumann (2013: 216).

phrase *ni Propesor Martinez* is actually the contrastive topic, while the focus is on the negation. Since we have no other piece of evidence for this particular construction, we shall have nothing more to say about it at this point.

It is also possible for a contrasted core argument to appear with nominative marking in sentence-initial position followed by *ay*, while the other focal element appears in-situ with prosodic stress, as shown in (11). This construction is one of three inversion constructions mentioned in Schachter & Otanes (1972) and Van Valin & Latrouite (2015) and has also been linked to information packaging considerations. Inversion constructions are structures that diverge from the verb-initial default word order by starting off with a reference phrase in sentence-initial position. The three kinds of inversion constructions are the so-called *ay*-inversion construction, the *ang*-inversion construction and the adjunct fronting construction. In our study below, the *ay*-inversion construction was the most frequent one. According to Schachter & Otanes (1972), *ay*-inverted elements are for the most part topical arguments, but may be used for contrast. In the example in (11), the *ay*-inverted element can easily be construed as a contrastive topic and the argument realized in-situ as the (contrastive) focus.

(11) **Contrastive topic – contrastive focus**
[Si Peter]$_{CT}$ ay nag-ba-basa [ng LIBRO mo]$_{F}$.
NOM Peter INV AV.RLS-IPFV-read GEN book 2SG.GEN
'PETER is reading your BOOK.'

Note that, despite its nominative marking, the sentence-initial element followed by *ay* does not have to be the PSA of the verb; at least in undergoer voice sentences it can be the actor as well, see (12a). The particle *ay* may also be replaced by a pause here, signaling the clause-external position of the sentence-initial element. There are no corpus studies yet, but one can speculate that the construction in (12a) may be one of the ways to code both the topicality of the undergoer (undergoer voice) and the focality of the actor (*ay*-inversion) at the same time. We therefore tentatively assume the information structure indicated on the example. Note that it is not possible to *ay*-invert an undergoer in combination with actor voice, see (12b).[11]

[11] Even with resumptive pronoun, the sentence is considered ungrammatical by the consultants.

(i) * *Ang libro mo ay nag-ba-basa nito si Peter.*
NOM book your INV <AV.RLS>read this.GEN NOM Peter
Intended: 'The book, Peter is reading it.'

(12) a. ***Ay*-inversion sentence with two NOM-marked phrases**
[Si Peter]$_{F}$ ay b<in>asa [ang libro mo]$_{T}$.
NOM Peter INV <UV.RLS>read NOM book your
'PETER read your book.'

b. * Ang libro mo ay nag-basa si Peter.
NOM book your INV <AV.RLS>read NOM Peter
Intended: 'Peter read the BOOK.'

Based on these descriptions we can add a fifth hypothesis that we wish to check.

Hypothesis (v)

Actor$_{F}$ +ay Undergoer$_{T}$ → Undergoer Voice *(preliminary)*

Meanwhile, based on the problems with extraposition in (10b) and with *ay*-inversion in (12a), we change Hypothesis (iv) to exclude *ay*-inversion and non-default constituent order.

Hypothesis (iv)

Undergoer$_{T}$ Actor$_{F}$ *(only default constituent order)* → Actor Voice *(final)*

Finally, Hypothesis (i) will be stated more precisely to explicitly also cover *ay*-inversion and contrastive topics, i.e. examples like (11).

Hypothesis (i)

Actor$_{F/CT}$ ±ay Undergoer$_{F}$ → Actor Voice *(final)*

In the following, we mention a few more information-structurally relevant syntactic properties of Tagalog, which, however, we will not investigate any further. It should be noted that the *ay*-inversion may also be used in connection with framesetters, such as a temporal or local adverbial phrase, as shown in (13).

(13) Kahapon ay nag-basa ng libro mo si Peter.
Yesterday INV AV.RLS-read GEN book your NOM Peter
'Yesterday Peter read your book.'

If Tagalog speakers wish to put narrow focus on an obliquely marked argument or adjunct, they are also said to recur to adjunct inversion (Kroeger 1993), in which the adjunct is moved to the sentence-initial position and attracts clitics (if present) that appear between them and the verb. In (14) the pronoun *siya* is a clitic.

(14) **Adjunct/oblique inversion ("emphatic" inversion, Schachter & Otanes 1972, pp. 496–98)**

a. T<um>awa siya sa kaniya kahapon.
<AV.RLS>laugh 3SG.NOM DAT 3SG.OBL yesterday
'She laughed at him yesterday.'

b. Kahapon siya t<um>awa sa kaniya.
yesterday 3SG.NOM <AV.RLS>laugh DAT 3SG.OBL
'It was yesterday that she laughed at him.'

c. Sa kaniya siya t<um>awa kahapon.
DAT 3SG.OBL 3SG.NOM <AV.RLS>laugh yesterday
'It was at him that she laughed yesterday.'

Another inversion construction is the nominative or *ang*-inversion, in which the PSA is put in the sentence-initial position followed by a nominalized (*ang*-marked) predicate phrase, yielding an equative structure like in (15b). This construction is often translated by means of an English cleft construction, but can be shown to have a slightly different distribution (Latrouite & Van Valin 2016) and a different syntactic structure (e.g. Nagaya 2007).

(15) **Nominative *(ang)* inversion**

a. T<um>a-tawa siya.
<AV.RLS>IPFV-laugh 3SG.NOM
'He was laughing.'

b. Siya ang t<um>a-tawa.
3SG.NOM NOM <AV.RLS>IPFV-laugh
'He was the one laughing.'

Except for two instances of *ang*-inversion (see (39) in Section 3.5 and (40) in Section 3.6), speakers did not recur to the last two inversion constructions in the study presented in this paper, although Latrouite & Van Valin (2016) could show that for the Hunger Games corpus the *ang*-inversion is more frequently used than the English *it*-cleft.

2 The pragmatics of information structure and discourse structure

2.1 Information structure theory: Basic assumptions and terminology

In this and the following section, we will define the information-structural concepts and terminology used in the case studies of Section 3 from a discourse perspective. At least two ways of describing information packaging have been proposed in the literature; the topic-comment structure and the focus–background structure. Lambrecht (1994) and others assume that the topic is the expression with respect to which the speaker aims to increase the hearer's knowledge, the comment being the part which provides this knowledge. The focus-background packaging, on the other hand, is about the distinction of "non-presupposed" vs. "presupposed" material.[12] This definition is close in spirit, though not in terminology, to Riester (to appear) or Riester, Brunetti & De Kuthy (to appear), building on the tradition of Alternative Semantics (Rooth 1992) and theories of *questions under discussion (QUD)* (Büring 2003; 2016; Beaver & Clark 2008; Roberts 2012). It is assumed that focus is the answer to the (current) QUD, while the background is the content used when formulating the QUD. Elements of the background that are not topical (here, interpreted as not referential, cf. Jacobs 2001) are sometimes called *tail* (cf. Vallduví & Engdahl 1996).

(16)

Question:	What is Peter doing in the dark?			
Answer:	Peter	is	dancing	in the dark.
	[Aboutness Topic]	**[Comment]**		**[Tail]**
	[Background]		**[Focus]**	**[Background]**
	[F o c u s	**D o m a i n**		**∼]**

As for the information-structural markup, we choose the conventions demonstrated in (17), following Riester, Brunetti & De Kuthy (to appear):

[12] This usage of the term *presupposed*, which can apply to denotations of non-clausal expressions and which is closely related to the notions *given* or *backgrounded*, stems from Chomsky (1971) and Jackendoff (1972). It is, however, in conflict with the use of the term in formal-pragmatic approaches, e.g. Karttunen (1974); Stalnaker (1974), which essentially define presuppositions as (abstract) propositional entities assumed to be part of the common ground, i.e. not necessarily as given. Compare also discussions in Lambrecht (1994: 150f.), Wagner (2012) or Riester & Piontek (2015: 237f.). For a contemporary picture of presupposition and other types of projective content see e.g. Tonhauser et al. (2013).

(17) Q_1: What is Peter doing in the dark?
> A_1: [[Peter]$_T$ is [dancing]$_F$ in the dark.]∼

(Q)uestions under discussion and their (A)nswers share the same index. The indentation (>) signals the fact that answers are subordinate to their QUD in discourse structure, i.e. they stand in a parent-child relation, as symbolized in Figure 1.

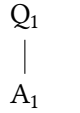

Figure 1: Simple question-answer discourse

The focus (F) is the part of the answer that corresponds to the question element of the QUD. QUDs which are implicit are enclosed in curly brackets, while overt questions are represented without brackets. The ∼ symbol (Rooth 1992) indicates a focus domain, whose purpose it is to delimit the area comprising both the background and the focus. Focus domains "match" (Büring 2008) the QUD regarding their background, and they also allow for the easy identification of mutually contrastive assertions. All material inside the focus domain that is not focal is part of the background. There is no separate label for the background itself but we identify referential expressions in the background, e.g. *Peter* in example (16), as aboutness topics (T).[13]

A further category, which is not yet satisfactorily captured by the above grouping, is the contrastive topic (CT). Following (Büring 2003), a contrastive topic is a hybrid category, which shares properties with both focus and background (or aboutness topic). We assume that contrastive topics can only occur in combination with a focus. They reflect a complex discourse strategy of the kind depicted in (18) or, more abstractly, in Figure 2.

(18) Q_1: {Who is doing what in the dark?}
> $Q_{1.1}$: {What is Peter doing in the dark?}
>> $A_{1.1}$: [[Peter]$_{CT}$ is [dancing]$_F$ in the dark.]∼
> $Q_{1.2}$: {What is Anna doing in the dark?}
>> $A_{1.2}$: [[Anna]$_{CT}$ is [eating]$_F$ in the dark.]∼

[13] As for functional elements (e.g. the copula *is*, determiners, or prepositions), we leave it open when they should become part of the focus and when they should not.

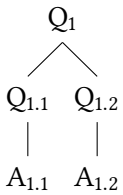

Figure 2: Question-subquestion discourse

The complex strategy consists in the fact that a question with two question elements (here: *who, what*) are answered by a sequence of answers to subquestions (indicated $Q_{1.1}$, $Q_{1.2}$). Now, the expressions *Peter/Anna* – which are backgrounded with respect to the subquestions but focal with respect to the main question Q_1 – are contrastive topics. Note that contrastive topics, as in (11), can function as aboutness topics (i.e. indicate a discourse referent) but they need not. Throughout the languages of world, it is the contrastive function of expressions that leads to stronger deviations from the default sentence realization than the aboutness function. In other words, it seems to be more important to signal that a change is expected or currently happening than to signal that there is a mere topical continuity. For that reason we expect contrastive topics to trigger more dramatic changes with regard to constituent order and prosody than (non-contrastive) aboutness topics.

2.2 Discourse structure trees, QUDs and well-formedness conditions

Recently, Riester, Brunetti & De Kuthy (to appear) (see also Reyle and Riester 2016, Riester to appear) have proposed a procedure for the identification of implicit questions under discussion (QUDs) in textual data. We will apply their methodology in the data analyses of Tagalog presented in Section 3. The method implements an insight, going back to at least Stutterheim & Klein (1989); van Kuppevelt (1995); Ginzburg (1996) and Roberts (2012), that the assertions made in a text can actually be thought of as answers to implicit questions, much like question-answer sequences in spoken dialogs. While, in much of the previous work, QUDs have remained an object of theoretical investigation, Riester, Brunetti & De Kuthy (to appear) develop practical linguistic annotation guidelines, which are demonstrated on the basis of French, German and English corpus data.[14] Since the information structure of an assertion is definable relative to its QUD,

[14] See also Riester & Shiohara (this volume) for an application of the QUD-tree method to Sumbawa (Austronesian, Malayo-Polynesian).

the benefit of enhancing a text with pragmatically defined implicit QUDs is that we gain access to the information structure of each clausal unit. This provides us with potential access to a large amount of data, which can be used to study the morpho-syntactic marking of information structure in any language of interest. The method is more flexible, faster and cheaper than collecting data by means of experimental techniques, and comes with the additional advantage that the data under investigation are potentially more natural than, for instance, artificially produced question-answer responses. Without going into details, the reconstruction of the implicit QUDs of a text is enabled because it is constrained by a number of pragmatic principles derived and adapted from the literature on information structure; in particular Rooth (1992); Schwarzschild (1999); Büring (2003) and Büring (2008):

1. For any assertion A identified in a text, its immediately dominating question Q must be directed at one of its constituents (Q-A-Congruence), i.e. QUDs which do not target any expression in the assertion are forbidden.

2. The principle of Q-Givenness says that Q can only consist of material that is salient at the point when A occurs; where *salient* means that the content is already active in the mind of the reader before A is processed. Typically, activation results from previous mention. In other words, material that is given in the discourse counts as salient and can be used to formulate Q.

3. The Q-Givenness constraint is complemented by the principle Maximize-Q-Anaphoricity, which says that all the content that is given in assertion A should be reflected in the QUD, i.e. A should have a maximal background and a minimal focus.

For instance, in (19) the appropriate QUD for A_1 must be the one indicated by Q_1, because it is this question which contains only given material *(rats)* and maximizes the background of A_1. By contrast, the reader is encouraged to check that other questions (e.g. *Is stress unhealthy? What about cats? What happened?*) violate one or several of the constraints mentioned above.

(19) A_0: The life of rats is stressful and dangerous.
Q_1: {What about rats?}
$>$ A_1: [[They]$_T$ [get chased by cats]$_F$.]$\sim$

The final constraint, Parallelism, is designed to handle contrastive information in a text. When two assertions A' and A'' share semantic content while their

remaining parts are interpreted as alternatives, then there is a common QUD, in which the shared material is reflected. In specific cases, PARALLELISM will override Q-GIVENNESS, which means that the QUD of two (or more) parallel assertions may contain some discourse-new material if it is (semantically) contained in both assertions. As an example, consider the sequence in (20). The information-structurally relevant QUD is $Q_{1.1}$ (a subquestion of Q_1) which includes the discourse-new (but semantically shared) material *chase*.[15]

(20) A_0: The life of rats is stressful and dangerous.
Q_1: {What about rats?}
$>$ $Q_{1.1}$: {Who chases rats?}
$>>$ $A_{1.1'}$: [[Cats]$_F$ chase [rats]$_T$]$\sim$
$>>$ $A_{1.1''}$: and [[dogs]$_F$ go after [them]$_T$]$\sim$ as well.

Finally, example (21) introduces so-called non-at-issue (NAI) material (Potts 2005), which we define as linguistically optional expressions or, more precisely, as discourse-new material which is syntactically and semantically independent and which does not contribute in a direct manner to answering the current QUD. Typical NAI expressions are, for instance, appositions, non-restrictive relative clauses, speaker-oriented adverbs, evidentials or adjunct clauses like in (21).

(21) Q_0: {What do cats do?}
$>$ A_0: [When they are in the mood,]$_{NAI}$ [[cats]$_T$ [chase big rats]$_F$]$\sim$.

We will simply ignore non-at-issue material when it occurs at the beginning or in the middle of a clause. Non-at-issue material at the end of a clause will be treated as a new, independent assertion. Finally, note that discourse markers (e.g. *and, or, but, although*) or discourse particles (*also, as well, only, even*) are not marked as NAI but simply left unannotated, compare $A_{1.1''}$ in (20).

3 Case study 'The unhappy rats'

3.1 QUD approach to 'The unhappy rats'

Our case study is based on data elicited in Manila. Four speakers of Tagalog (three of which only speak Tagalog and no other Philippine language, and one

[15] This example demonstrates that it makes sense to distinguish between *topical* reference phrases, e.g. *[rats]$_T$*, and larger, non-referential *backgrounds* that may contain more material than just the aboutness topic, e.g. the phrase *[chase [rats]$_T$]*.

who speaks Palawan and Tagalog) were asked to freely translate five short texts that differ in the givenness of the actor argument, the undergoer argument, the verb, and in the questions under discussion answered by the target sentence. The target sentences themselves vary slightly in their formulation in order to make the discourses sound more natural. In the following overview of the material we focus on the givenness of the arguments in the target sentences. The discourse structure of the texts will be worked out in detail in the next section.

In Text 1, the actor *cats* is the discourse topic. The verb and the undergoer provide the new information.

1. *Cats are silly creatures with nothing but nonsense on their minds. They climb up on curtains, bring home mice. Cats also chase and catch big rats, when they get a chance. Who wants to have a big rat in their house?*

In Text 2, the undergoer *rats* is the discourse topic, and there is a narrow contrastive focus on the actor *cats*.

2. *It is not only wolves and foxes that threaten rats and catch them. Cats also catch rats and eat them afterwards.*

In Text 3, the undergoer *rats* is the discourse topic. The actor *cats* and their activity with respect to the undergoer is the new information.

3. *Rats live stressful and dangerous lives. The noise of the traffic makes them nervous and sick. Dogs chase them. And also (our domestic) cats catch and kill rats, when they get the chance.*

In Text 4, the discourse topic is the cruel laws of nature. All sentences are about predators catching certain animals. Thus, the verb combination *chase and catch* is given, while the actor *cats* and undergoer *rats* are new/contrastive.

4. *Life in the wilderness is pretty cruel. Lions catch antelopes, sharks catch tunafish and happen to get caught and killed by humans themselves. Even here in the city these cruel laws of nature can be observed. (Our domestic) cats also chase and catch rats, and some also bring them home to continue playing with the bleeding creature.*

In Text 5, the discourse topic is the unhappiness and violence that the narrator witnesses. All follow-up sentences are all-new sentences that elaborate on what kind of violence the narrator observes.

5. *When I look out of the window, I see only unhappiness and violence. Dogs chase hens and make them lose their feathers. Old bitter women scream at children and make them cry. And also (our domestic) cats catch and kill innocent rats, when no one is looking.*

A PhD student and one of the authors presented the Tagalog translations to 9 native speakers of Tagalog in Manila in a private setting. The consultants had different educational backgrounds and were aged 20-63. They were not aware of the original English texts and were asked to read, evaluate, correct and improve the Tagalog versions of the 5 texts. They were also asked which translations they liked better. Interestingly, the participants never corrected sentence structure or voice selection, but only vocabulary choices. When asked explicitly about variants that could be found in different texts with respect to syntax and voice, they stated their preferences, but none of the translations was rejected as awkward. We therefore think of the translations we got as acceptable and natural Tagalog.

The nature of the texts led to translations with a lot of parallelisms and the occurrence of the particle *also* in the target sentence *Cats also catch rats,* regardless of whether or not this particle had been given in the English original or not. As pointed out by Krifka (1998), particles like *also* tend to have an associated constituent, which is often the contrastive topic.

The overall goal of the study was to find out in how far the difference in textual givenness of the arguments would influence voice selection and construction choice in the target sentence. Recall that under the QUD approach (Riester, Brunetti & De Kuthy to appear) the crucial information-structural classes distinguished are focus, background (including aboutness topic), contrastive topic, and non-at-issue material, while a differentiation between new and contrastive focus is not made.

In the following sections we will provide an analysis of the discourse structures and the implicit questions under discussion giving rise to comprehensive information-structural analyses. Remember that the discourses shown in Sections 3.2-3.6 differ from the ones introduced above in this section, since we present the free Tagalog translations of the original texts as well as their retranslations into English. Based on the analyses we can check whether our expectations regarding the coding of the target sentence and the actual coding choices by native speakers match.

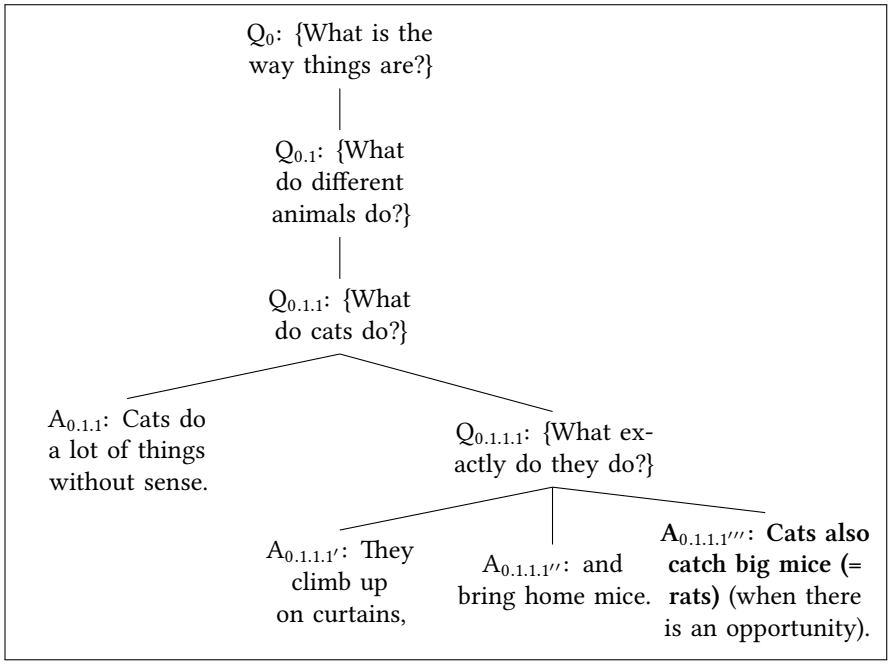

Figure 3: Discourse structure of Text 1 (free Tagalog formulation, translated back into English)

3.2 Text 1 – Intended: Actor (topical) Verb (focal) Undergoer (focal)

The first short text deals with the life of cats and the silly things they do. The QUD-tree analysis is shown in Figure 3 (target sentence in boldface). The actor *cat* was thus given, and intended was focus on the verb and the undergoer *rats*, i.e. *[[cats]$_T$ also [catch rats]$_F$]*∼. The text was conceived in a way that no information-structural prominence in the sense of (7) for either argument needed to be marked morphosyntactically. Based on Hypothesis (iii) developed in Section 1.2, we predicted no special syntactic structure for the target sentence in this case, i.e. only the normal predicate-initial structure. But we expected actor voice to be the preferred choice for this scenario because the undergoers are non-specific and the verbs are not undergoer-oriented. This is indeed what we found, as $A_{0.1.1.1'''}$, discussed below in (24), shows. While we only give the translation of one consultant here, all other consultants chose the same form, i.e. a predicate-initial sentence with actor voice.

According to Roberts (2012), any discourse addresses the so-called "Big Question" Q_0: *{What is the way things are?}* Many actual discourses, however, start *in*

medias res (Firbas 1992), i.e. they use grammatical means (like presupposition triggers or non-default constituent order) to express that certain information should be accommodated (i.e. treated as if it were given), which boils down to answering a more specific sub-question (indicated in our example text by $Q_{0.1}$ and $Q_{0.1.1}$[16]). Since such grammatical means differ from language to language, we cannot be sure, at the outset, that our QUD-analysis for the initial sentence is correct. It is generally advisable not to draw any crucial conclusions from discourse-initial sentences (which we don't). In this example, we merely propose, without proving it, that the speaker has chosen to start a contrastive discourse strategy, analogous to the one in (18), Section 2.1, with the goal to provide information about different animals. We suggest to therefore analyse the expression *cats* in $A_{0.1.1}$ of (22) as a contrastive topic. Combinations of CT and F can be coded via *ay*-inversion in Tagalog, as shown in example (11) and suggested in Hypothesis (i), cf. Latrouite (2017).

(22) Q_0: {What is the way things are?}
$>$ $Q_{0.1}$: {What do different animals do?}
$>>$ $Q_{0.1.1}$: {What do cats do?}
$>>>$ $A_{0.1.1}$: [[Ang mga pusa]$_{CT}$ ay [g<um>a-gawa ng mga
NOM PL cat INV <AV.RLS>IPFV-do GEN PL
wala-ng kabuluha-ng bagay]$_F$.]∼
NEG-LK sense-LK thing
'Cats do a lot of things without sense.'

Assertion $A_{0.1.1}$ is then elaborated by use of three partial answers to the question in $Q_{0.1.1.1}$ in (23). The three parallel answers, hence, all carry focus on the predicate and undergoer. Given that the actor is topical and the undergoer is focal, i.e. given that the arguments have their IS-default values, Hypothesis (iii) delegates the voice selection to the level of referentiality. As the referent of the undergoer argument is non-specific, like in example (1a) in the introduction, actor voice is expected to be preferred, and this is also what we find in the translations of all four consultants. Note that the sentences in (23) and (24) have default constituent order. The reason why the PSA is not in final position here is its occurrence as a (clitic) pronoun.

[16] Note that the sub-numbering convention indicates that there is an entailment relation between the questions. For instance, every answer to $Q_{0.1.1}$ is, at the same time, an answer to $Q_{0.1}$ and, in turn, to Q_0.

(23) >>> $Q_{0.1.1.1}$: {What exactly do they do?}

>>>> $A_{0.1.1.1'}$: [[Um-a-akyat]$_F$ [sila]$_T$ [sa mga kurtina]$_F$]∼
AV-IPFV-climb 3PL.NOM DAT PL curtain
'They climb up on curtains,'

>>>> $A_{0.1.1.1''}$: at [[nag-da-dala ng mga daga sa
and AV.RLS-IPFV-carry GEN PL mouse DAT
bahay]$_F$]∼.
house
'and bring home mice.'

(24) **Target sentence**:

>>>> $A_{0.1.1.1'''}$: [Kung may pagkakataon,]$_{NAI}$ [[nang-hu-huli]$_F$
if EXIST opportunity, AV.RLS-IPFV-catch
rin [sila]$_T$ [ng malaki-ng daga]$_F$.]∼
also 3PL.NOM GEN big-LK mouse
'Cats also catch big mice (= rats), when there is an opportunity.'

Note that, in the final assertion $A_{0.1.1.1'''}$ in (24) the preceding *if*-sentence, labeled as not at issue, does not answer the question under discussion $Q_{0.1.1.1}$, but rather expresses the relevance condition for the truth of the sentence containing the actual at-issue content. The target sentence *cats also catch rats* has a parallel structure to the two preceding sentences that answer the same question under discussion. All sentences have the same basic structure, i.e. they are predicate-initial and show actor voice. Note that the focus-sensitive particle *rin* appears directly in the postverbal position in $A_{0.1.1.1'''}$.

3.3 Text 2 – Intended: Narrow Actor Focus, i.e. Actor (focal) Verb (backgrounded) Undergoer (topical); Partly realized: Actor (contrastive topic) Verb (focus) Undergoer (topical)

The second short text[17] (discourse structure given in Figure 4) was intended to yield a narrow focus on the actor argument in the target sentence *[[Cats]$_F$ also catch [rats]$_T$]*∼ and, thus, represent one of the marked constructions mentioned in Hypotheses (iv) and (v), i.e. either $Verb_{AV}$ $Undergoer_T$ $Actor_F$ *or* $Actor_F$ ay $Verb_{UV}$ $Undergoer_T$, because both arguments are information-structurally

[17] For unknown reasons, the consultant changed the names of the animals from the original text.

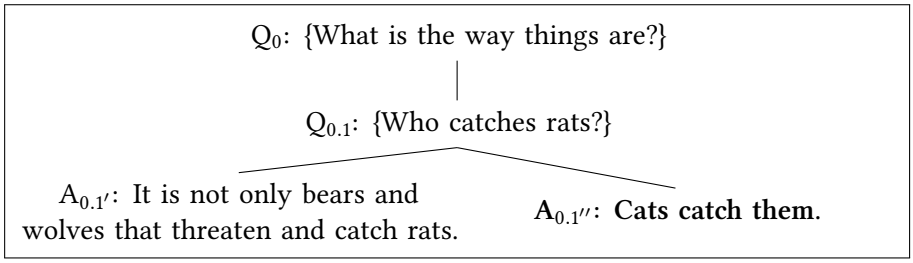

Figure 4: Discourse structure of free formulation based on Text 2

prominent according to (7). In order to force a context that would yield a narrow actor focus question as the natural implicit question under discussion for the target sentence, we provided a preceding sentence containing the focus sensitive particle *l(am)ang* 'only' with scope over those actor arguments that the actor *cat* in the target sentence was supposed to be contrasted with. The negation of the exhaustive particle in the first sentence was meant to be an indicator of the ensuing parallelism. In order to express the (negated) exhaustive narrow focus on the actor argument expressed in the context sentence, the *ang*-inversion construction (compare (15b) in Section 1.4) was chosen by all Tagalog translators, as shown in (25).

(25) Q_0: {What is the way things are?}
$> Q_{0.1}$: {Who catches rats?}
$>> A_{0.1'}$: [Hindi lang [ang mga oso at lobo]$_F$ ang na-nakot at
NEG only NOM PL bear and wolf NOM AV.RLS.scare and
nag-hu-huli [ng mga daga]$_T$.]$\sim$
AV.RLS-IPFV-catch GEN PL rat
'It is not only bears and wolves that threaten and catch rats.'

Subsequently, speakers did not continue with another *ang*-inversion but chose *ay*-inversion for the target sentence. As for *ay*-inverted narrow actor focus, Hypothesis (v) made us expect undergoer voice to mark the topicality of the undergoer. Indeed, two consultants offered this construction, which is given in (26).[18]

[18] A predicate-initial construction as in (10b), with undergoer voice and the genitive-marked actor in sentence-final, i.e. a prosodically prominent position, was rejected as "not good" by all consultants, i.e. it was neither offered in the translations nor accepted as a possible option, when we asked the speakers in Manila about this. This adds to our suspicion that the construction in question does not express narrow contrastive focus.

The two other consultants suggested the construction in (27), i.e. *ay*-inversion of the actor combined with actor voice.

(26) **Target sentence**:
>> $A_{0.1''}$: [[Ang mga pusa]$_F$din ay h<in>u-huli [sila]$_T$.]∼
NOM PLcat also INV <UV.RLS>-IPFV-catch 3PL.NOM
'Cats also catch them.'

(27) **Alternative realization of target sentence**:
>> Q_1: {Who does what to rats?}
>>> $Q_{1.1}$ {What do cats do to rats?}
>>>> $A_{1.1}$: [[Ang mga pusa]$_{CT}$ (rin) ay [nang-hu-huli at
NOM PL cat (also) INV AV.RLS-IPFV-catch and
nag-ka-kain]$_F$ [ng mga daga]$_T$.]∼
AV.RLS-IPFV-eat GEN PL rat
'Cats (also) catch and eat rats.'

Note that the target sentence $A_{1.1}$ in (27), which has a different label than the one in (26) due to a very different discourse structure, contains a given verb *catch* and a new verb *eat*. It is quite likely that the way Text 2 was formulated had the (unintended) effect that the consultants construed the verb coordination as being contrasted against the previous combination *threaten and catch*. Hence, we assume, as indicated in (27), that a CT+F structure was chosen with focus on the verb complex. This also leads us to diversify our inventory of hypotheses once more and to add a slight change to Hypothesis (v), restricting it to backgrounded verbs.

Hypothesis (v)

Actor_F +ay Verb_{BG} Undergoer_T → Undergoer Voice *(final)*

Hypothesis (vi)

Actor_{CT} +ay Verb_F Undergoer_T → Actor Voice

While it may seem ad hoc to formulate a new hypothesis merely on the basis of a somewhat unclear example like (27), we will come across a very similar example in the next section, which seems to confirm that Hypothesis (vi) is on the right track.

Most of the Tagalog target sentences for Text 2 did not contain a word for *also*, which was contained in the original English text; somehow consultants seemed to feel that the *ay*-construction already conveyed an additive focus reading. Only one consultant paid heed to the focus sensitive particle in her translation and placed *rin* 'also' right after the actor in one instantiation of (27). As we have seen above and see again here, the positioning of *rin* indicates its scope. If the verb is part of the scope, *rin* appears after verb. If only the actor is in its scope, it appears right after the actor.

3.4 Text 3 – Intended: Actor (focal) Verb (focal) Undergoer (topical); Result: Actor (contrastive topic) Verb (focal) Undergoer (topical)

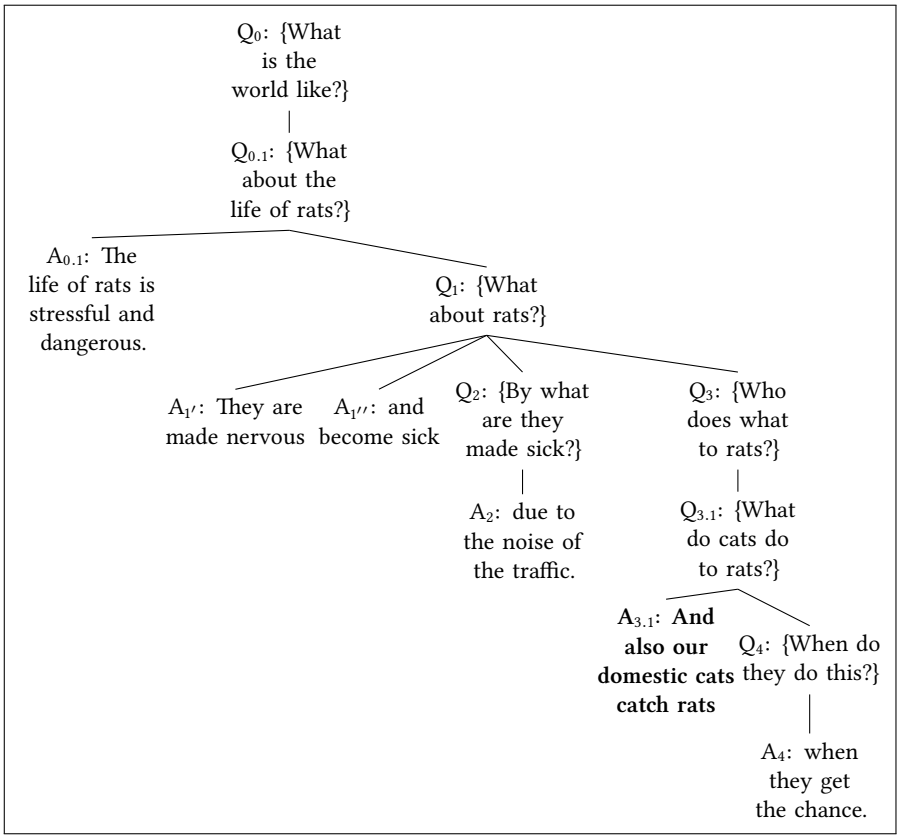

Figure 5: Discourse structure based on Text 3

Next, we wanted to find out whether a truly new verb would make a difference for the construction chosen, so we construed a text in which both the actor and the verb were discourse-new. This text (discourse structure shown in Figure 5) is about the life of rats, i.e. it is about the undergoer of the target sentence. In the sentences preceding the target sentence there is a clear focus on the events that affect rats. The translation provided by one of our consultants contains simple predicate-initial structures. This is in line with our expectation regarding predicate focus sentences.

(28) Q_0: {What is the world like?}
$> Q_{0.1}$: {What about the life of rats?}
$>> A_{0.1}$: [[Delikado at ma-stress]$_F$ [ang buhay ng mga daga]$_T$.]$\sim$
Dangerous and stressful NOM life GEN PL rats
'The life of rats is stressful and dangerous.'

(29) $>> Q_1$: {What about rats?}
$>>> A_{1'}$: [[Ni-ni-nerbyos]$_F$ [sila]$_T$]$\sim$
UV.RLS-IPFV-nervous 3PL.NOM
'They are made nervous'
$>>> A_{1''}$: at [[nag-kakasakit]$_F$]$\sim$
and AV.RLS-become.sick
'and become sick,'

(30) $>>> Q_2$: {By what are they made sick?}
$>>>> A_2$: [[gawa ng ingay ng trapik]$_F$]$\sim$
done GEN noise GEN traffic
'due to the noise of the traffic'
Orig: 'The noise of the traffic makes them nervous and sick.'

Interestingly, the consultant combines an undergoer voice verb and an actor voice verb in (29), realizing the affector-actor within an optional adjunct phrase, which we treat as a separate information unit at the end of the sentence. We therefore have narrow (contrastive) predicate focus on the verbs in (29) and a secondary focus on the actor phrase, which is not at issue with respect to Q_1 but at issue with respect to the separate sub-question Q_2 in (30). Note that the way the text was construed, we had expected to obtain a parallel structure between two actors (or affectors), the traffic and the cats. However, since the speaker

chose to demote the traffic to a peripheral adjunct and used the intransitive verb *to fall sick*, a non-parallel discourse structure resulted.

Similarly to the narrow-actor-focus context, i.e. example (27) in Section 3.3, the actor phrase *our domestic cats* in the target sentence in (31) was not realized at the end of the sentence (hence, Hypothesis (iv) is not applicable), but in sentence-initial position before the inversion marker *ay* and, once again, actor voice instead of undergoer voice was chosen, despite the given undergoer.

(31) **Target sentence**:

>>> Q_3: {Who does what to rats?}

>>>> $Q_{3.1}$: {What do cats do to rats?}

>>>>> $A_{3.1}$: At [[ang ating mga alagang pusa]$_{CT}$ ay
and NOM our PL pet cat INV
[h<um>u-huli]$_F$ rin [ng daga]$_T$]∼
<AV.RLS>IPFV-catch also GEN rat
'And also our domestic cats catch rats,'

(32) >>>>> Q_4: {When do they do this?}

>>>>>> A_4: [[kapag may pagkakataon]$_F$]∼
if exist chance
'when they get the chance.'

We cannot claim that the speakers simply gave the exact same structure to this utterance as to the narrow actor focus construction in (27), because the particle *rin* appears after the verb, not after the actor. Otherwise, however, the syntactic structure and voice are identical and, hence, in accordance with Hypothesis (vi). As witnessed above, the *ay*-inversion seems to express the first half of a contrastive discourse strategy, which is mirrored in the assumption of Q_3 and $Q_{3.1}$ in (31). (It is only now that the speaker realizes the contrastive potential between the negative effects of, respectively, the traffic and the cats on the well-being of the rats.) We, therefore, analyze the answer in (31) as a CT-F structure.[19] This assumption is perhaps corroborated by a statement from one of the consultants who suggested the construction in $A_{3.1}$ and who explained her choice as follows: "Both parts of the sentence [i.e. $A_{3.1}$ and A_4] are about the cats, so we are talking about cats now", i.e. we have shifted the topic to the cats.

[19] But we should keep in mind that the assumption of a single focus spanning both the actor and the verb, hence a direct answer to question Q_1, is also still an option.

It is interesting to note that two people offered the construction given in (31), but two other consultants chose a predicate-initial construction with undergoer voice and the focal genitive-marked actor in the sentence-final position, as shown in (33).

(33) **Alternative target sentence**:

>>> $Q_{1.1}$: {What do cats do to rats?}

>>>> $A_{1.1}$: [[h<in>u-huli]$_F$ rin [ang mga daga]$_T$ [ng mga pusa.]$_{CT}$]∼
<UV.RLS>IPFV-catch also NOM PL rat GEN PL
cat
'Also cats catch rats.'

This construction, in which the focal genitive-marked actor is in the marked, sentence-final position and the topical undergoer triggers undergoer voice, is an example comparable to (10b) in Section 1.4, in which the CT is clause-final. The speakers chose for the target sentence a structure identical to the sentence preceding it, i.e. they construed for the preceding sentence *(the noise of the traffic made them nervous)* an UV-sentence with *traffic* as genitive-marked actor argument, so that the two affectors *traffic* and *cats* were contrasted.

The focus sensitive particle *rin* appears in both realizations, (31) and (33), right after the verb indicating that the verb is included in its scope.

3.5 Text 4 – Intended: Actor (contrastive topic) Verb (background) Undergoer (focus)

The fourth text (Figure 6) deals with life in the wilderness and different kinds of predators that chase and catch animals and are chased themselves. Therefore, the text consists once again of a number of parallel sentences involving two variables (CT+F) that motivate the general question *Who catches whom?* and the specific questions *Whom do lions catch?* and *Whom do sharks catch?* Note that these parallel contrastive topic-focus sentences all show the same construction: *ay*-inversion and actor voice, as shown in (35), in accordance with Hypothesis (i).

(34) Q_0: {What is the way things are?}

> $Q_{0.1}$: {What is life in the wilderness like?}

>> $A_{0.1}$: [[Sa kalikasan]$_{CT}$ ay [may mga hindi patas na batas]$_F$.]∼
DAT wilderness INV exist PL neg fair LK law
'In the wilderness there are unfair laws.'

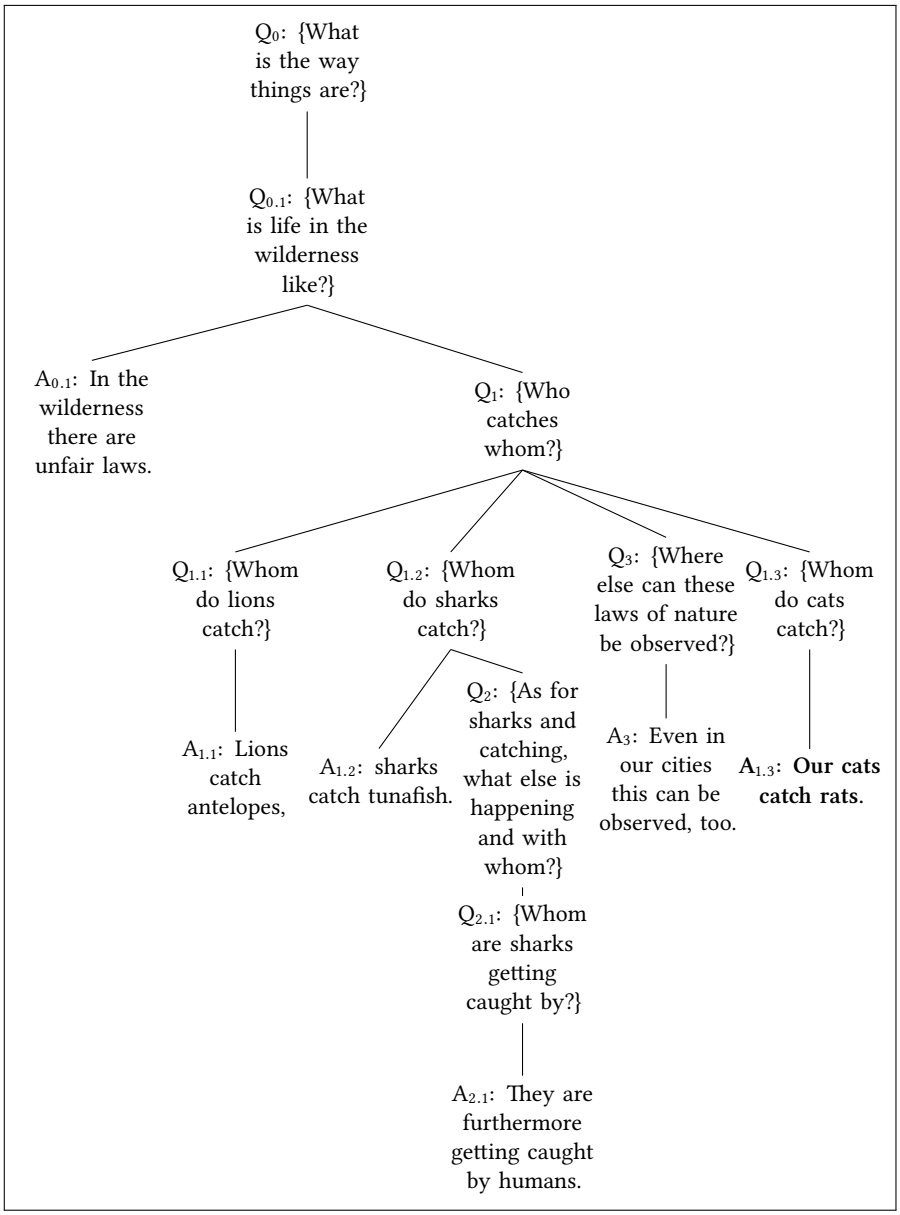

Figure 6: Discourse structure based on Text 4

(35) >> Q_1: {Who catches whom?}

>>> $Q_{1.1}$: {Whom do lions catch?}

>>>> $A_{1.1}$: [[Ang mga leon]$_{CT}$ ay nag-hu-huli [ng mga
NOM PL lion INV AV.RLS-IPFV-catch GEN PL
bayawak]$_F$.]∼
antelope
'Lions catch antelopes,'

>>> $Q_{1.2}$: {Whom do sharks catch?}

>>>> $A_{1.2}$: [[Ang mga pating]$_{CT}$ ay nang-hu-huli [ng mga
NOM PL shark INV AV.RLS-IPFV-catch GEN PL
tulingan]$_F$]∼
tunafish
'sharks catch tunafish.'

The next sentence, $A_{2.1}$ in (36), signals, both in its original formulation and in the Tagalog version, a change in discourse strategy: both the (nominative-marked) sharks and the activity of catching are kept up from $A_{1.2}$ in (35) to $A_{2.1}$ in (36). However, the sharks change their role from actor to undergoer, which is expressed by a contrastive change to undergoer voice. Furthermore, a new actor *(humans)* is introduced. We tentatively propose the – unusual – information structure shown in (36), in which the voice infix is assigned the function of a contrastive topic, while the actor *humans* is the focus. This also explains the slightly cumbersome formulation of Q_2 and $Q_{2.1}$. Under this analysis, the *ay*-inverted pronoun is merely an aboutness topic; a constellation for which we have not formulated any hypothesis.

(36) >>>> Q_2: {As for sharks and catching, what else is happening and with whom?}

>>>>> $Q_{2.1}$: {Whom are sharks getting caught by?}

>>>>>> $A_{2.1}$: [[Sila]$_T$ ay h[<in>]$_{CT}$u-huli din [ng mga
3PL.NOM INV <UV>-IPFV-catch also GEN PL
tao]$_F$.]∼
man
'They are furthermore getting caught by humans'
Original: 'and they happen to also get caught by humans themselves.'

The speaker then jumps back up in the tree with a comment about cities, (37). What we see in A_3 is another *ay*-inversion expressing a narrow contrastive focus on a locative adjunct.[20]

(37) >>> Q_3: {Where else can these laws of nature be observed?}

>>>> A_3: Kahit [[sa ating mga lungsod]$_F$ ay na-o-obersbahan
Even DAT our-LK PL city INV UV-IPFV-observe
din [ito]$_T$]∼.
also DEM.NOM
'Even in our cities this can be observed, too.'
Original: 'Even here in the city these cruel laws of nature can be observed.'

The target sentence *cats also catch rats* is then realized by three speakers as an *ay*-inversion with actor voice, i.e. the speaker is returning to the previously chosen discourse strategy, expressed by Q_1: *{Who catches whom?}* and the follow-up subquestion $Q_{1.3}$ in (38).

(38) **Target sentence**:

>>> $Q_{1.3}$: {Whom do cats catch?}

>>>> $A_{1.3}$: [[Ang nating mga pusa]$_{CT}$ ay nang-hu-huli [ng
NOM our PL cat INV AV.RLS-IPFV-catch GEN
mga daga]$_F$]∼
PL rat
'Our cats catch rats.'

The fourth speaker suggested the *ang*-inversion in (39) – recall example (15) in Section 1.4 – thus either expressing the thought that the only one who catches rats are cats – as indicated below – or, alternatively, that the only act of catching that takes place in the city is between cats and rats. The first option would mean that, in violation of the Q-Givenness principle (Section 2.2), the rats would have to be accommodated as given. The second solution would inevitably mean that the *ang*-inversion construction is not restricted to exhaustive narrow argument focus, but may also be used for (exhaustive) complex focus spanning both the actor and the undergoer. The data here are too limited to finally settle this question. However, given that we are not aware of languages in which cleft sentences are

[20] The verb *observe* is treated as salient here, although it has not been mentioned explicitly in the previous discourse.

restricted to narrow argument marking, the second solution seems quite plausible.

(39) **Alternative target sentence:**

>>> Q_4: {Who catches rats (in the city)?}

>>>> A_4: [[Ang nating mga pusa]$_F$ ang nang-hu-huli [ng
NOM our PL cat NOM <AV.RLS>IPFV-catch GEN
mga daga]$_T$.]∼
PL rat

'(Here) it is our cats that catch rats.'
Original sentence: '(Our domestic) cats also chase and catch rats.'

3.6 Text 5 – Intended: Sentence focus, i.e. Actor (focal) Verb (focal) Undergoer (focal); Partly realized: Actor (contrastive topic) Verb (focal) Undergoer (focal)

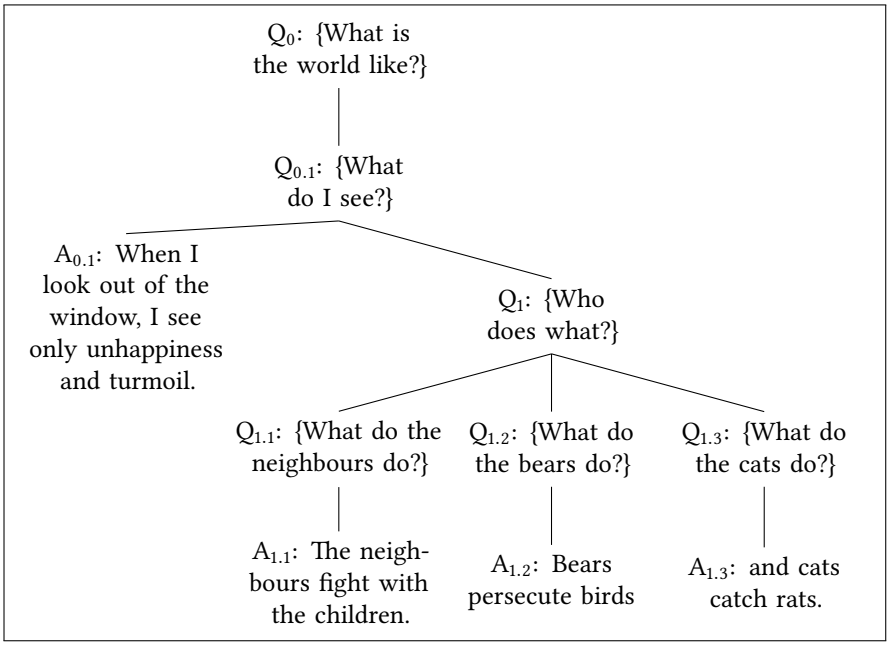

Figure 7: Discourse structure based on Text 5

Finally, we tried to construe a context for an all-new sentence, in order to elicit a clause-focus construction. In the text shown in Figure 7, a number of different scenes witnessed from a window were listed. Every sentence contained a new actor, a new verb and a new undergoer.

In the first assertion $A_{0.1}$ in (40), the *ang*-inverted narrow (exhaustive) focus on *panay-away at kaguluhan* 'constant fighting and turmoil' is motivated by the focus-sensitive particle *only*, i.e. the question $Q_{0.1}$: *{What do I see?}* is accommodated. Moreover, the *when*-clause is interpreted as a relevance condition which is not at issue.

(40) Q_0: {What is the world like?}
$>$ $Q_{0.1}$: {What do I see?}
$>>$ $A_{0.1}$: [Pag t<um>i-tingin ako sa bintana,]$_{NAI}$
when <AV.RLS>IPFV-look 1SG.NOM DAT window
[[panay-away at kaguluhan]$_F$ lang ang na-ki-kita
constant fight and turmoil only NOM UV-IPFV-see
ko.]$\sim$
1SG.GEN
'When I look out of the window, I see only constant fighting and turmoil.'

This sentence is followed by yet another sequence of *ay*-inversions (i.e. CT-F structures), describing who (CT) is performing which act of violence: the focused elements are, therefore, the AV-marked predicate and the undergoer. The construction fits the pattern described in Hypothesis (i).[21]

(41) $>>$ Q_1: {Who does what?}
$>>>$ $Q_{1.1}$: {What do the neighbours do?}
$>>>>$ $A_{1.1}$: [[Ang mga kapitbahay]$_{CT}$ ay [nag-a-away ng mga
NOM PL neighbour INV AV.RLS-IPFV-fight GEN PL
bata]$_F$]$\sim$
child
'The neighbours fight with the children.'

[21] What this example shows is that the construction of a text that consists of only new and unrelated sentences is in fact a very unnatural task. Instead, human interpreters will seize every opportunity to bring structure (here: CT-F pairs) – and therefore coherence – into what was originally intended to be an unstructured sequence of sentences.

>>> $Q_{1.2}$: {What do the bears do?}

>>>> $A_{1.2}$: [[ang mga oso]$_{CT}$ ay [t<um>u-tusig ng mga
NOM PL bear INV <AV.RLS>IPFV-persecute GEN PL
birds]$_F$]∼
bird
'Bears persecute birds'

(42) **Target sentence**:

>>> $Q_{1.3}$: {What do the cats do?}

>>>> $A_{1.3}$: at [[ang mga pusa]$_{CT}$ ay [nang-hu-huli ng mga
and NOM PL cat INV AV.RLS-IPFV-catch GEN PL
daga]$_F$.]
rat
'and cats catch rats.'

Three speakers continued with a third *ay*-inverted CT-F assertion for the target sentence, as shown $A_{1.3}$ of (42). Only one speaker chose an all-focus existential construction for the target sentence.

(43) **Alternative target sentence**:

>> Q_2: {What other violent things are happening?}

>>> A_2: [[May mga pusang h<um>a-habol at p<um>a-patay ng
exist PL cat-LK <AV>-IPFV-catch and <AV>-IPFV-kill GEN
mga inosente-ng mga daga.]$_F$]∼
PL innocent-LK PL rat
'There are cats chasing and killing innocent rats.'

4 Summary of findings, conclusions

Table 1 sums up our findings with respect to the target-sentence translations discussed in the paper. Note that the other (non-target) sentences discussed in the previous sections are not mentioned in the table, although their analyses, too, are in accordance with the described hypotheses.

In four of the texts (except for Text 1) the actor was focal (which includes contrastive topics) and thus IS-prominent, in two of them (Text 2 and 3) the undergoer was topical/backgrounded and thus IS-prominent. In our examples, actor voice was the preferred choice. As Table 1 shows, with the exception of Text 1, the

Table 1: Information structure and morphosyntactic choices (voice, constituent order and inversion): target realizations in five sample texts

Structure	Voice	Example	Hypothesis	Text
$[\text{V UG}]_{\text{F}}$ ACT_{T}	AV	(24)	(iii)	1
ACT_{F} ay V_{BG} UG_{T}	UV	(26)	(v)	2
ACT_{CT} ay V_{F} UG_{T}	AV	(27)	(vi)	
ACT_{CT} ay V_{F} UG_{T}	AV	(31)	(vi)	3
V_{F} UG_{T} ACT_{CT}	UV	(33)	–	
ACT_{CT} ay V_{BG} UG_{F}	AV	(38)	(i)	4
ACT_{F} ang V_{BG} $\text{UG}_{\text{T/F(?)}}$	AV	(39)	–	
ACT_{CT} ay $[\text{V UG}]_{\text{F}}$	AV	(42)	(i)	5
$[\text{may ACT V UG}]_{\text{F}}$	AV	(43)	(i)	

actor argument was always conceived of as a contrastive topic or a focus. Contrastive topics (and, otherwise, narrow foci) were typically *ay*-inverted (Texts 2-5). Notable exceptions were the extraposed CT in (33), the existential construction in (43) as well as the *ang*-inversion in (39), whose information-structural analysis remains uncertain. Undergoer topicality did not generally lead to the selection of undergoer voice in the presence of a focal actor (Texts 2 and 3). The current data lead us, thus, to the conclusion that focality of the actor is definitely more salient, and has a greater morphosyntactic effect, than topicality of the undergoer.

Quite in general, it has become clear that in order to describe the information-structural impact on voice selection a more comprehensive approach is necessary than simply considering givenness and newness of arguments. This paper[22] is the first to apply the new *QUD-tree* method described in Riester, Brunetti & De Kuthy (to appear) to Austronesian language data. It, therefore, demonstrates a completely new way of studying the information structure of a lesser-described language on the basis of textual corpus data.

With respect to our hypotheses, we can specifically state the following based on our case study: Hypothesis (i) was confirmed in the data.

Hypothesis (i)

$\text{Actor}_{\text{F/CT}}$ $\pm$ay $\text{Undergoer}_{\text{F}}$ $\rightarrow$ Actor Voice

[22] See also the paper by Riester & Shiohara (this volume).

However, we must add that, in our data, basic sentences structure was not chosen at all to encode two focused (or CT) core arguments. Rather we found the *ay*-inversion construction to be the predominant pattern (Texts 4 and 5).

Hypothesis (ii)

Actor_{T} $\text{Undergoer}_{\text{T}} \rightarrow$ Undergoer Voice

Hypothesis (ii) was not truly investigated here, as basically all undergoer voice sentences found and discussed in the literature are of this type. Therefore, it was not the most interesting case to look at. Our target sentence did not appear in a narrow verb-focus or adjunct focus context, and apart from one sentence with a focal locative adjunct, (37) in Text 4, which indeed showed undergoer voice, we have nothing to add to this particular issue.

Hypothesis (iii)

Actor_{T} $\text{Undergoer}_{\text{F}} \rightarrow$ decided at different level

Since Hypothesis (iii) left it open whether a default information structure would lead to actor or undergoer voice, it was not actually challenged by our data. In the undergoer-verb-focus scenario (Text 1), the participants provided actor-voice sentences; more specifically, they chose the expected unmarked verb-initial word order.

Hypothesis (iv)

$\text{Undergoer}_{\text{T}}$ Actor_{F} (default order) $\rightarrow$ Actor Voice

Hypothesis (iv) was discussed in Section 1.4 and eventually restricted to cases with default constituent order, thus excluding patterns with *ay*-inversion and extraposed actors. Remember that narrow actor focus in our data was expressed by means of *ay*-inversion. Hence, Hypothesis (iv) did not apply to any of the cases found in the data.

Based on the great variety of cases involving *ay*-inversion in our data, we formulated two more hypotheses regarding *ay*-inverted actors and clause-final topical undergoers.

Hypothesis (v)

Actor_{F} +ay Verb_{BG} $\text{Undergoer}_{\text{T}} \rightarrow$ Undergoer Voice

Hypothesis (v) specifies one way of realizing narrow actor focus, hence, the situation intended in Text 2, which was found in sentence (26).

Hypothesis (vi)

Actor_{CT} +ay Verb_{F} $\text{Undergoer}_{\text{T}} \rightarrow$ Actor Voice

Finally, Hypothesis (vi) could be confirmed for all instances exhibiting the respective syntactic-pragmatic pattern, which, however, were produced by the consultants more or less by accident, since the CT-F structures they came up with deviated from the originally intended information-structural constellations. Notably, if we examine all examples that exhibit an *ay*-inverted contrastive topic and a focus on either the verb, the undergoer or both, we always witness actor voice.

The lesson we learn from our approach is that, on the one hand, it is quite difficult to steer participants to produce a very specific information-structural pattern and obtain a natural discourse at the same time. On the other hand, the QUD-tree method allows us to fruitfully analyze and interpret the actually produced data even despite the deviations we gained.

In the current study we have presented many new facts about information structure marking in Tagalog and, in particular, about its relation to voice and inversion. We were able to specify a number of detailed hypotheses, and data that match them. We must leave it to future work, though, to test these hypotheses on a bigger scale and to identify a more general explanation why certain voice forms were chosen under specific information-structural constellations.

Abbreviations

∼	focus domain
ACT	actor
$\text{APPL}_{\text{INSTR}}$	instrumental applicative
AV	actor voice
BG	background
BV	beneficiary voice
COM	comitative
CT	contrastive topic
DAT	dative
EXIST	existential
F	focus
GEN	genitive
GV	goal voice
INV	inversion particle
IPFV	imperfective
IV	instrumental voice
LK	linker
NEG	negation
NOM	nominative
OBL	oblique
PL	plural
Q	question marker
RLS	realis
SG	singular
T	aboutness topic
TV	theme voice
UG	undergoer
UV	undergoer voice

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