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SUBJECTHOOD AND UNMARKEDNESS IN NIUEAN

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PREFACE

The 26th Annual Meeting of the Austronesian Formal Linguistics Association (AFLA 26) was held on May 24-26, 2019 at the University of Western Ontario (Canada). The programme consisted of 24 presentations in addition to four plenary talks by Juliette Blevins, Vera Hohaus, Marian Klamer and Becky Tollan. This volume includes 13 papers from the conference.

As conference organizer, I received generous support from a variety of sources. Financial support came from the Social Sciences and Humanities Research Council of Canada (SSHRC), Research Western, the Joint Fund (Research Western, SOGS, SGPS), the Theoretical and Applied Linguistics Lab, the Canadian Linguistic Association, the Faculty of Arts and Humanities, the Graduate Program in Linguistics and three departments (French Studies, Modern Languages and Literatures, and Anthropology). The conference would not have been possible without the student volunteers (Sonia Masi, William Tran, Caylen Walker and Kang Xu), plus several others who helped out at the registration desk. Finally, I am grateful to the Department of French Studies for administrative support.

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This paper examines how subjecthood (i.e., structural superiority within the thematic domain of the syntax) and case unmarkedness (i.e., the case with the widest syntactic distribution) influence the outcomes of syntactic and pragmatic operations in Niuean (Polynesian). My focus is on three case studies: firstly, the (apparent) absence of superiority effects in multiple *wh* questions; secondly, the resolution of ambiguous anaphoric pronouns in discourse, and thirdly, the formation of *wh* dependencies in real-time sentence processing. It is observed that subjecthood appears to be most influential in determining grammaticality with respect to multiple *wh* questions and the resolution of ambiguous pronouns (but unmarkedness is nonetheless also a relevant factor). Conversely, in the online processing of *wh* questions, unmarkedness is the key factor in influencing dependency formation preferences. This shows, therefore, that both subjecthood and unmarkedness are at play in determining the output of various core syntactic operations, but that each may play a greater or lesser role depending on the specific mechanics of the operation in hand.

1. Introduction

It is long recognised that certain arguments are privileged over other arguments with respect to syntactic, pragmatic, and psycholinguistic operations. Based on a typological survey of relative clauses in forty-nine languages, Keenan and Comrie (1977; 1979) propose an implicational universal known as the ‘Accessibility Hierarchy’. They claim that the subject is the most easily relativizable grammatical element, followed by the (direct) object, and in turn by more thematically peripheral DPs, as in (1).

- (1) The Accessibility Hierarchy (Keenan and Comrie, 1977: 66, approx.)
Subject > Direct object > Indirect object > Oblique > [...]

This means that, if a given language permits object relative clauses, then it should also permit subject relative clauses. The Accessibility Hierarchy is commonly

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generalized to other analogous A-bar movement constructions such as *wh* questions and fronting for focus or topicalization (e.g., MacLaughlin 1995).

Keenan and Comrie's Accessibility Hierarchy for A-bar movement was also adopted in Moravcsik's (1978) typological survey of verbal phi-agreement. According to Moravcsik, the argument most accessible for verb agreement is the subject. The subject is more accessible than the object, which is in turn more accessible than lower grammatical functions such as an indirect object. The same implicational universal proposed by Keenan and Comrie for movement also applies to agreement: if a given language permits, for example, verb-object agreement, then it also necessarily permit verb-subject agreement, but not vice versa.

More recently, the Accessibility Hierarchy has been re-cast as a hierarchy of morphological case instead of (putative) grammatical function. Bobaljik (2008) argues that the most accessible targets for phi-agreement are not necessarily subjects, but rather, *unmarked* arguments, proposing instead the hierarchy in (2).

- (2) Morphological case accessibility hierarchy (Bobaljik 2008: 11, approx.)
Unmarked case (nominative, absolutive) > dependent case (ergative, accusative) > lexical/oblique case (dative)

Coming full circle, Bobaljik's morphological case hierarchy in (2) was later adopted by Deal (2016, 2017) in her account of A-bar movement: the argument most accessible for movement operations is the unmarked argument, as opposed to necessarily the subject (cf. Keenan & Comrie 1977).

The core justification for re-casting (1) as (2) comes from languages in which subjecthood and unmarked case do not necessarily align. A large subset of such languages is those with an ergative-absolutive alignment, in which ergative (i.e., dependent) case marks the subject of a transitive verb, whereas absolutive (i.e., unmarked) case marks the subject of an intransitive verb. Objects of transitive verbs are also marked as absolutive. In the Niuean examples in (3), the ergative marker *he* marks the subject of the transitive verb (3a), whereas absolutive *e* marks the object of a transitive verb (3a) and the subject of an intransitive verb (3b).¹

- (3) Niuean ergative-absolutive²
a. *Transitive*
Ne tutuli he kulī e lapiti.
PST chase ERG dog ABS rabbit
'The dog chased the rabbit.'

¹ The markers *he* and *e* are used for common nouns only. Conversely, for proper nouns and pronouns, ergative is marked by *e* and absolutive is marked by *a*. See Massam (2001) for more detail.

² Where unreferenced, all Niuean examples are from my own fieldnotes. Consultation took place in New Zealand and Niue in Fall 2016 and Spring 2017, respectively.

b. *Intransitive*

Ne poi e kulī.

PST run ABS dog

‘The dog ran.’

Typologically speaking, it is indeed the *absolute* (i.e., unmarked) argument (as per 2) which is most accessible as a target for verbal agreement and A-bar movement, and not necessarily the subject (as per 1). In Hindi-Urdu, for example, the verb in a transitive clause agrees in phi-features with the absolute object instead of the ergative subject (Mahajan 1990; Bobaljik 2008). Only when the subject is absolute (as in an intransitive clause, for example) is it targeted for agreement. In Tongan (Polynesian), absolute arguments may freely undergo A-bar movement, whereas A-bar movement of an ergative argument requires use of a resumptive workaround strategy (Otsuka 2000); this is an instantiation of so-called ‘syntactic ergativity’ (see e.g., Deal 2016 for an overview).

Ergative-absolute languages like Niuean contrast with nominative-accusative languages such as Latvian (4), in which subjects of both transitive verbs (as in 4a) and intransitive verbs (as in 4b) bear unmarked (nominative) case, and objects of transitive verbs bear dependent (accusative) case (4a). Thus, in such languages, subjecthood and unmarkedness usually³ co-vary.

(4) Latvian (Mathiassen 1997, via Comrie 2013)

a. *Transitive*

Bērn-s zīmē sun-i.

child-NOM draw.PRES.3SG dog-ACC

‘The child is drawing a dog’

b. *Intransitive*

Putn-s lidoja.

bird-NOM fly.PST.3SG

‘The bird was flying’

The upshot of this is that any potential distinct effects of subjecthood and case unmarkedness are best isolated by studying ergative-absolute languages. This is the goal of the current paper. My focus here is on Niuean (Polynesian, Austronesian). Niuean is spoken by approximately 6,700 people (Siosikefu & Haberkorn, 2008; via Rolle & Starks, 2014) who live primarily on the south Pacific island of Niue and in New Zealand. It has verb initial word order, and a predominantly ergative-absolute case alignment (see again 3). In the forthcoming sections, I detail three case studies which bear upon the issue of how subjecthood and unmarkedness interact: firstly, superiority effects in multiple *wh* questions (Section 3); secondly, the resolution of

³ Exceptions include Icelandic; see Bobaljik (2008) for discussion.

ambiguous anaphoric pronouns (Section 4), and finally, the processing of long-distance *wh* dependencies (Section 5). Before proceeding with discussion of these studies, however, the next section (Section 2) establishes the definitions of “subjecthood” and “unmarkedness” which will be relevant for subsequent discussion.

2. On Subjecthood and Unmarkedness

2.1. Subjecthood

The definition of ‘subject’ has long been debated (see Comrie, 1975; Keenan, 1976), with different languages affording syntactic privileges—such as accessibility in A- and A-bar movement operations—to different arguments based on, for example, their case marking and their syntactic position in a structure. For the purposes of the present discussion, I define a “subject” as being the most agentive verbal argument of a clause; in other words, the structurally highest core argument in the verbal domain of the syntax. Subjects are recognised as holding several key syntactic properties: they can bind the object, act as a null addressee in an imperative, and be controlled as the inferred actor (‘PRO’) in embedded infinitives. These properties are argued by Manning (1996) to hold of ‘thematic’ subjects; I essentially take this as the general definition of ‘subject’. All else being equal (see discussion on unmarkedness in Section 2.2), subjects are more accessible for syntactic operations than non-subjects (e.g., objects).

2.2. Unmarkedness

At least since Dixon (1979), nominative arguments in nominative-accusative languages and absolutive arguments in ergative-absolutive languages have been referred to collectively as ‘unmarked’ arguments. Defining what properties an argument must have to be formally considered as syntactically unmarked, however, is not straightforward. On the one hand, one might consider that syntactic unmarkedness to be a property of morphology: under this view, an unmarked argument is an argument which has no overt case marking. This immediately runs into problems, however: there are a good number of (i) nominative languages in which nominative case marking is overt (e.g., Latvian; Mathiassen 1997) and (ii) ergative languages in which absolutive case is overt (e.g., Niuean; Seiter 1980; Tongan; Otsuka, 2000). An alternative is to consider the unmarked argument as the argument which is present in every type of clause – both transitive and intransitive (Falk 1999). This, too, runs into problems, however, when faced with tripartite languages such as Nez Perce (see e.g., Rude 1985) and Split-S languages such as Basque (see e.g., Aldai 2008), in which there is no single case marking which is present in every clause.

The view which I adopt here is one in which unmarkedness is defined as the case with the widest syntactic distribution. The unmarked case of a language is

therefore the case which appears in the greatest number of syntactic argument positions in that language. In nominative languages, the unmarked argument is the nominative-cased argument, because it occurs as the subject of both transitive and intransitive predicates (whether unergative or unaccusative). In ergative languages, the unmarked argument is (typically) the absolutive-cased argument, because it occurs as both the object in transitive clauses and the subject in intransitive clauses; see Tollan (2019) for discussion of distributional unmarkedness in tripartite and Split-S languages.

The forthcoming sections detail case studies of Niuean which illustrate how subjecthood and unmarkedness, as defined above, are simultaneously relevant in determining the outcomes of syntactic, pragmatic, and sentence processing operations.

3. Superiority Effects in Niuean

One of the many interesting features of Niuean syntax is that it is known to lack ‘superiority effects’ found in many nominative languages such as English. As shown in (5), both ergative and absolutive arguments can undergo raising, unlike in English, in which raising is restricted to (nominative) subjects only. In (5), the matrix verb *toka* (‘let’) selects for a complement clause headed by *ke*, of which one argument may raise. In (5a) no raising takes place: both arguments remain in situ in the complement clause. In (5b) the ergative subject *pusi* (‘cat’) raises out of its base position. Massam (1985) argues that this movement does not, however, target the object position of the matrix clause, but that the raised DP remains inside the embedded CP, occupying a CP-peripheral specifier position, from which it is assigned case via ECM (see Béjar & Massam, 1999 for a theory of multiple case checking).

(5) Raising in Niuean (Seiter, 1980; Massam, 1985)

a. *No raising (baseline)*

To nākai toka e au [ke kai he pusi e ika].
FUT not let ERG I [COMP eat ERG cat ABS fish]
‘I won’t let the cat eat the fish.’

b. *Raising of ERG subject*

To nākai toka e au e pusi_i [ke kai ____i e ika].
FUT not let ERG I ABS cat COMP eat ABS fish
‘I won’t let the cat eat the fish.’

Unlike in, for example, English, in which raising is restricted to the (nominative) subject, raising in Niuean can also target the unmarked argument: in (6), the absolutive object is raised across the ergative subject.

(6) Raising of ABS object in Niuean (Seiter, 1980; Massam, 1985)

To nākai toka e au e ika_i [ke kai he pusi ____i].
 FUT not let ERG I ABS fish COMP eat ERG cat
 ‘I won’t let the cat eat the fish.’

It is further noted by Longenbaugh and Polinsky (2018) that Niuean also lacks superiority effects in multiple *wh* questions: in clauses with two *wh* words, either the ergative subject *wh* phrase or the absolutive object *wh* phrase can be fronted (while the other remains in situ), as in (7). In (7a), the ergative subject is fronted, whereas in (7b), the absolutive object is fronted; notice that the English translation of the latter is ungrammatical: an object *wh* phrase in English cannot be fronted in the presence of a subject *wh* phrase that is within the same clause.

(7) Multiple *wh* questions in Niuean (Longenbaugh & Polinsky, 2018: 9)

a. *ERG subject wh fronting*

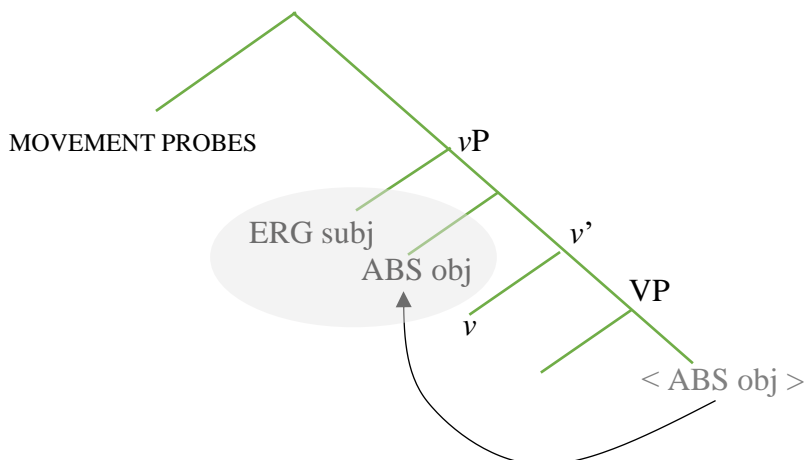
Ko hai ne kai e heigoa?
 PRED who PST eat ABS what
 ‘Who ate what?’

b. *ABS object wh fronting*

Ko e heigoa ne kai e hai?
 PRED what PST eat ERG who
 ‘*What did who eat?’

Massam (2001) and Longenbaugh and Polinsky (2018) propose that ergative and absolutive arguments in Niuean both occupy a specifier position of the same structural phrase (*v*P) and are thereby structurally equidistant from higher (A- or A-bar) movement probes in the syntax, as shown in (8). This occurs because the absolutive object in raises from its base position and ‘tucks in’ (cf. Richards, 1997) to the inner specifier of *v*P.

(8) Structural equidistance in Niuean (Longenbaugh & Polinsky, 2018; approx.)



In view of the data in (5) through (7), one could make the generalization that both subjecthood and unmarkedness are equally influential in determining which arguments may be targeted for movement operations in Niuean: on the one hand, the (ergative) subject is able to raise (5b, 7a), but equally, and unlike in many nominative languages, the unmarked (absolutive) object may raise (6, 7b). There is evidence to suggest, however, that Niuean nonetheless exhibits an asymmetry between movement of the subject and movement of the unmarked argument; in other words, subjecthood and unmarkedness are not weighted equally. Let us consider again multiple *wh* questions as in (7), in which either the ergative subject or absolutive object may front. Indeed, both options are judged as *grammatical*; however, one of my consultants reports that subject fronting in the presence of an absolutive object—as in (7a)—is markedly preferred to absolutive object fronting in the presence of a subject, as in (7b). In terms of the structural equidistance theory put forward by Massam (2001) and Longenbaugh and Polinsky (2018) (see again 8), this suggests that movement from the structurally higher outer *vP* specifier is preferred to movement from the structurally inferior inner *vP* specifier. A full grammaticality judgement survey is necessary in order to confirm this preliminary finding. However, if it is the case that subject movement is preferred to unmarked object movement, then this would suggest that *structural superiority*—albeit between specifiers of the same XP—ultimately determines which argument is most accessible (see again 1 and 2) when we take into consideration not only what is judged by speakers as ‘grammatical’ but also which of two structures, if any, is preferred.

The conclusion to be drawn from this is that, while privileges are afforded to an unmarked object in Niuean which are not afforded to a marked (i.e., accusative) object in nominative languages, subjecthood is ultimately the most influential factor in determining how speakers respond to different structural configurations. In the next section, I discuss an experimental study of pronoun resolution in Niuean which ultimately points to this same view.

4. The Resolution of Anaphoric Pronouns in Niuean

4.1. Background

Interpreting sentences necessarily requires identifying the intended referent for referring expressions. Many referring expressions are linguistically ambiguous, and so a choice must be made between two or more candidate antecedents. One type of referring expression that has received much attention in the literature is anaphoric pronouns. In (9), for example, *she* could refer either to *Alice* or to *Lisa*.

- (9) Alice invited Lisa to go horse riding, and *she* packed a picnic to bring along.

The choice of referent for a pronoun like *she* has been widely argued to be determined according to accessibility, meaning that certain entities are more salient in discourse than others (Ariel 1990; Gundel, Hedberg & Zacharski 1993). Arnold

(2010: 188) refers to accessibility in discourse as “the property of information that makes it easier to access, independent of ambiguity considerations”. The more accessible an entity such as *Alice* or *Lisa*, the more likely it is that that entity will be (i) referred to using a pronoun by a speaker in following discourse, and (ii) interpreted by a listener as the referent for an ambiguous pronoun. A long-standing observation is that accessibility is influenced by syntactic prominence, meaning that certain arguments are more accessible than others. All else being equal, a *subject* of a preceding sentence is more likely than any other argument to become the referent of a pronoun in a following sentence. Grosz, Joshi, & Weinstein (1995) posit that nominal entities in a sentence are ranked according to their grammatical function, as in (10). In this hierarchy, the subject outranks the objects, and is therefore more likely to be realised as a pronoun than the object is. Going back to (1), then, *she* is more likely to be construed as referring to *Alice*, the subject, than to *Lisa*, the object.

- (10) Ranking according to grammatical function (Grosz et al. 1995:15)
 subject > object > other

The hierarchy in (10) resembles Keenan & Comrie’s original Accessibility Hierarchy (see again 1), in which the subject outranks the object. Recall, however, that subjecthood is not the only factor which determines accessibility; indeed, phi-agreement patterns in ergative-absolutive languages led to a proposal that the hierarchy in (1) be recast as a hierarchy of case (see again 2), wherein unmarked (nominative, absolutive) case outranks marked (accusative, ergative) case, independent of grammatical function (Bobaljik, 2008; see also Deal, 2016; 2017). This, then, raises the question of whether the hierarchy for pronoun resolution posited in (10) should also be re-cast in terms of case. In all prior studies of pronoun resolution, however, only nominative-accusative languages have been considered.

4.2. Experiment by Tollan and Heller (in prep)

Effects of subjecthood and unmarkedness in pronoun resolution in Niuean were explored in a recent experimental study by Tollan and Heller (in prep). Tollan and Heller used a picture-matching task to examine how the Niuean third person singular animate pronoun *ia* (translated in this paper as ‘it’) is interpreted given two factors: firstly, the syntactic case frame of the preceding (i.e., antecedent) clause, and secondly, the structural position of *ia* itself, examining the question of whether Niuean would exhibit a subject preference in pronoun resolution, as has been reported for nominative languages (e.g., Gordon et al., 1993, a.o.), or whether, alternatively, absolutive antecedents would be preferred instead.

In order to examine how the case frame of the antecedent clause affects interpretation of a pronoun in a following clause, the authors compared three clause types: first, those containing transitive verbs which require an ergative-absolutive case frame (‘Transitive-ERG’), as in (11a). Second, those containing intransitive verbs, to which an oblique object was added in order to ensure that all antecedent

sentences had two nominals ('Intransitive-ABS'), as in (11c). Importantly, however, notice that Transitive-ERG and Intransitive-ABS clauses differ in *two* ways: with respect to the case frame (ERG-ABS vs. ABS-OBL) and with respect to argument structure (transitive verb + direct object vs. intransitive verb + adjunct). Thus, these two clause types cannot be directly compared because any difference found between them cannot reliably be attributed to *either* of these factors. To get around this issue, the authors included a third clause type, known in Polynesianist literature as the 'middle' construction: clauses containing transitive verbs which require an absolutive-oblique case frame ('Transitive-ABS'), as in (11b).

(11) Antecedent clause types in Tollan and Heller (in prep)

a. *Transitive-ERG*

Ne tutuli he kulī e lapiti.
 PST chase ERG dog ABS rabbit
 'The dog chased the rabbit.'

b. *Transitive-ABS*

Ne fakaalofa e kulī ke he lapiti.
 PST pity ABS dog OBL rabbit
 'The dog pitied the rabbit'.

c. *Intransitive-ABS*

Ne poi e kulī ke he lapiti.
 PST run ABS dog OBL rabbit
 'The dog ran to the rabbit.'

Comparing Transitive-ERG and Transitive-ABS isolates the effect of case marking, while controlling for transitivity: how does a marked (i.e., ergative) subject compare with an unmarked (i.e., absolutive) subject as a potential antecedent for an ambiguous anaphoric pronoun (i.e., *ia*) in a following clause (to be discussed shortly)? Comparing Transitive-ABS and Intransitive-ABS isolates the effect of transitivity: how does a transitive absolutive subject compare with an intransitive absolutive subject as a potential antecedent for ambiguous *ia* in a following clause?

Transitive-ABS and Intransitive-ABS verbs were differentiated based upon two diagnostics: firstly, whether the oblique nominal was obligatory or optional. All clauses with Transitive-ABS verbs were ungrammatical without the oblique object (12a), but all clauses with Intransitive-ABS verbs were grammatical without it (12b).

(12) Obligatoriness of oblique object

a. *Transitive-ABS ('middle')*

Ne fakaalofa e kulī *(ke he lapiti).
 PST pity ABS dog OBL rabbit
 'The dog pitied the rabbit'.

b. *Intransitive-ABS*

Ne poi e kulī (ke he lapiti).
PST run ABS dog OBL rabbit
'The dog ran to the rabbit.'

A second diagnostic was Pseudo-Noun Incorporation (see Massam, 2001). In Niuean (and many related Polynesian languages), a direct object can appear adjacent to the verb (yielding VOS word order as opposed to VSO) so long as it is bare (i.e., appears with no determiner or case marker). The subject in such constructions obligatorily bears absolutive case. Like absolutive objects of Transitive-ERG verbs (13a), oblique objects of Transitive-ABS verbs may pseudo-incorporate (13b), indicating that they are indeed direct objects. However, the oblique nominal in an Intransitive-ABS clause cannot incorporate (13c), indicating that it is not a direct object.

(13) Pseudo-Noun Incorporation in Niuean

a. *Transitive-ERG: ✓ object incorporation*

Ne tutuli lapiti e kulī.
PST chase rabbit ABS dog
'The dog chased rabbits.'

b. *Transitive-ABS: ✓ object incorporation*

Ne fakaalofa lapiti e kulī.
PST pity rabbit ABS dog
'The dog pitied rabbits.'

c. *Intransitive-ABS: ✗ object incorporation*

*Ne poi lapiti e kulī.
PST run rabbit ABS dog
Attempted: 'The dog ran to rabbits.'

Thus, all Transitive-ABS verbs permit Pseudo-Noun Incorporation, and all Intransitive-ABS verbs do not.

In order to examine how the structural position of *ia* affects its interpretation, Tollan and Heller compared clauses of which *ia* was the intransitive subject (14a) with clauses in which *ia* was the transitive object (14b). As such, *ia* always bore absolutive case.

(14) Structural position of *ia* in Tollan and Heller (in prep)

a. *ia as absolutive subject*

.....ti tihe a **ia**.
.....and sneeze ABS 3SG
'..... and **it** sneezed.'

b. *ia* as absolutive object

.....ti gagau he leona a **ia**.
and bite ERG lion ABS **3SG**
 ‘.....and the lion bit **it**’.

Crossing these factors in a 2x3 within-subjects design, the study comprised a total of six conditions. The stimuli were presented auditorily, and participants were asked to “act out” the described events using pictures (e.g., a dog, a cat, and a lion) on a display board; thus, their actions revealed how they interpreted the pronoun.

Table 1 shows the proportions of proportions of subject referent selection per condition. On average, the subject of the first conjunct is preferred (83.4% of the time) as a referent for *ia*. Crucially, this subject bias is seen across all conditions, including both of the Transitive-ERG conditions. There were no significant main effects of the case frame of the antecedent clause, or of the position of the pronoun. Therefore, the core conclusion for the present purposes is that in Niuean, an ergative-absolutive language, subjecthood is the most influential factor in pronoun resolution, thus supporting the hierarchy in (10).

	<i>ia</i> as ABS subject pronoun	<i>ia</i> as ABS object pronoun	TOTAL
Transitive-ERG	86%	74.1%	80.1%
Transitive-ABS	89.5%	81.0%	85.3%
Intransitive-ABS	81.2%	88.4%	84.8%
TOTAL	85.6%	81.2%	83.4%

Table 1: Proportions of choice of subject from the first conjunct (either Transitive-ERG, Transitive-ABS, or Intransitive-ABS) as the referent for anaphoric *ia* (either in subject or object position) in the second conjunct.

The authors also conducted planned comparisons for the three antecedent sentence types. When the pronoun was a subject, there were no significant differences between proportions of subject referent choice; however, when the pronoun was an object, proportions of subject referent choice were significantly lower when the antecedent sentence was Transitive-ERG compared with when it was Transitive-ABS. This shows that a first conjunct subject referent for a second conjunct object pronoun is less preferred when the antecedent subject is ergative than when it is absolutive. Meanwhile, proportions of subject referent choice were higher when the antecedent sentence was Intransitive-ABS compared with Transitive-ABS. This shows that a subject referent for an object pronoun is more preferred when the antecedent verb is intransitive compared with when it is transitive.

Thus, in addition to demonstrating the overall preference for *subject* antecedents, this study also reveals effects of case which are independent of subjecthood: when a pronoun is in object position, absolutive subjects are preferred over ergative subjects, and intransitive subjects are preferred over transitive subjects.

Considering once again Keenan and Comrie's Accessibility Hierarchy in (1) and its reformulation by Bobaljik (2008) as a hierarchy of morphological case as in (2) (both repeated in 15 below), we find that *neither* can exhaustively account for the full range of data.

- (15) a. Accessibility Hierarchy (Keenan & Comrie, 1997: 66, approx.)
Subject > Direct object > Indirect object > Oblique > [...]
- b. Morphological Case Hierarchy (Bobaljik, 2008: 11, approx.)
Unmarked case > dependent case > oblique case

Instead, the Niuean results call for a further reformulation in which both grammatical function and case are taken into account, as in (16).

- (16) Case and grammatical function-based hierarchy
Unmarked subject > marked subject > unmarked object > [...]

Recall though, that, in this study, effects of case were found only when the pronoun was in object position; when the pronoun was in subject position, only the effect of subjecthood was observable, highlighting the relative weakness of effects of case as compared with subjecthood.

To summarize, when considering (i) syntactic superiority and (ii) pronoun resolution in Niuean, it appears that subjecthood is the most important factor in determining the output of syntactic and pragmatic operations, whereas effects of unmarked case are substantially weaker. In the following section, however, I discuss a further experimental study which casts doubt upon a generalization in which subjecthood outweighs unmarkedness.

5. The Processing of *wh* Questions in Niuean

In an experimental study of the processing of long distance *wh* dependencies in Niuean, Tollan, Massam and Heller (2019) observe that dependencies of absolutive arguments—whether subject or object—are preferred during sentence processing as compared with dependencies of marked (i.e., ergative or oblique) arguments. This section details Tollan et al.'s study and examines its implications for the present discussion of the relationship between subjecthood and unmarkedness.

5.1. Background

The starting point for Tollan et al. (2019) is the well-attested observation in the psycholinguistic literature that subject dependencies—such as in relative clauses and *wh* questions—are processed more easily than object dependencies (King & Just 1991; a.o.). Of the pair of relative clauses in (17), for example, the subject relative clause in (17a) was found to be read faster, and responded to more accurately, than the object relative clause in (17b).

- (17) English relative clauses (King & Just 1991: 581)
- a. The reporter that attacked the senator admitted the error publicly....
 - b. The reporter that the senator attacked admitted the error publicly...

This asymmetry—known as the “subject advantage”—has been observed in a number of nominative-accusative languages such as English (e.g., Gibson 1998; Gordon, Hendrick, & Johnson 2001; King & Just 1991; Just & Carpenter 1992), Dutch (e.g., Frazier 1987; Mak, Vonk & Schriefers 2002), German (e.g., Schriefers, Friederici & Kuhn 1995), French (e.g., Frauenfelder, Segui & Mehler 1980), Brazilian Portuguese (Gouvea 2003), and Japanese (e.g., Miyamoto & Nakamura 2003).

Since subjecthood and unmarked case co-vary in nominative-accusative languages, however, the question remains open as to whether the subject advantage reflects a processing privilege of the grammatical subject, or of the argument bearing unmarked case. As discussed by Carreiras et al. (2010), ergative-absolutive languages allow for subjecthood and unmarked case to be teased apart (see also discussion in Polinsky et al. 2012): in transitive sentences in ergative languages, the subject bears marked case, whereas the object bears unmarked case. Thus, if the subject advantage reflects preference for subjecthood, ergative languages should show an advantage for the ergative argument; if, on the other hand, it in fact reflects a preference for unmarked case, the advantage should be for the absolutive object.

A number of ergative languages have been studied, and results are mixed. In Basque, absolutive object dependencies have been shown to be easier to process than ergative subject dependencies (Carreiras et al., 2010); however, because only *transitive* sentences were considered, this result could reflect an overall object advantage in Basque, that might not be connected with unmarked case. Other studies considered both transitive and intransitive sentences, and found that intransitive absolutive subject dependencies are easier to process than ergative subject dependencies (Q’anjob’al Maya; Clemens et al. 2015; Avar: Polinsky et al., 2012; Niuean: Longenbaugh & Polinsky, 2016). However, this difference between ergative and absolutive subjects may be due to the *transitivity* of the verb rather than case marking (cf. Babyonyshev and Gibson, 1999; Jurka, 2013; Polinsky et al., 2013).

Thus, separating case and transitivity requires comparing (i) transitive sentences with marked (i.e., ergative) subjects with transitive sentences with unmarked (i.e., nominative, absolutive,) subjects, and (ii) transitive sentence with marked (i.e., ACC, OBL) objects with transitive sentences with unmarked (i.e., NOM, ABS) objects. This was the goal of Tollan et al.’s (2019) study.

5.2. Experiment (Tollan et al., 2019)

This study—run in conjunction with the pronoun resolution study detailed in Section 4—examined the processing of *wh* dependencies in Niuean using the same three clause types as for the pronoun study: ‘Transitive-ERG’ (18a), ‘Transitive-ABS’ (18b), and ‘Intransitive-ABS’ (18c). Comparing Transitive-ERG and Transitive-ABS isolates the effect of case, while controlling for transitivity. Comparing

Transitive-ABS and Intransitive-ABS isolates the effect of transitivity, while controlling for case.

- (18) Clause types in Tollan et al. (2019)
- a. *Transitive-ERG*
 Ne tutuli he kulī e lapiti.
 PST chase ERG dog ABS rabbit
 ‘The dog chased the rabbit.’
 - b. *Transitive-ABS*
 Ne fifitaki e kulī ke he lapiti.
 PST copy ABS dog OBL rabbit
 ‘The dog copied the rabbit’.
 - c. *Intransitive-ABS*
 Ne poi e kulī ke he lapiti.
 PST run ABS dog OBL rabbit
 ‘The dog ran to the rabbit.’

Dependency formation was studied by looking specifically at *wh* questions. Importantly, *wh* questions in Niuean are temporarily ambiguous between a subject and an object interpretation: this ambiguity is resolved once the case marker of the non-displaced argument is encountered. In other words, the *wh* phrase and verb are the same in a subject question and an object question, as shown in (19). The authors also included an adverb, in order to extend the temporary ambiguity.

- (19) *wh* questions in Tollan et al. (2019)
- a. *Transitive-ERG*
 Ko e pusi fē ne tutuli tumau {e lapiti/he kulī}?
 PRED cat which PST chase always ABS rabbit/ERG dog
 ‘Which cat {always chased the rabbit/did the dog always chase}?’
 - b. *Transitive-ABS*
 Ko e pusi fē ne fifitaki tumau {ke he lapiti/ e kulī ki ai}?
 PRED cat which PST copy always OBL rabbit/ABS dog RP
 ‘Which cat {always copied the rabbit/did the dog always copy}?’
 - c. *Intransitive-ABS*
 Ko e pusi fē ne poi tumau {ke he lapiti/ e kulī ki ai}?
 PRED cat which PST run always OBL rabbit/ ABS dog RP
 ‘Which cat {always ran to the rabbit/did the dog always run to}?’

In order to license both subject and object *wh* questions, participants in this study first heard a short discourse that supported a subject or an object question

equally: thus, each discourse consisted of two sentences with the same verb, and with an animal from the same category playing the role of subject or object in the two sentences. This is illustrated for the Transitive-ERG condition in (20); the Transitive-ASB and Intransitive-ABS conditions followed the same format, differing only in terms of the relevant verb and case frame.

- (20) Discourse example from Tollan et al. (2019): Transitive-ERG
[Ne tutuli tumau he puti uli e lapiti], [ti tutuli tumau he
PST chase always ERG cat black ABS rabbit and chase always ERG
kulī e pusi tea].
dog ABS cat white
‘The black cat always chased the rabbit, and the dog always chased
the white cat.’

Participants had to “act out” the described events using four pictures on a display board (e.g., a black cat, a white cat, a dog, and a rabbit); they then heard the *wh* question and had to answer it by touching the correct picture. Because both interpretations were supported by the events in the context, any biases during the processing of the ambiguous part of the question would reflect dependency formation preferences (note that the order of the sentences in the contexts was reversed in half of the items).

In order to examine dependency formation in real-time, the authors used visual world eye-tracking, reasoning that the expectations listeners develop about how the question will continue would be reflected in looks to one or both of two images. First, the answer to the question (i.e., the black cat for a subject question; the white cat for an object question; cf. Sussman and Sedivy 2003), and second, the argument expected to follow the verb in the question (i.e., the rabbit for a subject question; the dog for an object question; cf. Altmann & Kamide 1999). Thus, looks to the black cat and/or rabbit reflect a preference for a subject dependency, whereas looks to the white cat and/or dog reflect a preference for an object dependency.

Figure 1 shows the proportions of eye movements to the images consistent with a subject *wh* question (black lines) versus the images consistent with an object *wh* question (dashed grey lines) for each verb type (collapsing across the question type manipulation, as the questions are temporarily ambiguous). In the Intransitive-ABS condition (bottom panel), there is a preference for absolutive subject *wh* dependencies. In the Transitive-ABS condition (middle panel), there is no overall preference. In the Transitive-ERG condition (top panel), however, there is a preference for absolutive object *wh* dependencies. Thus, Niuean exhibits a mixed pattern with respect to dependency formation: a subject advantage with Intransitive-ABS verbs, no advantage with Transitive-ABS verbs, and an object advantage with Transitive-ERG verbs.

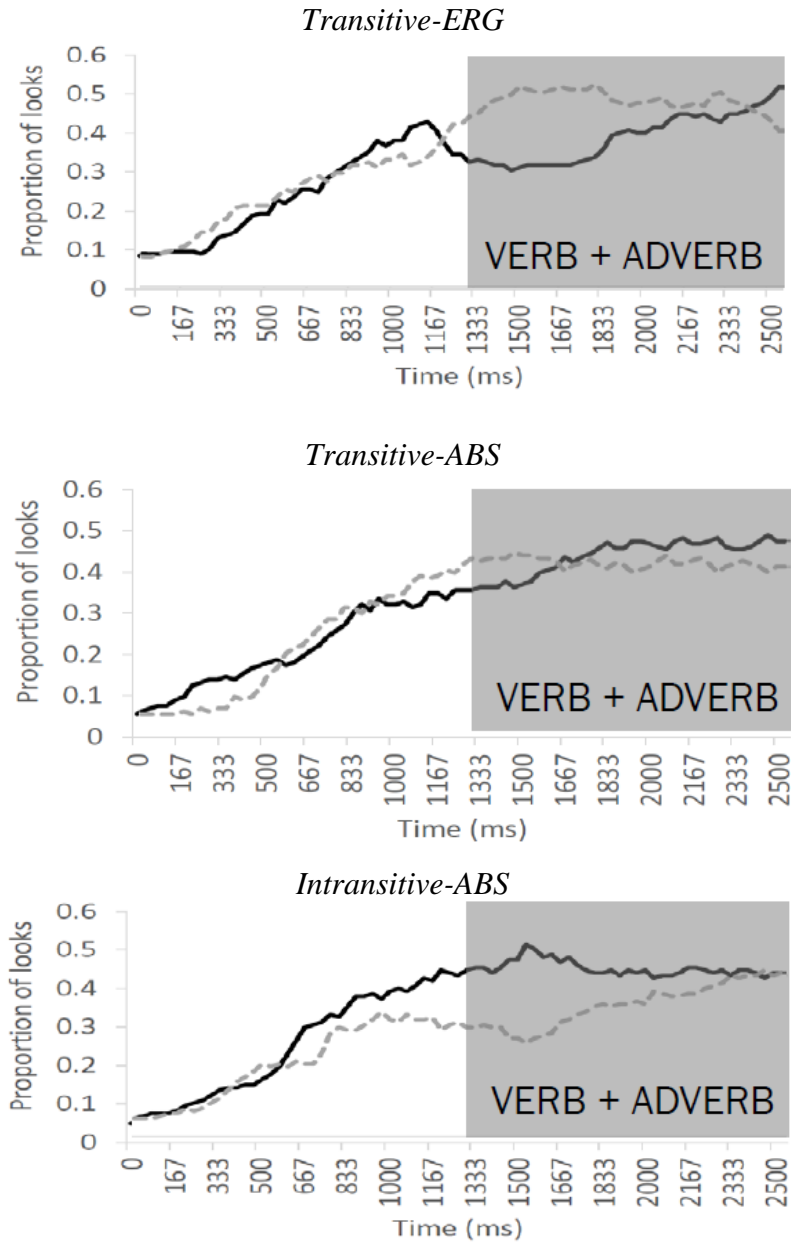


Figure 1 (Tollan et al., 2019: 9): Proportions of looks to subject-consistent images (solid black line) and object-consistent images (dashed grey line), during the ambiguous portion of the *wh* question. The verb+ adverb region is highlighted.

5.3. Discussion

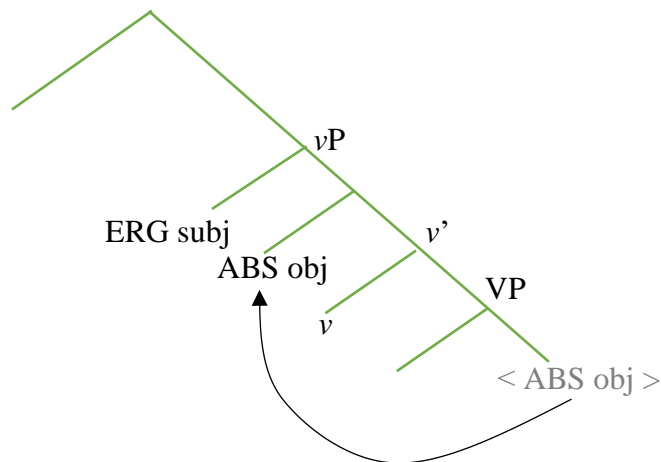
The results of this study reveal that, in real-time *wh* dependency formation, Niuean speakers show a preference for dependencies of unmarked (absolute) arguments

over dependencies of marked (ergative or oblique) arguments. This finding therefore differs from the finding of the pronoun resolution study (see Section 4), in which *subjects* were consistently preferred as antecedents for ambiguous pronouns (and effects of unmarkedness were weaker). Furthermore, there is also some preliminary evidence that, in multiple *wh* questions, movement of the subject is preferred to movement of the object even though movement of either argument is judged as grammatical (see Section 3).

Considering once again what it means for an argument to be a “subject”, and what it means for an argument to be “unmarked” (see again Section 2) can potentially shed light on the differing results of the *wh* question study as compared with the pronoun resolution study. Recall that a subject was defined as the structurally highest core argument in the verbal domain of the syntax; thus, subjecthood is *structurally* determined. On the other hand, an unmarked argument was defined as the argument whose case has the widest syntactic distribution in any given language; thus, unmarkedness is *distributionally* determined. Applying this to the present discussion, it seems that structural configuration is what is most important for the purposes of pronoun resolution and syntactic superiority, while distribution is most important for the purposes of real-time *wh* dependency formation.

One conclusion to draw from this is that structural superiority is, overall, the key factor in determining the outputs of operations such as those in *wh* questions and in pronoun resolution. This could be because the structurally highest argument is most accessible to syntactic A- or A-bar probes and to discourse-based processes by virtue of being *least* structurally embedded. By way of illustration, consider again the tree structure of Niuean ergative-absolutive clauses shown in (8) and repeated below. Notice that the ergative subject – merged in the specifier of *v*P – is less structurally embedded than the object. The object, although also in the specifier of *v*P, has undergone A-movement from its theta position in VP, in which it is c-commanded by both *v* and the ergative subject itself. Thus, while both the ergative subject and the absolutive object are ‘accessible’ to A-bar probes and as antecedents for pronouns, the subject is comparatively more accessible by virtue of its position.

(21) Niuean ERG-ABS structure (Longenbaugh & Polinsky, 2018; approx.)



The question then remains as to why ergative subject dependencies are not also preferred over absolutive object dependencies in real-time processing (as shown by Tollan et al., 2019). Rather, case distribution (i.e., unmarkedness) governs preferences in processing. The reason for this may be to do with the kind of information which is used when planning for a *wh* dependency: if the parser plans for a dependency of the argument with the widest distribution (i.e., absolutive), then chances of successfully locating the dependency are maximized (i.e., because it is more likely to materialize than dependencies of arguments with a narrower distribution, such as ergative or oblique). This therefore means the ‘subject advantage’ found for nominative languages such as English is better characterized as a nominative case advantage: the parser prefers dependencies of nominative-marked argument over dependencies of accusative-marked arguments, because nominative case has a wider syntactic distribution than accusative case.

6. Concluding Remarks

This paper has examined the roles of subjecthood and unmarkedness in Niuean, an ergative-absolutive Polynesian language. I have detailed three case studies which show how *both* factors contribute in determining structural preferences (i.e., superiority), syntactic-pragmatic operations (i.e., the resolution of ambiguous pronouns) and sentence processing (i.e., the formation of *wh* dependencies in real-time). In sum, Niuean syntax, and its interfaces, is heavily influenced by two key factors: firstly, structural superiority (‘subjecthood’), wherein arguments that are most structurally superior in the verbal domain of the syntax are privileged over more structurally embedded arguments, and secondly, case distribution (‘unmarkedness’), wherein arguments whose case has a wider syntactic distribution (i.e., appears in more syntactic argument positions) are privileged over those whose case has a narrower distribution. These two factors are, I argue, independent, but often coincide.

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