# Phrasing Is Key: The Syntax and Prosody of Focus in Georgian

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Phrasing is Key:
The Syntax and Prosody of Focus in Georgian

Abstract

This dissertation provides an account of the syntactic and prosodic properties of focus in Georgian, a Kartvelian language spoken in the Caucasus. A verb-final language, Georgian is typologically similar to other such languages, in that it has a preverbal focus position, which houses wh-phrases and narrow foci. At the same time, Georgian also allows for postverbal placement of narrow foci.

I show that, despite appearances, immediately preverbal placement of wh-phrases and narrow foci does not have the same underlying syntax. The evidence for this conclusion comes from standard syntactic tests, such as island effects and scope and binding facts, as well as some Georgian-specific evidence. In particular, I show that neg-words, another class of constituents that occur either immediately preverbally or postverbally in Georgian, are always found in situ, and, as such, can serve as a tool for determining the structural properties of other constituents. I further show that narrow foci and wh-phrases have different distributional properties with respect to neg-words.

Based on this evidence, I demonstrate that wh-phrases in Georgian undergo A-bar movement to the specifier of PredP, accompanied by raising of the verb to Pred⁰. In contrast, preverbal narrow foci remain in situ and are accompanied by displacement of the material that would otherwise intervene between the narrow focus and the verb. Postverbal foci, in turn, are derived via right-adjunction. Having established these facts about the formation of narrow focus constructions and wh-questions on the basis of simple
clauses, I also address the formation of these constructions in clauses with participial complements and embedded nominalizations, as well as modal constructions.

Taken together, the distributional generalizations discussed here provide evidence that, in a single language, more than one syntactic strategy may be used in order to achieve linear adjacency between narrow focus/wh-phrase and the verb. This, I propose, suggests that the requirement for such adjacency, commonly found in verb-final languages, should not be treated as accidental, or as a mere by-product of other processes.

Further, I provide experimental evidence showing that the different constituents with the preverbal placement requirement, regardless of their underlying syntactic structure, have similar prosodic realizations. Specifically, all of them are prosodically grouped with the following verb, to the exclusion of other material.

Delving deeper into the acoustic realization of focus, I provide instrumental evidence which shows that Georgian has word-level stress, fixed on the initial syllable and cued by syllable duration. The data reported here, therefore, makes an important contribution to the long-standing debate in the literature about the existence and location of word stress in Georgian. However, the relative prominence of the stressed syllable is not a consistent a marker of focus in Georgian, contrary to what may be expected. Instead, the prosodic expression of focus crucially relies on the prosodic grouping of the preverbal focused constituent/wh-phrase and the verb.

Overall, the syntactic and prosodic results presented here provide strong support for the hypothesis that focus/wh-verb adjacency in Georgian – and, by extension, in other languages that require such adjacency – is not accidental.
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Acknowledgements

Writing a dissertation is an adventure, a journey, a challenge. I am incredibly grateful to everyone who was there for me and with me, throughout this year and during my time in graduate school that preceded this year of writing. Without their support, this journey would not have been completed.

First of all, I would like to thank my wonderful dissertation committee: Maria (Masha) Polinsky, Kevin Ryan, Jonathan Bobaljik and Lauren Clemens. Their insight, excitement about and dedication to the dissertation project have been an inspiration for me throughout this time.

I have been extraordinarily fortunate to have worked with Masha Polinsky as an advisor. She went to great lengths to make sure that my time at Harvard was as productive as possible, and her readiness to discuss my work, no matter how busy or how far away she was, has set an example of mentorship for me. I especially appreciate the freedom that she gave me to pursue research topics that interested me, while at the same time steering me in the right direction at the times when I was lost. The breadth and depth of her expertise have been instrumental in shaping my research interests and have always inspired me to keep learning. Finally, if not for Masha’s reading and re-reading of the many drafts that preceded this dissertation, it would never look the way it does today.

Kevin Ryan, my co-advisor, has guided me every step of the way in the phonetic and prosodic parts of this project. I am incredibly grateful for the openness with which he approached my ideas, even the half-baked ones, for his help in experiment design and analysis, for his quick and insightful feedback along the way, and for slipping an occasional phonology joke into his comments.
Every meeting I had with Jonathan Bobaljik gave me a lot of food for thought. His ability to connect the different pieces in my argument and spot inconsistencies between statements dozens of pages apart often made me think that he knows my data and argument far better than I do. His curiosity about all things linguistic (and beyond) gave me a sense of perspective at times when I had tunnel vision from my own research topic. I am incredibly grateful for the example of scholarship that he has set for me.

There are many things I want to thank Lauren Clemens for. It was at the ETI3 conference on prosody and constituent structure at McGill University in 2014, where she was an invited speaker, that I understood that the interaction of syntax and prosody is what I am most interested in as a linguist. I am grateful to her for her mentorship, for helping me set concrete goals and achieve them, for painstakingly reading my writing, and always pushing me to do my best.

I am incredibly grateful to all Georgian speakers, in Tbilisi and beyond, that contributed syntactic judgements and prosodic data to this project: Ekaterine Egutia, Maia Iashvili, Sophie and Salome Panjikidze, Mariam Goshadze, Natia Peradze, Nini Arshakuni, Zviad Adzinbaia, Irakli Laliashvili, Ia Tserodze, Meri Rogava, Lasha Puckaradze, Giorgi Marjamidze, Maria Tuderidze, Sophie Chalashvili, Gvantsa Sharvadze, Khatia Beruashvili, Mikhail Gavasheli, Vladimir Novosardov, Irma Miminoshvili, Ana Kolkhidashvili, Anna Chukkerashvili, Keti Tchilaia, George Jgrkhava, Saba Kiria-Mosidze, Sandor Tskhvedadze, Natia Kentchiashvili, Lela Okromelidze, Teona Kartvelishvili, Tamara Kalkhitashvili and Irakli Salia. Special thanks are due to Lela Koiava, one of my main consultants, for her patience and unfailing attention even when dealing with more complex data. Thank you to Maka Tetradze for her data contributions, helping me access older literature on Georgian prosody, introducing me to the linguistic community in Tbilisi and even being my tour guide in Stepansminda in Georgia. Thank you to Nino Amiridze and Rusudan Asatiani both for their syntactic judgements and for sharing their Kartvelological linguistic expertise.

I am grateful to the Harvard Summer School in Tbilisi, and especially Steven Clancy and Oksana Willis, for welcoming me to be part of their community in the summer 2016. I also want to thank Steven for...
organizing an informal group of Georgian enthusiasts at the Slavic Department at Harvard, where we learned the Mxedruli script, conjugated verbs and read stories about Vano and Niko by Erлом Akhvlediani. Thank you to Nana Shavtvaladze at the Language School in Tbilisi, who organized Georgian classes for me, and to Eka Neparidze, my teacher of Georgian in Tbilisi. I am also grateful to Steve Foley and David Erschler for their logistical help with my first trip to Georgia, and to Gallagher Flinn, who created an online parser for Georgian verbs. It’s wonderful.

The undergraduate concentrators at the Linguistics Department at Harvard (Maya Grimes, Eli Troen, Sam Benkelman, Simon Eder and Gabe Coonce) did a wonderful job annotating Georgian prosodic data for the dissertation. I am also grateful to Xavier Zientarski at the University of Maryland, whose curiosity about the stress properties of Georgian lead to our joint work on it.

I thank all members of the academic linguistic community who provided feedback on this project at various stages: Stavros Skopeteas, Lea Nash, Jenneke van der Wal, Marcel den Dikken, Balázs Surányi, Carlos Arregi, Veneeta Dayal, Rajesh Bhatt, Kriszta Szendrői, Norvin Richards, Danny Fox, Hubert Truckenbrodt, Thomas McFadden, Manfred Krifka, Gisbert Fanselow, Malte Zimmerman, Byron Ahn, Patrick Jones, Andreas Schmidt, Balkiz Öztürk and Alexander Rostvtsev-Popiel. Special thanks are due to the instructors of the Laboratory on Speech class at MIT, who taught me a lot about the phonetics of prosody: Stefanie Shattuck-Hufnagel, Jeung-Yoon Elizabeth Choi and Alejna Brugos. I am especially grateful to Stefanie for her encouragement and contagious enthusiasm about everything to do with intonation and pronunciation.

The linguistic community at the University at Maryland is a place where I learned a lot about conducting good research. I am grateful to Norbert Hornstein, Omer Preminger and Bill Idsardi for sharing their expertise, and to all graduate students, especially Annemarie van Dooren, Suyoung Bae, Paulina Lyskawa, Gesoel Mendes, Sigwan Thivierge and Rodrigo Ranero for making me feel at home during my time at UMD.
I am grateful to all graduate students at Harvard, past and present, for their support and friendship:
Laura Grestenberger, Edwin Tsai, Yimei Xiang, Greg Scontras, Jenny Lee, Chrissy Zlogar, Laine
Stranahan, Pooja Paul, Marek Majer, Yujing Huang, Gašper Beguš, Laurence B-Violette, Alex Klapheke,
Dorothy Ahn, Zuzanna Fuchs, Dora Mihoc, Tyler Lau, Aurore González, Julia Sturm, Yuyin He, Cristina
Aggazzotti, Gunnar Lund, Lucas Kahl, Tsai-Heng Tiffany Yang, Kate Hodges (Mirgaleev), Giuseppe
Ricciardi, Shannon Bryant, Yingtong Liu, Zach Rothstein-Dowden, Niels Kühlert, Ian Kirby, Ethan
Wilcox, Josh Martin, Tamisha Tan, Claire Yuhan Zhang, Wei-Fang Hsieh and Chantale Yunt. Special
thanks are due to Laurence ‘Lo’, Yujing, Jenny and Dorothy for the many fun and memorable times
together. :)

I am grateful to Emily Bell for being a wonderful roommate and an in-house librarian who helped me
get my hands on harder-to-access literature innumerable times. To Yutong Shan, Giuseppe Ricciardi and
Jernej Turnsek, a.k.a. the Truthseekers, for their friendship and for many conversations about anything that
tickled our intellectual curiosity. To Yanina Prystauka and other graduates of the Lyceum of the Belarusian
State University who are now based on the East Coast, for upholding the spirit of the Lyceum in each other.
To my non-linguist friends, who were willing to talk with me even when the only thing I could talk about
was the dissertation, especially Alesia Sergeeva and her family, Nastassia Kotava (also the author of the
experimental prompts used here), and Asya Dyro.

My parents and my sister have always been there for me and encouraged me in my work. I am especially
grateful to them for the wonderful spirit of playful idiosyncrasy that is the weapon against stress, anxiety
and uncertainty in our home. I thank Terry for his endless patience, kindness, care and love, and the whole
Blaskovits family for their support as I was writing.

This dissertation is dedicated to my grandparents, who have always been my guardian angels, for as
long as I can remember.
To my grandparents.
Glossary

1 – first person                 NMLZ – nominalization
2 – second person               NOM – nominative
3 – third person                OBL – oblique
ABL – ablative                  OPT - optative
ADV – adverbial                  PFX - prefix
AOR – aorist                     PL – plural
AUX - auxiliary                  PRF – perfective
COM - comitative                 PROH - prohibitive
CONJ – conjugation marker       PRS – present
CONTR – contrastive particle    PRV – preverb
DAT – dative                     PTCP – participle
DEM – demonstrative              Q – interrogative
DO – direct object               RECP – reciprocal,
EMPH - emphatic                  REFL – reflexive
ERG – ergative                   SF – stem formant
EV – epenthetic vowel            SG – singular
GEN – genitive                   SM – stem marker
INCH – inchoative                SUP - superessive
INESS – inessive                 TR – transitive
IO – indirect object             TS – thematic suffix
IPFV – imperfective             VER – version marker
MOD – modal                      VM – verbal modifier
NEG – negation
Chapter 1. Introduction

This dissertation investigates the syntactic and prosodic properties of narrow focus and wh-expressions in Georgian, a Kartvelian language spoken in the Caucasus and a national language of the Republic of Georgia. This introductory chapter provides some preliminary information about Georgian (Section 1), the properties of Georgian pre- and postverbal placement of focal and wh-constituents in the cross-linguistic landscape (Section 2), existing theoretical approaches to focus in these languages (Section 3), as well as the overall structure of the dissertation (Section 4).

1. Why Georgian?

Georgian is spoken by ca. 4 million people, predominantly in the Republic of Georgia, a state in the region of Caucasus, wedged between two mountain ranges, the Greater Caucasus in the north and the Lesser Caucasus in the south. Georgian is the largest in the small family of four Kartvelian languages, which also includes Megrelian and Svan, spoken in the north-west of Georgia, and Laz, a Kartvelian language spoken in Turkey. The Kartvelian languages are not known to be related to any other languages in the Caucasus or outside of it.
Together with Armenians, Georgians are a Christian nation in the predominantly Muslim region of the Caucasus. The adoption of Christianity in 319 AD, with its reliance on written word, led to the development of the first Georgian script, Asomtavruli, in the 5th century AD. The current Georgian script, Mxedruli, dates back to the 10th century.

Figure 1. The Kartvelian languages

Figure 2. The Mxedruli script
Georgia has a rich philological tradition, which covers not only the Kartvelian languages, but also other, unrelated languages of the Caucasus, such as the Nakh-Dagestanian languages. The prominent Georgian linguists who contributed to the early study of the Kartvelian languages include David Chubinashvili, who authored a Georgian-Russian-French dictionary in 1840, and Alexander Zagareli, who worked on the history of Georgian in the late 19th century. Important contributions to Georgian linguistics at the time were also made by Adolf Dirr, Marie-Félicité Brosset, and Peter von Uslar. In the 20th century and the Soviet era, prominent Georgian linguists included Nicholas Marr, Georgi Axvlediani, Arnold Chikobava, Akaki Shanidze, Sergi Zhgenti, Varlam Topuria, Ivane Javakhishvili, Zurab Sarjveladze, Makar Xubua, Givi Machavariani, Bessarion Jorbenadze and Tamaz Gamkrelidze.

Georgian is chiefly known among linguists for the complexity of consonants clusters that it allows, which has earned it its place in phonology textbooks, as well as the complex agreement system, which has earned its place in morphology textbooks. The topic taken up in this dissertation, the syntax and prosody of focus has received less attention but is no less important, for the following reasons. On the one hand, as is common among verb-final languages, Georgian requires constituents with certain information-structural status, such as narrow foci, to appear in the immediately preverbal position. On the other hand, in contrast to many verb-final languages, Georgian also allows for postverbal placement of narrow foci. Such a dichotomy has few parallels among verb-final languages, where the postverbal domain is highly restrictive in terms of the types of constituents that can appear there: in particular, focused constituents are typically barred from the postverbal domain. The aim of the current dissertation, therefore, is to account for the syntactic and prosodic properties of Georgian’s unique distribution of foci.

2. Preverbal focus and beyond: the cross-linguistic landscape

The immediately preverbal position (henceforth IPrP) in Georgian, like in many other OV/verb-final languages of a similar typological profile, has special information-structural/discourse properties. Specifically, the slot immediately before the verb in Georgian and typologically similar languages is where
focal items and wh-phrases are found (Kim 1988; Kidwai 1999; van der Wal 2012, a.o.). Georgian is no exception in this respect; this is shown in (1):

(1) a. Gušin dila-s bebia ra-s a-lag-eb-d-a?
yesterday morning-DAT grandma.NOM what-DAT VER-clean-SF-SM-IPFV.3SG
‘What did grandma clean yesterday morning?’

b. * Gušin dila-s ra-s bebia a-lag-eb-d-a?
yesterday morning-DAT what-DAT grandma.NOM VER-clean-SF-SM-IPFV.3SG
(‘What did grandma clean yesterday morning?’)

c. Gušin dila-s bebia samzareulo-s a-lag-eb-d-a.
yesterday morning-DAT grandma.NOM kitchen-DAT VER-clean-SF-SM-IPFV.3SG
‘Grandma cleaned the kitchen yesterday morning.’

d. * Gušin dila-s samzareulo-s bebi-a a-lag-eb-d-a.
yesterday morning-DAT kitchen-DAT grandma.NOM VER-clean-SF-SM-IPFV.3SG
(‘Grandma cleaned the kitchen yesterday morning.’)

However, in contrast to many other verb-final languages of this type, Georgian also allows for postverbal placement of focal items, which suggests a more complex distribution of focus, and a typologically less common one for verb-final languages. This is shown in (a) in (2), which is intended to serve as a reply to the question (a) in (1) above. Note that postverbal placement is only allowed for narrow foci, not wh-phrases in Georgian, as shown in (b) in (2).

(2) a. Gušin dila-s bebia a-lag-eb-d-a samzareulo-s.
yesterday morning-DAT grandma.NOM VER-clean-SF-SM-IPFV.3SG kitchen-DAT
‘Grandma cleaned the kitchen yesterday morning.’

---

1 The position immediately after the verb is reserved for focal items in some VO languages, such as, notably, Bantu (Hyman 1979; Watters 1979; Cheng & Downing 2012) and Chadic (Tuller 1992), and is known in the Bantuist tradition as the position immediately after the verb (IAV). The term IAV is not adopted here to refer to Georgian postverbal foci since postverbal foci in Georgian and Bantu have different syntactic properties: as is shown in Chapter 6 below, Georgian postverbal foci result from right-adjunction, while Bantu postverbal foci are found in situ (cf. e.g. Cheng & Downing 2012 for Zulu). Adopting the same descriptive term for both focus constructions would have implied more syntactic similarities between the two than there are.
Following Rooth’s (1985; 1992; 1996) Alternative Semantics, focus here is understood as indicating “the presence of alternatives that are relevant for the interpretation of linguistic expressions” (Krifka 2008: 247). The types of foci that match this definition include new information and contrastive foci, as well as constituents modified by focus-inducing particles such as even, only and also. According to this definition, wh-expressions also constitute a type of focus, since they act as substitutes for a set of individuals for which the proposition is true, as opposed to other possible alternatives; cf. Dik (1997: 331) on ‘questioning focus’, and Romero (1998) and Eckardt (2007) on focal interpretation of wh-phrases.\(^2\) Consequently, it is not surprising that in many of the languages that place foci into the IPrP, wh-phrases are similarly found immediately before the verb; cf. Primus (2001) on the generalization that wh-phrases in verb-final languages are placed either sentence-initially, or immediately preverbally.

The third class of elements that appear in the IPrP in Georgian are neg-words, or negative pronouns. This is expected from the point of view of Roothian focus semantics, since neg-words share an important interpretative property with foci and wh-phrases in that they also refer to contextual alternatives – more specifically, they eliminate all of them (Drubig 2003). That said, neg-words pattern with foci and wh-items in their distributional properties only in a subset of verb-final languages, including, in addition to Georgian, Ossetic and Hittite.

The requirement or tendency for immediately preverbal placement of focal/wh-expressions in verb-final languages has long been noticed in the literature and is well described. Languages that place focal items and/or wh-phrases in the IPrP include the following:

\(^2\) Though cf. Erteschik-Shir (1986), Aboh (2007), Cable (2008), a.o., for an alternative view that wh-phrases may but do not necessarily carry focus.
1. Basque (Arregi 2002; Elordieta 2001; Ortiz de Urbina 2002)
2. Chechen (Komen 2007)
3. Eastern Armenian (Comrie 1984; Dum-Tragut 2009; Megerdoomian & Ganjavi 2000)
4. Gujarati (Kim 1988; Desai 2018)
6. Ingush (Nichols 2011)
7. Kashmiri (Bhatt 1999; Munshi & Bhatt 2009; Manetta 2011)
9. Ossetic (Abaev 1939; Erschler 2008; 2012; Lyutikova & Tatevosov 2009)
10. Persian (Kahnemuyipour 2001; Toosarvandani 2008; Karimi 2008; Megerdoomian & Ganjavi 2000)

In addition to the occurrence of foci and wh-items in the IPrP, some verb-final languages allow for more flexibility with respect to focus placement. Specifically, in such languages focus can also be placed in the immediately postverbal position (henceforth IPoP), or in the absolute clause-final slot. It is also worth noting that such alternative positioning applies only to non-wh focal items – i.e., wh-phrases in all verb-final languages typically resist postverbal placement.3 Crucially for the discussion here and the analysis of Georgian developed in this thesis, the IPrP and IPoP are used as purely descriptive labels that refer to linear order; as shown in Section 3, their syntactic status can vary between languages, and even within a single language.

---

3 This generalization does not apply to wh-phrases in wh-questions with an ‘echo’ interpretation (Sobin 2010), which can appear postverbally in verb-final languages. In what follows, only true, non-‘echo’ wh-questions are considered, unless otherwise noted.
The languages that allow for foci to appear in the IPoP, in addition to Georgian, include Sinhala, Basque, Udmurt, Estonian, Hittite, and earlier stages of German. In Sinhala, the constituent that carries narrow focus can appear either immediately preverbally or postverbally (Slade 2011). In Basque, focal constituents typically occur immediately preverbally (Elordieta 2001; Arregi 2002; Irurtzun 2008, a.o.), though contrastively focused ones can also appear in the postverbal position. Furthermore, there is a strong preference for the postverbal focal constituent to be the only one in the postverbal area – i.e., simultaneously both immediately postverbal and absolutely clause-final (Hualde, Elordieta & Elordieta 1994: 169–170; Ortiz de Urbina 2002); as we will see, this is also the case in Georgian.

Some less strictly verb-final languages, which frequently allow multiple postverbal constituents, such as Udmurt, Estonian, and South Sámi, allow for postverbal focus to appear either immediately postverbally or clause-finally, separated from the verb by non-focal material (Schmidt 2017). Textual evidence suggests that in Hittite a cluster of elements, consisting of negative/indefinite and relative pronouns and wh-phrases, was required to appear either in the IPrP or IPoP, or in the second position of the clause. Foci, notably, had a different distribution – they occurred in the IPrP/IPoP only in the absence of these other elements, and otherwise could be separated from the verb by them (Goedegebuure 2009; Sideltsev 2014; 2016; 2017). Further, earlier stages of German allowed for postverbal focus placement in a Basque/Georgian fashion, with new information foci typically occurring post-verbally in Old High German (Fuß 2018; Hinterhölzl & Petrova 2018) and Early New High German (Bies 1996).

As stated above, there is a strong link between verb-finality and material with special information-structural properties appearing in the IPrP. There is one notable exception to this tendency. Hungarian, a language that underwent a change from OV to VO (É. Kiss 2014a; 2014b), retained the special status of the IPrP, typical of verb-final languages, and is one of the best studied languages with two focal positions. In Hungarian, contrastive and exhaustive foci appear in the IPrP, while new information foci surface in their base positions, so that constituents that are generated postverbally can also be focused postverbally (Horvath 1986; Bródy 1995; 1990; É. Kiss 1998; Szendrői 2001; 2003; Cable 2008). Similarly, Schmidt
(2017) reports that North Sámi, another VO language of the Finno-Ugric family, allows for preverbal placement of contrastively focused elements.

The distributional properties of focal and wh-elements in verb-final languages outlined above, as well the profile of elements that target the IPrP and IPoP in such languages, reveal a dazzling variety of factors governing the distribution of foci and wh-phrases. A core generalization nonetheless emerges: in verb-final languages, constituents with particular information-structural properties, pertaining to focus, target the IPrP, and a subset of such constituents (typically excluding wh-phrases) may also appear in the IPoP or verb-finally.

3. Existing theoretical approaches to preverbal and postverbal foci

There are multiple theoretical approaches accounting for the syntactic, semantic, and prosodic properties of the IPrP and IPoP, both within and across theoretical frameworks. While descriptively it is easiest to refer to IPrP and/or IPoP focal placement relative to the verb, adjacency with the verb has not necessarily been seen as the underlying reason for the surface position in some of the theoretical approaches. There are two main types of analyses that apply to deriving adjacency between the verb and an element in IPrP/IPoP: (i) deriving focus-verb adjacency via a Spec-Head configuration and (ii) deriving focus-verb adjacency in situ via displacement of other material. Note also that the two are not mutually exclusive: for instance, both types of analyses have been proposed for Basque, by Ortiz de Urbina (1989; 1994; 1995) and Arregi (2002), respectively. Furthermore, both approaches are used in Elordieta’s (2001) account of Basque focus, but for different syntactic constructions. The Basque facts are discussed in more detail after the two approaches are introduced below.

According to the first one of the two analytical approaches, deriving focus-verb adjacency via a Spec-Head configuration, adjacency between immediately preverbal focus and the verb is not coincidental.

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4 The term ‘displacement’ is used as an umbrella term here and includes both proper syntactic movement to the left and right peripheries and base-generation of material in the peripheral positions.
Specifically, the focal/wh-element undergoes (A-bar) movement to a specifier position of a particular projection, typically FocP, that can be located in the CP or TP area of the clausal spine or just above vP, and the verb undergoes movement to the head of the same projection, thereby creating adjacency. The examples of such configurations, at different heights in the clausal spine, include the following:

**CP-layer IPrP**: In Kashmiri, a V2 language, focal/wh-items can only appear in the IPrP of the finite verb, which, according to the canonical analysis of V2, means that focal/wh-items in Kashmiri move to Spec, CP, while the verb is attracted by C° (Bhatt 1999: 85), as shown in (3). A similar analysis has been proposed for Ossetic (Lyutikova & Tatevosov 2009).

(3)
```
   CP
  /   \
Focus--CP
   |
  Verb--...
```

**TP-layer IPrP**: Persian IPrP, based on Karimi’s (2008) and Toosarvandani’s (2008) analysis, is located between the CP and TP projections, and similarly attracts the focal/wh-constituent to its specifier and the verb to its head position, as shown in (4):

(4)
```
   CP
  /   \
  ...--FocP
     /   \  
Focus--FocP
     |
  Verb--...
```

**vP-layer IPrP**: In Malayalam, according to Jayaseelan (2001), the IPrP is the lowest among the examples provided so far, and is housed in the projection just above the vP, as shown in (5):
Chapter 5 shows that a Spec-Head analysis best accounts for some of the Georgian IPrP facts – namely, the syntax behind wh-questions (and narrow focus contexts in clauses with a non-inflecting modal). The main advantage of these Spec-Head approaches is that the adjacency between the preverbal focus/wh-constituent and the verb is clearly accounted for: nothing can intervene between the specifier and the head. On the other hand, accounting for languages that allow for both IPrP and IPoP focus placement is not straightforward under Spec-Head approaches without additional assumptions. In particular, deriving both preverbal and postverbal foci via a Spec-Head configuration would need to rely on the particular projection being able to have a left-hand and a right-hand specifier, corresponding to preverbal and postverbal focus placement, respectively. Independent evidence for such a structural solution would be difficult to find.

As the discussion above shows, analytical variability with respect to the height of the IPrP and the verb on the clausal spine in verb-final languages is substantial. The analyses above suggest that there is no single syntactic projection that the IPrP and the verb are part of: instead, the same configuration can be obtained at different heights in the clausal spine. While these suggested hierarchies crucially rely on assumptions about the availability and function of a given projection, some comparative evidence suggests that the differences in the syntactic behavior of preverbal foci in different languages cannot be reduced to differences in analytical approaches. For instance, some head-final languages with the requirement for wh-phrases/narrow foci to appear in the IPrP, such as Basque (Hualde, Elordieta & Elordieta 1994: 167), Kashmiri (Bhatt 1999: 60) and Malayalam (Jayaseelan 1996: 65), only allow for a single element to precede the wh-expression. In contrast, no such restriction is found in Ossetic (Borise & Erschler, in prep). In light

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5 Unless multiple specifiers are allowed, but this option is not commonly evoked in discussions about pre-/postverbal focus in the context of a Spec-Head configuration.
of such variability in the syntactic behavior of preverbal narrow foci/wh-phrases, it is natural to ask why the same IPrP+verb combination is repeatedly chosen by languages as an optimal one for expressing focus, even though it does not utilize one and the same dedicated syntactic projection. One possible answer, based on hypotheses expressed in Haider (2010; 2013) and Neeleman (2015), is that verb-final languages simply do not have a predetermined order of functional/left peripheral projections above the vP/VP, which is why conflicting cross-linguistic evidence leads to the IPrP+verb complex being placed at different heights in different verb-final languages; cf. Schmidt & Fanselow (2018).

An alternative to the Spec-Head mechanism is to derive verb-focus adjacency in situ via displacement of the material that would otherwise intervene between the focal/wh-constituent and the verb (the in-situ interpretation approaches). According to these approaches, the adjacency between focus and the verb is a by-product of displacement of the material that would intervene between the focus and the verb to the right or left periphery of the clause. The reasons for such displacement vary. In particular, it may be driven by the information-structural status of the intervening constituents (usually topical and/or given), in which case the resulting adjacency of the narrowly focused constituent/wh-phrase and the verb is truly a by-product of an independent process (cf. Şener 2010 for Turkish). Alternatively, displacement may be driven by the explicit need for the narrowly focused constituent/wh-phrase to surface in the preverbal position, in order to carry Nuclear Stress, which is assigned to that position (cf. Arregi 2002 for Basque; Cheng & Downing 2012 for Zulu).

Regardless of the motivation for displacement, as a result of it, the verb and the focused constituent are the only elements that remain in situ, and, hence, are adjacent to each other, with the focal/wh-item occupying the IPrP by virtue of the fact that the verb is the rightmost element in a verb-final clause. Such an analysis has been advanced, for example, for Hindi (Mahajan 1990; Dayal 1996, a.o.) and Turkish (Şener 2010). The main advantage of such an approach is that it capitalizes on the dichotomy between focal/new information material and other material in the clause that can be described as topical, given, familiar and/or discourse-anaphoric (cf. Vallduví’s (1993) notion of tail, Frascarelli & Hinterhölzl’s (2007) familiarity
topics, Şener’s (2010) discourse anaphoric elements, etc.), given that the interpretational and prosodic differences between the two types of material are well-established (cf. Lambrecht 1994, a.o.). Furthermore, a subset of the in-situ approaches refers to the prosodic prominence that the focal constituent receives as a desired outcome of the in-situ analysis, according to which the focal constituent, as the most deeply-embedded one, receives nuclear stress-like prosodic prominence (Chomsky & Halle 1968; Cinque 1993, a.o.). In some approaches, this requirement for prosodic prominence is taken to be the underlying cause for the focal constituent staying in situ; cf., e.g., Arregi (2002) for Basque.

In Chapter 6, I show that (preverbal) narrow foci in Georgian (in simple clauses, nominalizations, and participial small clauses) remain in situ, while would-be interveners evacuate to the left or right periphery. In Chapter 7, I provide evidence that preverbal narrow foci are associated with prosodic prominence, manifested by prosodic grouping with the verb, and in Chapter 8 I discuss some conceptual reasons for not treating the requirement for prosodic prominence of the narrowly focused constituent as driving the syntactic processes that ensure linear adjacency.

The two approaches to achieve adjacency between the narrowly focused constituent/wh-phrase and the verb, which will be referred to as Spec-Head and in-situ ones, respectively, have the same weakness; while it is more often brought up in the context of the Spec-Head approaches, it applies to both of them. Namely, both approaches allow for syntactic movement motivated by discourse/information structural reasons, though under the two approaches such syntactic movement applies to different elements. Under the Spec-Head approach, as detailed above, the focused element undergoes discourse-motivated movement. But it is worth emphasizing that a similar movement is adopted under the in-situ approach: here, the intervening elements undergo displacement (which may be done via movement syntactic movement) that is also motivated by their information structural (topic/discourse anaphoric) properties. Whether syntactic movement is sensitive to information-structural properties of constituents is not a settled question. Going forward, I adopt the view that narrow syntax is blind to them, in line with the predictions of the Y-model of grammar, according to which narrow syntax does not have access to information-structural/prosodic
properties of constituents (Chomsky & Lasnik 1977), as well as specific analyses of the interaction between syntax and information structure (e.g. Fanselow 2008). Consequently, since this weakness applies to both approaches, it does not help us adjudicate between them, and will be set aside here.6

In addition to the IPrP receiving different analytical treatment in different languages, for some languages, such as Basque or Hungarian, more than one analysis has been advanced. For example, with respect to Basque, earlier work suggested that the IPrP+verb configuration is syntactically defined: according to Ortiz de Urbina (1989; 1994; 1995), focal items in Basque move to Spec, CP, and adjacency with the verb is achieved by movement of the verb to C0. Arregi (2002), in contrast, argues that the IPrP in Basque is not a syntactically defined position and instead accounts for IPrP placement of narrow foci/wh-phrases in terms of the requirement for such constituents to be prosodically prominent, that is, aligned with Nuclear Stress. Building on the work by Cinque (1993), Zubizarreta (1998) and Reinhart (1995), he provides an account of Nuclear Stress placement in Basque, showing that the constituent that carries Nuclear Stress has to be immediately preverbal, which is the driving force behind preverbal placement of focal items. A mixed analysis of Basque focus facts, deriving verb-final focus configurations from prosodic requirements and non-verb final ones via syntactic movement, is offered in Elordieta (2001). The analysis developed for Georgian in this dissertation is analytically closest to the latter, though, as Chapter 5 and Chapter 6 show, Georgian facts differ from the Basque ones in a number of ways.

Similarly, there are two approaches to accounting for the preverbal placement of focus in Hungarian. Both rely on the Spec-Head configuration to derive adjacency between preverbal focus and the verb but propose different motivations for the movement of the focused constituent and the verb to the dedicated projection. According to a purely syntactic view (Bródy 1990; 1995; É. Kiss 1998 et seq.), there is a special focus projection in the left periphery of the clause in Hungarian, FP, the specifier of which, Spec, FP, hosts focus items. Movement of focus items to Spec, FP is motivated by a syntactic [+Focus] feature and

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6 An alternative view that does not run into this problem would be to allow for optionality of syntactic movement, and only partial correlation of it with information-structural considerations.
accompanied by movement of the verb to the head F0 of the FP projection, which account for focus-verb adjacency. An alternative, prosodic account of the Hungarian focus facts derives focus-verb adjacency from the requirement on the focus constituent to bear sentential stress, which is assigned to the specifier position of FP (Szendrői 2001; 2003).

In this dissertation, I show that in Georgian, both the Spec-Head and the in-situ mechanisms are at work and are responsible for the derivation of different subtypes of IPrP (and IPoP) constructions. Specifically, I show that foci (and neg-words) in simple clauses and in utterances with embedded small clauses and nominalizations are interpreted in situ, while wh-constituents in all clause types undergo movement that leads to a Spec-Head configuration with an attracted verb. Finally, in clauses with the modal *unda* ‘have to, must’, both foci and wh-phrases undergo short movement and form a Spec-Head configuration with the modal. Therefore, even though on the surface all these elements reside in the IPrP, I show that they do not, in fact, reside in the same syntactic position.

4. Structure of the dissertation
Since information structural phenomena, such as focus, have distinct syntactic and prosodic properties, both are considered here. In particular, as was discussed above, I show that preverbal narrow foci and wh-phrases rely on different syntactic mechanisms in order to achieve adjacency with the verb: a Spec-Head configuration and in-situ interpretation, respectively. Postverbal foci in Georgian, in turn, are derived via right-adjunction. Furthermore, I show that, despite the syntactic differences, preverbal narrow foci and wh-phrases have similar prosodic realizations: both form a prosodic phrase with the verb, to the exclusion of other material, which is manifested by an F0 contour spanning the two constituents. I propose that this syntactic and prosodic evidence, taken together, strongly suggests that the adjacency between narrowly focused constituents/wh-phrases and the verb cannot be reduced to a by-product of other, independent processes. Finally, I also show that the presence of this F0 contour is more consistently correlated with narrow focus contexts/wh-questions than other acoustic means – such as, for instance, the prominence of the stressed syllable in the narrowly focused constituent/wh-phrase.
The dissertation is structured in the following way. Chapter 2 outlines the general prosodic properties of Georgian and provides instrumental evidence in favor of the existence of word stress in Georgian, a topic much debated in the literature. Chapter 3 offers an overview of basic Georgian syntax, highlighting its morphological properties, headedness, relative order of major constituents (both descriptive and structural, including the derivation of OV and VO), and the position of the verb in the clause. Chapter 4 introduces the two types of constituents that will later serve as tools in the analysis of focus in Georgian: non-focal constituents and neg-words. Chapter 5 investigates the distributional and syntactic properties of wh-phrases. Chapter 6 addresses the same properties of both preverbal and postverbal foci. Chapter 7 reports on two experiments aimed at investigating the prosodic properties of narrow foci and wh-phrases, respectively. Finally, Chapter 8 summarizes the findings of the dissertation.

The syntactic, phonetic and prosodic data used in the dissertation, unless otherwise noted, was collected during two fieldwork trips to Tbilisi, Georgia, in the summer 2016 and September 2018, as well as during consultant work with native speakers of Georgian residing in the US in 2015-2019. The syntactic data was gathered using traditional elicitation techniques, with the appropriate context for the examples of interest introduced either verbally or by using picture prompts. The collection of phonetic and prosodic data was done in an experimental setting, with the experimental design described in Chapter 2 and Chapter 7.
Chapter 2. Disentangling word stress and phrasal prosody

The concluding section of the previous chapter brought to light the dual nature of information-structural phenomena such as narrow foci: they exist both in the (morpho)syntactic and in the prosodic dimensions. In other words, in a given language, narrow foci may be marked (morpho)syntactically, prosodically, or in both ways. When it comes to the prosodic expression of focus, it has been suggested in the literature that there is a connection between the prosodic expression of narrow focus and word stress. In particular, recall that some accounts of preverbal focus placement in verb-final languages explicitly appeal to the location of Nuclear Stress. In particular, Chomsky and Halle’s (1968) original formulation of the Nuclear Stress Rule as targeting the rightmost primary stressed vowel in an utterance was revised by Cinque (1993) as targeting the most deeply embedded constituent. Cinque’s formulation, in turn, is used in proposals built on the hypothesis that the structural position of narrow focus aligns with the locus of Nuclear Stress, which lends prosodic prominence to the narrowly focused constituent. This line of reasoning is used by Arregi (2002) for Basque and Szendrői (2001; 2003) for Hungarian, among others, in order to account for preverbal placement of foci in these languages, since preverbal placement of a constituent corresponds to the most embedded position in the clause (structural sisterhood with the verb). Furthermore, in line with these theoretical approaches, there is phonetic evidence suggesting that the acoustic prominence of the stressed syllable is more articulated under narrow focus conditions (Xu & Xu 2005; Baumann et al. 2007; Hanssen, Peters & Gussenhoven 2008; Braun & Ladd 2003). With this in mind, the current chapter is dedicated to determining whether there is evidence for the existence of word stress in Georgian. Then, the experimental
results from the current chapter are further built on in Chapter 7, which addresses the acoustic manifestation of word stress in narrow focus conditions.

The complexity of facts related to word stress, phrasal intonation and their interplay in Georgian is manifest in the numerous debates in the literature. This chapter addresses the various views on these questions that have been put forward and provides novel instrumental evidence for disentangling word stress and phrasal intonation in Georgian. The results reported here provide evidence in favor of fixed initial stress, as well as the presence of phrasal intonational pitch targets on penultimate and final syllables. These findings also highlight the fact that, despite there being acoustic evidence in favor of its existence, stress does not play any significant role in the overall grammatical makeup of Georgian.

This chapter is structured as follows. First, Section 1 presents existing research on word stress in Georgian, drawing on the scholarly literature both written in the native Georgian philological tradition and authored by non-native linguists. The existing analyses are subdivided into three categories here, depending on the analytical approach they take: word stress approaches (Section 1.1), phrasal stress approaches (Section 1.2), and mixed approaches (Section 1.3). Next, Section 1.4 discusses the existing instrumental research into Georgian stress. Finally, Section 1.5 provides stress facts from the smaller Kartvelian languages (Svan, Mingrelian and Laz) as context for the Georgian facts; due to scarcity of instrumental investigations, these are mainly based on impressionistic accounts. After the background facts are established in Section 1, Section 2 reports on a novel instrumental study aimed at investigating word-level stress in Georgian. The results presented here provide evidence in favor of fixed initial stress in the language. Furthermore, the results of the current study also show that the penultimate syllable in Georgian hosts an intonational pitch target.

This latter result aligns with a fact of Georgian intonational phonology that has already received some attention in the literature. Specifically, it has been noted before that the penultimate syllable of verbs found in narrow focus contexts and questions carries a low pitch target, which has been identified in the literature as a low phrase accent (Bush 1999; Vicenik & Jun 2014; Borise 2017, a.o.). The two low pitch targets – the
one discovered in the current study, on the penultimate syllable of nouns in broad focus conditions, and the low phrase accent noted before, on the penultimate syllable of verbs in narrow focus contexts and questions – may constitute the two subtypes of the same phenomenon. Section 3, therefore, is dedicated to summarizing the known distributional and analytical properties of the low phrase accent, which support its status of a phrase-level (as opposed to word-level) pitch target. I suggest that the generalizations concerning the low phrase accent may be extended to the low pitch target on the penult that was noted in the current study, thereby also supporting its phrase-level status, and setting it apart from word stress.

Before proceeding to the properties of low phrase accent in Georgian, Section 3 provides the theoretical background required for analyzing the intonational phonology of Georgian, as well as the main conclusions of the research on the topic. The motivation for that is twofold. First, the properties of phrasal prosody discussed here provide context for the instrumental investigation of word stress reported earlier on in this chapter and allow the reader to recognize the phrasal properties of word prosody in Georgian. Second, the general properties of phrasal prosody will become relevant again in the discussion of prosody of focus in Chapter 7. Section 3 is structured in the following way. First, Section 3.1 covers some basics of Autosegmental-Metrical (AM) theory, which the existing prosodic analyses of Georgian are couched in. Next, general facts about the prosodic system of Georgian are discussed in Section 3.2.

Finally, Section 3.3 addresses the nature of the low pitch target that is found on the penultimate syllables of verbs in narrow focus contexts and questions. Drawn from numerous existing studies, the facts discussed in Section 3.3 show that this pitch target is phrasal, and not related to word stress. Based on these findings, I suggest that the low pitch target found on the penultimate syllable in the examples in the current study is also phrasal in nature.
1. Word stress facts in Georgian

There is no agreement as to the existence or location of stress in Georgian, even though the suprasegmental properties of the language have received a considerable amount of attention in the literature, including both instrumental observations and those based on introspection by native speakers; see, e.g., Zhghenti (1965) for an overview of earlier work and Gamqrelidze et al. (2006) the prosodic properties of Georgian dialects. In the existing literature, initial, antepenultimate or penultimate syllables are most often quoted as possible stress loci, with potentially more than one of these carrying stress in longer words.

Native speakers of Georgian have no consistent intuitions about stress placement, other than that stress never targets the final syllable of a word. There are no minimal pairs based on stress and no regular variation in stress placement in declensional or conjugational paradigms. Authors who advocate for the existence of word stress in Georgian acknowledge its acoustic weakness and often remark on the uncertainty of their observations (Robins & Waterson 1952; Zhghenti 1959; Tevdoradze 1978).

An overall conclusion that can be made from the literature is that stress targets the initial syllable in di- and trisyllabic words, while in longer words there is another stress-like target on the antepenultimate or penultimate syllable. In such longer words either the initial syllable and/or the (ante)penult have been variably analyzed as carrying (primary) stress, with the other locus possibly carrying secondary stress (Robins & Waterson 1952; Tevdoradze 1978; Dirr 1904; Janashvili 1906; Gorgadze 1912; Marr 1925; Rudenko 1940; Akhvlediani 1949; Tschenkeli 1958; Gudava 1969; Aronson 1990; Hewitt 1995).

This uncertainty has led some authors to suggest that the domain of stress assignment in Georgian is larger than a lexical word, and may be characterized as a “syntactic group” (Gorgadze 1912), “accentual complex” (Marr 1925) or “rhythmic group” (Zhghenti 1953). It has also been suggested that “stress” found in such larger domains represents one of the pitch targets that constitute the prosodic make-up of a

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7 Parts of this section have been previously published in Borise & Zientarski (2018) and Borise (to appear).
phrase/utterance and should not be thought of as true word stress (Zhghenti 1959; Tschenkeli 1958; Zhghenti 1963; Chikobava 1942).

There also are mixed accounts, which suggest that word-level stress and pitch targets attributable to phrasal prosody co-exist in Georgian (Chikobava 1942; Jun, Vicenik & Lofstedt 2007; Vicenik & Jun 2014). Specifically, Jun et al. (2007) and Vicenik & Jun (2014) suggest that word-level stress is fixed on the initial syllable, while the antepenult and penult are loci of intonational pitch targets in Georgian.

Therefore, the existing accounts of Georgian suprasegmental properties fall into three main categories: (i) those that advocate for word stress, (ii) those that advocate for phrasal stress (i.e., for Georgian being a so-called phrasal prominence language – a language that primarily relies on phrasal as opposed to word-level prosody), and (iii) those that suggest that Georgian has both. They are discussed in detail in the remainder of this section.

1.1 Word stress approaches

Accounts advocating for the existence of word stress in Georgian vary according to whether they take main stress to target the initial, antepenultimate, or penultimate syllable. Some of the accounts allow for variation between these stress loci and/or appearance of secondary stress on one of them.

According to Tschenkeli (1958: LX), Georgian stress targets the initial syllable in di- and trisyllabic words, and is harder to locate in longer words, though there, too, it is often initial. Tevdoradze (1978: 40) also describes Georgian as having fixed initial stress, but notes that secondary stress may occur in longer words. Specifically, in words of four syllables, secondary stress targets the penult, in five syllable long ones – the antepenult, in six syllable long ones – the antepenult or the fourth syllable from the end.

Antepenultimate stress placement is advocated, among others, by Ioselian (1840: 145), Gorgadze (1912: 3), Akhvlediani (1949: 135) and Gudava (1969: 106). Gorgadze notes that in longer words/phrases, the first syllable receives secondary stress; exceptionally, if the antepenultimate syllable consists of a vowel
only, stress targets the fourth syllable from the end: sâidumlo ‘mystery’, miîrbin ‘(he) came running’ (Gorgadze 1912:3).

Avanesov (1956: 69) in his overview of stress systems lists Georgian as having penultimate stress. Similarly, Zhghenti (1958: 262) describes the Xevsuri and Moxeuri dialects of Georgian as having penultimate stress. At the same time, because he discusses, among other phenomena, penultimate stress placement before a question particle -a (q’ačaghâd-a? ‘bandit-Q’?, vin-a? ‘who-Q?’), it is unclear if the phenomenon at hand should be analyzed as word stress or as part of a phrasal prosodic pattern that is characteristic of questions.

In numerous accounts, Georgian stress placement is described as dependent on syllable count. According to Marr (1925: 13), Rudenko (1940: 24), and Vogt (1971:15) stress is initial in disyllables, and antepenultimate or penultimate in longer words. In words over four syllables long, a secondary stress on the initial syllable is possible; both are obligatory in words over six syllables long. Dirr (1904: 3), Janašvili (1906: 5) and Akhvlediani (1949: 132) identify stress on the first syllable in disyllables and trisyllables and on the antepenult in longer words; Dirr also notes that these rules apply regardless of the morphological makeup of a word. A similar approach is taken in recent work by Skopeteas & Féry (2016), who take disyllabic words to carry stress on the first syllable, and words of four syllables or longer to carry primary stress on the antepenult and secondary stress on the initial syllable. According to Aronson (1990: 18), in words of four syllables or fewer, stress falls on the antepenult or the initial syllable, while in longer words both the initial syllable and the antepenult are stressed. Finally, according to Hewitt (1995: 28), in trisyllabic words the initial syllable takes the stress; in longer words, stress is either antepenultimate or initial.

Before proceeding, it should also be noted that at least some of the sources advocating for word stress based on impressionistic observations are written by non-native speaker authors. Some caution is required when using these sources, since it might be the case that they presuppose the existence of word stress in Georgian, especially if their background is in languages that have strong word stress, such as German, Russian or English, and link it to the acoustic cues that mark stress in their native languages.
1.2 Phrasal prominence approaches

The uncertainty that surrounds the accounts of Georgian word stress might suggest that there is no such phenomenon in Georgian. Instead, the prominence found on some syllables might be attributable to phrasal prosody, as has been suggested for French (Vaissière 1983; Féry 2001). Some evidence supporting this view comes from traditional Georgian poetry, which is based on syllable count and not alternation of stressed and unstressed syllables (Gachechiladze 1968).

The same view - that the domain of stress assignment in Georgian is a phrase and not a word – has also been expressed in the literature, and goes back to Gorgadze’s (1912: 13) ‘syntactic groups’ and Marr’s (1925: 14) ‘accentual complexes’ as domains of stress, as was already mentioned in the introduction to the current section. Chikobava (1942: 302) further points out that in contemporary Georgian, word stress is considerably weaker than phrasal stress. According to Zhghenti (1953: 162; 1963: 144), too, stress in Georgian is a property of a ‘rhythmic group’ and not individual words, and individual words lose their stress when they become part of an intonational phrase, as in French (Vaissière 1983; Féry 2001) or Ossetic (Abaev 1924; 1939: 96; Bagaev 1965: 62; Isaev 1959: 65; Testen 1997: 728). A similar view is expressed in Tschenkeli (1958: LXI).

Furthermore, Zhghenti (1959) shows instrumentally that sentential prosody in Georgian closely resembles that of polysyllabic words uttered in isolation. Specifically, he notes that the antepenultimate syllable is the locus of higher tone in both; however, in the examples of sentential prosody that he provides, he leaves unexplained the tonal movements on individual words, apart from the pitch peak on the antepenultimate syllable of the utterance. Zhghenti (1963: 144) further suggests that the difficulty of identifying word-stress in Georgian stems from the fact that the phrasal nature of Georgian stress is not recognized; in other words, according to him, the nature of Georgian stress can only be accounted for if it is taken to be a property of prosodic phrases and not individual words.
1.3 Mixed approaches

Jun et al. (2007) and Vicenik & Jun (2014: 156) report on a preliminary production study that found that the initial syllable in Georgian is characterized by higher intensity and longer duration, regardless of syllable count. They also report a high-low tonal contour that spans the antepenult and penult, which they take to be a manifestation of phrase accent. Based on these results, they suggest that word stress in Georgian is fixed on the initial syllable, while the antepenult and penult are loci of intonational pitch targets. Borise & Zientarski (2018) arrive at the same conclusion, based on a larger dataset but only one speaker. Finally, the experimental study reported in the Section 2 of the current chapter, which involves more speakers and word tokens than the preceding ones that are reported in the literature, provides strong evidence in favor of fixed initial stress, as well as the presence of phrasal pitch targets on the penultimate and final syllables. An important theoretical question that all these proposals raise is where the line between word and phrasal prosodic prominence lies, and whether making such a distinction is meaningful in a language like Georgian (or Ossetic or French).

1.4 Existing instrumental investigations

Instrumental studies of Georgian suprasegmental properties are numerous, ranging from those targeting word stress to those investigating phrasal prosody, but since the two can be hard to tease apart, many studies address both. It should be emphasized, however, that despite there being a number of instrumental investigations into word stress and phrasal intonation in Georgian, the conclusions that have been reached vary, much in the same way impressionistic reports do.

To start with one of the earliest studies, Selmer (1935) reports on an instrumental investigation of stress in Georgian, based on recordings of one Georgian speaker pronouncing 27 Georgian words, some iterated twice, with the total stimuli count of 36. Most of the stimuli (20) are disyllabic, but also include 6 trisyllabic words and 1 consisting of four syllables. Measurements of F0 (pitch) curves and vowel duration are reported. Selmer (1935) notes that the initial syllable invariably carries an F0 peak, but, with the average rise being 2.64 St (semitones), this tonal movement is hardly significant. He also notes that the placement
of the F0 peak in the syllable varies, ranging between the center of the vowel and the onset of the coda consonant(s), if present. Selmer’s duration measurements show the following: in disyllabic words, the two syllables are almost equal in duration, while in trisyllabic words the second syllable is the shortest, with the initial syllable and the ultima being comparable in duration.

Overall, he cautiously interprets his results as consistent with Vogt’s initial assessment, later published as Vogt (1936; 1971), according to which di- and trisyllabic words are stressed on the initial syllable, but, notably, Selmer himself refrains from making conclusions about stress placement, discussing only the distribution of F0 peaks and rhythmic patterns. It is worth noting that Selmer’s duration results contrast with those reported in Section 2.2 in this chapter, according to which the initial syllable has notably greater duration than all subsequent ones, regardless of syllable count. This is likely to be caused by the fact that Selmer’s stimuli were not embedded in carrier phrases, and, as such, were subject to phrase-final lengthening.

Next, according to Zhghenti’s (1953; 1959) results that come from a production experiment, all syllables in Georgian words other than the final two are high in prominence (i.e., pitch and intensity), and the final two syllables (or the final one in disyllables) are less prominent. These results are based on the analysis of pitch-tracks of individual words two to six syllables long. The total number of stimuli or speakers is not reported, but a number of pitch tracks of individual stimuli are discussed: disyllabic (n=6), trisyllabic (n=6), and consisting of four (n=7), five (n=4) and six (n=2) syllables. Zhghenti’s (1953; 1959) results are summarized in Table 1 below:
Table 1. Stress placement in Georgian according to syllable (σ) count (Zhghenti 1953, 1959)

<table>
<thead>
<tr>
<th>σ count</th>
<th>Stressed σ</th>
<th>Prosodic make-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>2σ</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; σ accompanied by high pitch and intensity; pitch drops on the 2&lt;sup&gt;nd&lt;/sup&gt; σ.</td>
</tr>
<tr>
<td>3σ</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; σ accompanied by high pitch and intensity; pitch drops on the last two σ’s, intensity drops on the last syllable.</td>
</tr>
<tr>
<td>4σ</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; &amp; 2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; &amp; 2&lt;sup&gt;nd&lt;/sup&gt; σ’s accompanied by high pitch and intensity; pitch drops on the last two σ’s, intensity drops on the last syllable.</td>
</tr>
<tr>
<td>5σ</td>
<td>unclear</td>
<td>First three syllables accompanied by high pitch and intensity; pitch drops on the last two σ’s.</td>
</tr>
<tr>
<td>6σ</td>
<td>unclear</td>
<td>First four syllables accompanied by high pitch and intensity; pitch drops on the last two σ’s.</td>
</tr>
</tbody>
</table>

Robins & Waterson (1952: 58) come to a different conclusion about Georgian stress placement, based on data collected from one speaker (number of stimuli not reported). According to their results, word stress in Georgian is characterized by a certain rhythmic pattern, with alternating non-adjacent syllables carrying stress (Table 2).

Table 2. Stress placement in Georgian according to syllable count (Robins & Waterson 1952)

<table>
<thead>
<tr>
<th>σ count</th>
<th>Stressed σ</th>
</tr>
</thead>
<tbody>
<tr>
<td>2σ</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
</tr>
<tr>
<td>3σ</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; or 2&lt;sup&gt;nd&lt;/sup&gt;</td>
</tr>
<tr>
<td>4σ</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt; or (1&lt;sup&gt;st&lt;/sup&gt; &amp; 3&lt;sup&gt;rd&lt;/sup&gt;)</td>
</tr>
<tr>
<td>5σ</td>
<td>(1&lt;sup&gt;st&lt;/sup&gt; &amp; 3&lt;sup&gt;rd&lt;/sup&gt;) or (2&lt;sup&gt;nd&lt;/sup&gt; &amp; 4&lt;sup&gt;th&lt;/sup&gt;)</td>
</tr>
<tr>
<td>σ +</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; &amp; antepenult</td>
</tr>
</tbody>
</table>

Other studies, such as Alkhazishvili (1959), concentrate on the phrasal nature of Georgian stress more explicitly and suggest that its placement varies with utterance type. This, crucially, suggests that the ‘stress’ in question is phrasal and not word-level in nature, since word stress placement typically does not depend on contextual factors such as utterance type. To illustrate, variation of the sort récord vs. recórd in English does not result from the same word being embedded in different syntactic frames. In his investigation of

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8 There are certain instances where context, especially surrounding prosodic structure, can influence pitch accent distribution between syllables that carry a degree of stress. Specifically, in English, words carrying secondary stress on a syllable closer to the left edge of the word than primary stress, the syllable with secondary stress can carry a pitch accent if (i) the word is found at the left edge of an intonational phrase or (ii) the word is the only accented word in an utterance (Pierrehumbert & Talkin 1992; Shattuck-Hufnagel, Ostendorf & Ross 1994) – i.e. thirteen instead of thirteeen. Note, however, that even in these cases the distribution of pitch accents is restricted to syllables carrying a degree of stress – i.e., the surrounding context determines pitch accent placement only between syllables already specified for a degree of stress.
the prosodic characteristics of Georgian, Alkhazishvili (1959) argues for three types of contexts that condition stress placement:

- Type I: broad focus utterances, typically with SOV word order (1);
- Type II: utterances with narrow focus on one of the constituents, with the focused constituent + verb complex being initial in the clause (2);
- Type III: verb-initial thetic utterances (3).

These utterance types, in Alkhazishvili’s analysis, vary with respect to the distribution of “subject” and “predicate” prosodic phrases within them, which can be roughly equated with notions of topic and focus/comment, or a logical subject and a logical predicate. The “predicate”, in Alkhazishvili’s terms, includes the verb and an immediately preverbal focused constituent (if there is one), while the “subject” includes all the other material in a clause. In information structural terms, the “predicate” phrase is the information about the “subject” that the utterance is intended to convey. Furthermore, stress placement within a phrase is determined by its type.

(6) [“Subject” Giorgi-m] [“Predicate” pex-i ar ga-a-ndzr-i-a.]
G-ERG foot-NOM NEG PRV-VER-move-SM-AOR.3SG
‘Giorgi didn’t move’ (Alkhazishvili 1959: 373)

(7) [“Predicate” Omarašvil-ma da-i-xsn-a] [“Subject” gač’irvebi-dan samartal-i]
O-ERG PRV-VER-save-AOR.3SG hardship-from court-NOM
‘Omarashvili himself led the court out of the difficult situation.’ (Alkhazishvili 1959: 380)

(8) [“Subject” Ga-vi-d-nen k’idev dyeni da tveni.]
PRV-go-IPFV.3PL more day.PL and month.PL
‘More days and months went by.’ (Alkhazishvili 1959: 385)

For his investigation, Alkhazishvili recorded 21 utterances: 12 of Type I, 6 of Type II, and 3 of Type III, pronounced by a male and a female speaker. Two phoneticians, one of whom was a native speaker of Georgian, and the other did not speak Georgian, acted as analysts. Their analysis of the pitch properties of the different types of utterances is as follows.
In Type I sentences, each word of the “subject” is typically characterized by rising prosody (or, in some cases, rising-falling: cf. also Skopetbas & Féry (2016) for this variation), while the “predicate” is characterized by a falling pitch contour, with the fall in pitch starting on the penult or antepenult of the final verb. Interestingly, despite the overall low and falling pitch, Georgian speakers perceive the “predicate” as overall more prominent than the “subject” that precedes it in Type I utterances. Type II sentences, in which the “predicate” precedes the “subject”, are characterized by prominent rising-falling pitch on the predicate and falling or levelled low pitch on the “subject”. Notably, there is no pitch reset between the “predicate” and the “subject” – instead, they are part of the same pitch curve, with the F0 curve on the “subject” continuing the trajectory set by the final fall on the “predicate”. Type III sentences are prosodically similar to Type I ones: even though not divided into the “subject” and “predicate”, each phrase within them, apart from the final one, is characterized by a rising F0 contour, with the final one having a falling tone.

With respect to stress placement, Alkhazishvili (1959) reports that in “subject” phrases, which have an overall rising intonational pattern, initial stress is identified by the analysts, and this judgment is supported by instrumental data (it is not specified whether this conclusion is based primarily on F0, duration or intensity values) in approximately 80% of cases. Alkahzishvili (1959: 402) specifically notes that there is no acoustic evidence supporting the idea of antepenultimate stress in prosodic phrases with overall rising intonation – i.e., the “subject” phrases. This conclusion – no evidence for antepenultimate stress – is further supported by the results of the production study provided in Section 2 of the current chapter.

In “predicate” phrases, the picture is more complex. Here, in most cases, the analysts identified stress as initial too, but about 20% of “predicate” phrases were identified as having antepenultimate stress. This does not seem to depend on the syllable count in the final word (typically the verb) in the “predicate”: certain “predicates” with verbs consisting of two and five syllables were identified as carrying antepenultimate stress. Acoustic evidence for this conclusion is scarce, and the small sample size did not allow Alkhazishvili to reach a conclusion on the question of antepenultimate stress placement. The differences in stress perception between native and non-native analysts are not reported either.
Overall, therefore, it is reasonable to conclude, based on the literature, that phrasal intonation in Georgian plays a primary role, with word stress, if present at all, not being nearly as significant for the phonological makeup of the language. Moreover, it might be the case, as Alkhazishvili (1959) suggests, that word stress placement is dependent on utterance type, which, again, raises the question of whether the phenomenon at hand is best thought of as word stress or phrasal stress.

1.5 Word stress facts in other Kartvelian languages

In order to provide a broader perspective for the complex facts of Georgian prosody, this section provides a brief overview of the stress facts of the smaller Kartvelian languages (Mingrelian, Laz, and Svan).

The prosody of smaller Kartvelian languages has not received as much attention as that of Georgian, and many facts are still unclear. Yet, based on the available literature, there are some noticeable trends and similarities among these languages. Specifically, in all of the Kartvelian languages, two main loci for word stress are usually mentioned: the initial syllable and the antepenultimate/penultimate syllable. Furthermore, authors often observe that the penultimate/antepenultimate locus, but not the initial locus, is often accompanied by a change in F0, and possibly constitutes a phrasal intonational pitch target.

In Mingrelian and Laz stress is reportedly weaker than in Georgian and Svan (Amirjebi-Mullen et al. 2006:88). There is also significant interspeaker variation (Gudava 1969: 106). Among Mingrelian dialects, stress is most intensive in the Samurzakano dialect (Amirjebi-Mullen et al. 2006:89). There is agreement in the literature that in disyllabic words in Mingrelian stress is initial. Kluge (1916:3) claimed that in longer words stress is penultimate, and accompanied by high tone; cf. a claim by Chikobava (1942: 302) that there is evidence for a tonal accent on the penultimate syllable in the Pazar and Ahavi dialects of closely related Laz. Kipshidze (1914: 13), on the other hand, argues that Mingrelian words of four syllables or longer have two stresses, primary on the initial syllable and secondary on either the penult (in four syllable long words) or the antepenult (in longer ones). Final vowels in Mingrelian are often lengthened, especially in the Zugdidi dialect (Gudava 1969: 109), which has also been analyzed as final stress (Tsagareli 1880: 7; Kiziria 1967: 65). Chikobava (1942: 302) hypothesizes that Mingrelian used to have tone-based stress at an earlier stage.
Gudava (1969) provides an account of stress in Senaki Mingrelian. According to him, in consonant-final words, stress falls on the penult, while in vowel-final ones - on the antepenult. That is, Senaki Mingrelain exhibits sensitivity to heavy vs. light final syllables which is reminiscent of the Latin stress rule.\(^9\) It is unclear if the Senaki facts are generalizable to other dialects of Mingrelian. A certain set of verbs ending in short vowels, however, have penultimate stress in Senaki Mingrelian; these include perfective future forms, certain aorist forms, and other lexical exceptions. Availability of these exceptional patterns leads to minimal pairs: \(d\text{öyuru} \) “s/he died” (lexical exception), \(doy\text{uru} \) “s/he will die” (regularly accented) (Gudava 1969: 109).

In Laz, stress is penultimate in non-verbs (Marr 1910: 4; Öztürk & Pöchtrager 2011: 18). In verbs, stress is rightmost in the part of the stem up to and including the perfective causative marker; all suffixes following the perfective causative marker are stress-repelling. If there is no perfective causative marker, stress is placed as far right as possible, excluding the stress-repelling affixes:

\[\begin{align*}
\text{(9)} & \quad \text{a. } \tilde{d}\text{ʒe}-m-i-\tilde{f}^h-am-\acute{a}p^h-ur-t^h \\
& \quad \text{PV-1SG-PRT-beat-AUG-CAUS.PRF-TS-PL} \\
& \quad \text{‘I have beaten you (pl.) before’}
\end{align*}\]

\[\begin{align*}
\text{b. } & \quad p^h-\tilde{t}s^h-\acute{a}p^h-x-i-k^h-o-t^h \\
& \quad \text{1SG-build-1SG.PST-COND-TS} \\
& \quad \text{‘If we built it. /Let us build it’} \quad (\text{Öztürk & Pöchtrager 2011:18,43})
\end{align*}\]

In some dialects of Laz, such as Atina (today’s Pazar) and Ahavi (Chikobava 1942: 302), as well as Batumi (Adjarian 1899: 99), there is some evidence for high tone regularly appearing on the penult as well, though it is unclear if the high tone is attributable to word stress or phrasal prosody. Chikobava (1942: 302) hypothesizes that Laz used to have tone-based stress at an earlier stage.

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\(^9\) This system, where a heavy ultima attracts stress closer to the right edge of the word but not to the ultima itself is also reminiscent of the recessive accent in Greek. There, words with a heavy ultima (containing a long vowel) are stressed on the penult, while words with a light ultima are stressed on the antepenult. I thank Kevin Ryan for bringing this to my attention.
Stress in Svan usually targets the final or penultimate syllable. There might be a tendency for stress to stabilize on the penult (Zhghenti 1949: 100), but stress placement interacts with other processes, such as umlaut, vowel length and vowel reduction, some of which are poorly understood, which makes stress facts harder to grasp. There is also considerable dialectal variation (Tuite 1998a: 9).

Long vowels in Svan often carry stress: máre ‘man’ vs. maré ‘but’ (Zhghenti 1949: 97). At the same time, there is no one-to-one correspondence between stress and long vowels, as up to four long vowels per word are possible: kä:di:ya:la:n ‘got undressed’\(^\text{10}\) (Tuite 1998a: 8). A number of suffixes, both nominal and verbal, are pronounced as long and viewed as stressed (Zhghenti 1949: 100), though it is unclear if this lengthening is due to word stress or phrasal intonation: dedber-í:l ‘old woman’, ts’ir-ól ‘hammer’, iqve:zi-é:l ‘slumber’. Some of these suffixes are also marked by noticeable tonal movement, especially in the Lashkhian and Upper Bal dialects (Zhghenti 1949: 101; Zhghenti 1960: 101). Certain particles, such as -i ‘too’ and preverbal negative particles are always stressed (Zhghenti 1960: 99, 103).

Overall, therefore, the prosodic properties of smaller Kartvelian languages, based on the available descriptions, resemble those of Georgian. In all Kartvelian languages, there is a noticeable tendency for targets associated with F0 changes to be found on the penultimate syllable, with the initial syllable also carrying some degree of prominence, likely not F0-based. However, given the brevity of the available descriptions, it is impossible to say if these targets constitute word stress or are parts of the phrasal intonational pattern. It is also hard to tell what acoustic parameter, if any, leads the antepenult to being perceived as carrying stress.

Evidence from the smaller Kartvelian languages is likely to shed light on the prosodic properties of Georgian and the development of the prosodic system in the Kartvelian family overall. Detailed instrumental investigations of the prosodic properties of these languages is of paramount importance for achieving this.

\(^{10}\) Stress placement is not marked in this form in the source.
2. Current instrumental investigation

The range of claims in the literature regarding the nature and placement of word stress in Georgian, made largely based on introspection and impressionistic results, calls for a detailed instrumental investigation. The study reported here is intended to establish the facts about Georgian stress based on instrumental evidence and lay the groundwork for further instrumental research. The current study is based on a controlled dataset. While this is motivated by the need for reliable quantitative data, such an approach has inherent limitations. Specifically, it leaves many more complex questions beyond the scope of the current inquiry, such as, for instance, the role of prosodic phrasing or a type of a prosodic phrase that a word is part of. The hope is that these questions can be taken up in future research.

The current study builds on some previous instrumental work, especially Jun et al. (2007), Vicenik & Jun (2014), Borise (2017) and Borise & Zientarski (2018). The small pilot study mentioned in a footnote in Vicenik & Jun (2014:n. 1) reports greater duration of the first syllable as compared to subsequent ones in words of two to five syllables. Vicenik & Jun take this durational evidence to be a manifestation of word stress, fixed on the initial syllable. The current study corroborates this conclusion, based on a greater number of speakers and range of stimuli than have been used before. Furthermore, it provides solid evidence for the presence of a pitch target on the penultimate syllable, and further evidence that the tonal specification of this target is determined by the information-structural/discourse role of the prosodic word/phrase.

2.1 Stimuli and design

The data for the current study was obtained from seven native speakers of Georgian: two males (M1, M2) and five females (F1-F5)\(^\text{11}\). All speakers are natives of Tbilisi, with the age range 22-35 y.o, mean age 26.8 y.o. Speaker M2 was recorded in Tbilisi, Georgia, speaker F2 in College Park, Maryland, and the other five speakers in Cambridge, Massachusetts. Of the speakers recorded in the US, two have lived there for over

\(^{11}\) One of the speakers whose data is used here, F2, was recorded by Xavier Zientarski and reported on in Borise & Zientarski (2018). I am grateful to my co-author for permission to use these data in this dissertation.
seven years (F1, F2), while another four arrived in the US less than a year before the time of the recording. The data from speakers F2 and M2 was collected using a lavalier microphone and Zoom H2n recorder in a quiet classroom; the other five speakers were recorded in a sound-proof booth. All data was sampled with a sampling rate of 44.100 Hz and 16 bits per sample.

The same set of stimuli was used for all speakers. The stimuli consisted of Georgian words (n=182), 1-6 syllables long, of CV structure (C = nasal, liquid, or voiced stop or fricative; V = any vowel). Both mono- and polymorphemic words were used, given that morphological structure is not mentioned as a relevant factor for stress placement in the existing studies; similarly, according to informal observations by the native speakers, morphological makeup of words does not influence their stress pattern. A representative sample of the stimuli is provided in Table 3.

<table>
<thead>
<tr>
<th>Syllable Count</th>
<th>Sample Stimuli</th>
<th>Total N of Stimuli</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 σ</td>
<td>ra ‘what’</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>bu ‘owl’</td>
<td></td>
</tr>
<tr>
<td>2 σ</td>
<td>mama ‘father’</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>bude ‘nest’</td>
<td></td>
</tr>
<tr>
<td>3 σ</td>
<td>ʒiʒi ‘bird twitter’</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>malamo ‘balm’</td>
<td></td>
</tr>
<tr>
<td>4 σ</td>
<td>bagabugi ‘thumping’</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>monazoni ‘monk’</td>
<td></td>
</tr>
<tr>
<td>5 σ</td>
<td>gagorebuli ‘rolled’</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>ramodenime ‘multiple’</td>
<td></td>
</tr>
<tr>
<td>6 σ</td>
<td>gadanelebuli ‘(water) taken off the heat’</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>gadavadebuli ‘rescheduled’</td>
<td></td>
</tr>
</tbody>
</table>

Total: 182

Additionally, as part of the 182 stimuli, 15 non-words were used, listed in Table 4. In the dataset, they were randomly interspersed with real words, in order to determine whether the real word vs. non-word status of a stimulus has an effect on its prosodic realization. Four types of non-words were used: (i) stimuli with unsuitable inflectional morphology, (ii) stimuli with unsuitable derivational morphology, (iii) stimuli

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12 Non-verbs (nouns, adjectives, and participles) were used in the current study. The conclusions about stress placement that are reached here, therefore, might not apply to verbs in Georgian.
minimally phonologically different from existing Georgian words, and (iv) stimuli listed in the dictionary as existing but rejected by native speakers.

Table 4. Non-words in the dataset

<table>
<thead>
<tr>
<th>Non-words</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>bagażebi</td>
<td>Unattested plural of bagaži ‘luggage’</td>
</tr>
<tr>
<td>lelebi</td>
<td>Unattested plural of dialectal lele ‘stupid’</td>
</tr>
<tr>
<td>namagidari</td>
<td>Unattested derivational form of magida ‘table’</td>
</tr>
<tr>
<td>nabagažari</td>
<td>Unattested derivational form of bagaži ‘luggage’</td>
</tr>
<tr>
<td>nabudari</td>
<td>Unattested derivational form of bude ‘nest’</td>
</tr>
<tr>
<td>naludari</td>
<td>Unattested derivational form of ludi ‘beer’</td>
</tr>
<tr>
<td>regimi</td>
<td>Minimally phonologically different from režimi ‘regime’</td>
</tr>
<tr>
<td>razoma</td>
<td>Minimally phonologically different from ra zoma ‘which size’</td>
</tr>
<tr>
<td>nazaralebi</td>
<td>Minimally phonologically different from nazaralevi ‘damage, loss’</td>
</tr>
<tr>
<td>minino</td>
<td>Minimally phonologically different from mimino ‘hawk’</td>
</tr>
<tr>
<td>labani</td>
<td>Minimally phonologically different from lebani ‘cotyledon’</td>
</tr>
<tr>
<td>gobelini</td>
<td>Minimally phonologically different from gobeleni ‘tapestry’</td>
</tr>
<tr>
<td>ghaghaneba</td>
<td>Minimally phonologically different from gaganeba ‘summer heat’</td>
</tr>
<tr>
<td>megaze</td>
<td>‘gas engineer’; listed in the dictionary but rejected by native speakers</td>
</tr>
<tr>
<td>gagozili</td>
<td>‘fixed/sealed with putty’; listed in the dictionary but rejected by native speakers</td>
</tr>
</tbody>
</table>

The stimuli were embedded in one of three carrier phrases, chosen at random: Me sit’q’va [stimulus] vimghere/vixmare/davc’ere “I sang/used/wrote the word [stimulus]”. Each stimulus was iterated 3 times – i.e., each type contributed three tokens.\(^{13}\) The tokens that were pronounced with list intonation were discarded. Since no additional context was provided for the stimuli, their information structural status is that of neutral/broad focus declaratives. However, since the stimuli were found in the immediately preverbal position and played the role of direct objects, they received the intonational contour which is also compatible with a narrow focus interpretation of the stimulus; more on this in Chapter 7, Section 3.2.1.2.

After eliminating disfluent tokens (due to pauses, errors, etc.), the final dataset consisted of 1,233 word types, 3,424 word tokens, and 12,006 syllables. A breakdown of the complete dataset by speaker is provided in Table 5, and the breakdown of the non-words (a subset of the full dataset) is given in Table 6.

\(^{13}\) Occasionally, a speaker would repeat the stimulus more than three times; for such speakers, the total number of tokens may be more than three times the total number of types.
Table 5: The final dataset broken down by speaker

<table>
<thead>
<tr>
<th>speaker</th>
<th>words</th>
<th>syllables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>types</td>
<td>tokens</td>
</tr>
<tr>
<td>F1</td>
<td>178</td>
<td>526</td>
</tr>
<tr>
<td>F2</td>
<td>180</td>
<td>528</td>
</tr>
<tr>
<td>F3</td>
<td>180</td>
<td>534</td>
</tr>
<tr>
<td>F4</td>
<td>182</td>
<td>555</td>
</tr>
<tr>
<td>F5</td>
<td>182</td>
<td>537</td>
</tr>
<tr>
<td>M1</td>
<td>149</td>
<td>189</td>
</tr>
<tr>
<td>M2</td>
<td>182</td>
<td>555</td>
</tr>
<tr>
<td>Total</td>
<td>1,233</td>
<td>3,424</td>
</tr>
</tbody>
</table>

Table 6. The set of non-words broken down by speaker

<table>
<thead>
<tr>
<th>speaker</th>
<th>words</th>
<th>syllables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>types</td>
<td>tokens</td>
</tr>
<tr>
<td>F1</td>
<td>14</td>
<td>42</td>
</tr>
<tr>
<td>F2</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>F3</td>
<td>15</td>
<td>45</td>
</tr>
<tr>
<td>F4</td>
<td>15</td>
<td>43</td>
</tr>
<tr>
<td>F5</td>
<td>14</td>
<td>42</td>
</tr>
<tr>
<td>M1</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>M2</td>
<td>14</td>
<td>45</td>
</tr>
<tr>
<td>Total</td>
<td>92</td>
<td>257</td>
</tr>
</tbody>
</table>

2.2 Analysis and results

The data obtained was annotated in Praat (Boersma & Weenink 2018); average values for duration, intensity and F0 of each syllable, as well as F0 at four fixed points throughout a syllable (0%, 25%, 50%, 75%) were measured using a modified Praat script by Elvira-García (Elvira-García 2014). Statistical analysis of the data was performed using ANOVA and the glmer function in the lme4 package for R (R Core Team 2017).

2.2.1 Duration

The results show a strong tendency for the initial syllable to have significantly greater duration than all subsequent syllables in words two to five syllables long, as shown in Figure 3. This tendency breaks down only in words of six syllables, which show a rhythmic pattern in terms of syllable duration, with odd syllables having greater duration than even ones. Since this pattern is also present in each speaker’s
individual data, it is unlikely to be idiosyncratic. It is unclear if it could be attributable to the small number of six-syllable words as compared to other stimuli, as shown in Table 3. The average syllable durations in words of all syllable counts are provided in Table 7, and a breakdown of all syllables according to their positions in a word is given in Table 8.

![Figure 3. Syllable duration in words 1-6 syllables long](image)

**Table 7. Average syllable duration in words 1-6 syllables long (ms)**

<table>
<thead>
<tr>
<th>σ no.</th>
<th>1σ</th>
<th>2σ</th>
<th>3σ</th>
<th>4σ</th>
<th>5σ</th>
<th>6σ</th>
</tr>
</thead>
<tbody>
<tr>
<td>σ count ↓</td>
<td>1st σ</td>
<td>2nd σ</td>
<td>3rd σ</td>
<td>4th σ</td>
<td>5th σ</td>
<td>6th σ</td>
</tr>
<tr>
<td>1 σ</td>
<td>315</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 σ</td>
<td>250</td>
<td>189</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 σ</td>
<td>226</td>
<td>185</td>
<td>181</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 σ</td>
<td>205</td>
<td>177</td>
<td>174</td>
<td>174</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 σ</td>
<td>196</td>
<td>173</td>
<td>170</td>
<td>171</td>
<td>168</td>
<td></td>
</tr>
<tr>
<td>6 σ</td>
<td>199</td>
<td>168</td>
<td>176</td>
<td>154</td>
<td>184</td>
<td>165</td>
</tr>
</tbody>
</table>
Table 8. Average duration of syllables in all positions

<table>
<thead>
<tr>
<th>σ count</th>
<th>Count</th>
<th>Mean (ms)</th>
<th>SD (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st σ</td>
<td>3509</td>
<td>223</td>
<td>54</td>
</tr>
<tr>
<td>2nd σ</td>
<td>3334</td>
<td>181</td>
<td>38</td>
</tr>
<tr>
<td>3rd σ</td>
<td>2736</td>
<td>176</td>
<td>41</td>
</tr>
<tr>
<td>4th σ</td>
<td>1673</td>
<td>172</td>
<td>41</td>
</tr>
<tr>
<td>5th σ</td>
<td>680</td>
<td>170</td>
<td>44</td>
</tr>
<tr>
<td>6th σ</td>
<td>74</td>
<td>165</td>
<td>35</td>
</tr>
</tbody>
</table>

Individual speaker data is consistent with the same pattern too, as shown in the figures below: for all speakers and syllable counts, the initial syllable has greater duration than subsequent ones. Exceptionally, in speaker F2’s data, the durational effect on the initial syllable flattens out in longer words, in contrast with the other speakers, though the same generalization still holds even for speaker F2’s data:

Figure 4. Syllable duration data, speaker F1

Figure 5. Syllable duration data, speaker F2
Figure 6. Syllable duration data, speaker F3

Figure 7. Syllable duration data, speaker F4

Figure 8. Syllable duration data, speaker F5

Figure 9. Syllable duration data, speaker M1

Figure 10. Syllable duration data, speaker M2
For a mixed-effects model analysis, SYLLABLE DURATION was taken as the dependent variable, SYLLABLE NUMBER (1st, 2nd, etc; categorical factor) as a fixed effect and SPEAKER and TOKEN as random intercepts. The model was run separately for words of each syllable count in order to have a group-specific intercept for each group, to account for the effect of polysyllabic shortening in longer words (Lehiste 1972). There was a significant effect of syllable number (p<0.01*** in words of all syllable counts.

In order to determine how non-initial syllables compare to each other in duration, in addition to the initial syllable, a single-factor ANOVA and a post-hoc Tukey test were run for words of each syllable count. The ANOVA results were highly significant in each group (p<0.01***). In words of two to five syllables, the Tukey test confirmed that the initial syllable is statistically significantly greater in duration than all individual subsequent syllables and found no significant difference between other syllable combinations. In six-syllable long words, the initial syllable was similarly greater in duration than all subsequent ones, and, in addition, a significant difference between third and fourth, fourth and fifth, second and fifth and fifth and sixth syllables was detected.

Non-words show a slightly different pattern with respect to syllable duration. While trisyllabic non-words behave similarly to their real-word counterparts in that their initial syllable is greater in duration than the subsequent syllables, this pattern breaks down in longer non-words. Here, in addition to the initial syllable, the penultimate syllable also has greater duration than surrounding ones; in five-syllable non-words, this durational effect on the penult is even greater than that on the initial syllable, as shown in Figure 11 and Table 9.
In terms of syllable duration, individual speakers’ non-word data shows the same trend: the penultimate syllables in non-words of four and five syllables have notably greater duration than their counterparts in real words of the same syllable counts. Moreover, for speakers F2 and M2, the same is true in trisyllabic non-words, with the penultimate syllables in their data having greater duration than the initial ones, thereby overriding the general trend for the initial syllable to have greater duration than the following ones.

**Table 9. Syllable duration in non-words (3-5 syllables long) (ms)**

<table>
<thead>
<tr>
<th>σ no.</th>
<th>σ count ↓</th>
<th>1st σ</th>
<th>2nd σ</th>
<th>3rd σ</th>
<th>4th σ</th>
<th>5th σ</th>
<th>6th σ</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 σ</td>
<td></td>
<td>210</td>
<td>197</td>
<td>194</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 σ</td>
<td></td>
<td>217</td>
<td>185</td>
<td>200</td>
<td>168</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 σ</td>
<td></td>
<td>195</td>
<td>183</td>
<td>171</td>
<td>203</td>
<td>140</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 11. Syllable duration in non-words (3-5 syllables long)**
Figure 12. Syllable duration in non-words, speaker F1

Figure 13. Syllable duration in non-words, speaker F2

Figure 14. Syllable duration in non-words, speaker F3

Figure 15. Syllable duration in non-words, speaker F4

Figure 16. Syllable duration in non-words, speaker F5

Figure 17. Syllable duration in non-words, speaker M1
For non-words, the same mixed-effects model, with SYLLABLE NUMBER (1st, 2nd, etc.) taken as a fixed effect and SPEAKER and TOKEN as random intercepts, revealed that non-words of three and four syllables behave similarly to their real-word counterparts in that the initial syllable in them is significantly greater in duration than all subsequent ones (p<0.01***). In six-syllable non-words, however, only the third and fifth syllables were significantly different from the initial syllables (p<0.01***), with the second and fourth syllable durations not reaching significance (p=0.07 and p=0.19, respectively).

According to a single-factor ANOVA and a post-hoc Tukey test, in trisyllabic words, only the difference between first and third syllables reaches significance. In four-syllable non-words, according to the same test, all syllable combinations are significantly different from each other. In five-syllable non-words, in accord with the mixed-effects model results, only the third and fifth syllables were found to be significantly different from the initial one. In addition, however, the third and fourth syllables were significantly different from each other, and the fifth syllable was significantly different from the second, third and fourth ones.

To sum up, these results show that the initial syllable has significantly greater duration than subsequent ones in words of all syllable counts, and also in trisyllabic non-words. In six-syllable words, the other odd syllables, in addition to the initial one, have greater duration that the even ones. In non-words of four and
five syllables, the penultimate syllable also has greater duration than the surrounding syllables. It is not immediately clear what this contrast between real words and non-words is attributable to.

Before proceeding to the other measurements, it is worth checking whether the durational effect on the initial syllable might be driven by vowel quality – that is, whether it might be the case that the initial syllable is greater in duration than the subsequent ones because low vowels occur there more often than they do in the subsequent syllables. In order to test for this, the dataset was divided into two subsets, according to the height of the vowel in the initial syllable. In the first subset, the initial syllable of the stimuli contained a low vowel ([a, o, e]), while in the second subset, the vowel in the initial syllable of the stimuli was high ([i, u]). The mean duration of the initial syllable equals 224 ms in the first subset, and 220 ms in the second subset; a t-test revealed no significant difference between these two measurements (p=0.08).

It is also worth noting that the duration results reported here contrast with Selmer’s (1935) results, discussed in Section 1.4: recall that, according to Selmer’s results, the syllables in disyllabic words were of equal duration, and the same was true of the initial and final syllables in trisyllabic words. The discrepancy between the two studies is likely to be due to the fact that Selmer’s stimuli were not embedded in carrier phrases, and, as such, were subject to phrase-final lengthening.

2.2.2 F0 values

In order to compare F0 contours of stimuli of various syllable counts, an average F0 measurement per syllable was made, as shown in Figure 19 and Table 10. Additionally, F0 measurements were made at four points per syllable, with the results shown in Figure 20.
Figure 19. Average F0 values per syllable

Table 10. Average F0 values per syllable (Hz)

<table>
<thead>
<tr>
<th>σ no. →</th>
<th>σ count ↓</th>
<th>1st σ</th>
<th>2nd σ</th>
<th>3rd σ</th>
<th>4th σ</th>
<th>5th σ</th>
<th>6th σ</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 σ</td>
<td></td>
<td>185.62</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 σ</td>
<td></td>
<td>180.95</td>
<td>185.13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 σ</td>
<td></td>
<td>183.59</td>
<td>172.83</td>
<td>186.67</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 σ</td>
<td></td>
<td>186.5</td>
<td>177.37</td>
<td>173.32</td>
<td>186.19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 σ</td>
<td></td>
<td>188.49</td>
<td>177.87</td>
<td>173.40</td>
<td>169.22</td>
<td>183.91</td>
<td></td>
</tr>
<tr>
<td>6 σ</td>
<td></td>
<td>185.96</td>
<td>176.99</td>
<td>176.85</td>
<td>170.05</td>
<td>168.4</td>
<td>187.75</td>
</tr>
</tbody>
</table>
Figure 20. Average F0 values at four point per syllable in stimuli of all syllable counts
As Figure 19 and Figure 20 show, words of all syllable counts have an overall falling-rising F0 contour, with a sharp fall from the initial to the second syllable, and a sharp rise from the penultimate to the final syllable. The picture is more complex in disyllables, which have a simple rising contour in Figure 19, but, as Figure 20 shows, disyllables, in fact, have the same falling-rising contour as the stimuli of other syllable counts. Furthermore, Figure 19 and Figure 20 show that, in words of all syllable counts, the penultimate syllable acts as a turning point between the falling and rising subparts of the F0 contour of a word. Individual speaker data, below, adheres to the same generalization, though there is considerable individual variation with respect to the steepness and height of the falls and rises in F0.

![Graph](image1.png) ![Graph](image2.png)

Figure 21. Average F0 values per syllable, speaker F1
Figure 22. Average F0 values per syllable, speaker F2
Figure 23. Average F0 values per syllable, speaker F3

Figure 24. Average F0 values per syllable, speaker F4

Figure 25. Average F0 values per syllable, speaker F5

Figure 26. Average F0 values per syllable, speaker M1

Figure 27. Average F0 values per syllable, speaker M2
A single-factor ANOVA followed by a post-hoc Tukey test led to the following results. In disyllabic words, the difference in F0 between the two syllables did not give rise to significance, even though the trend for the overall contour to be rising is clear in both the aggregated data and the individual speaker data. In trisyllabic words, the difference in F0 between first and second and second and third syllables turned out to be significant. In words of four syllables, the ultima was significantly different from the second and third syllables, and the initial syllable was significantly different from the second and third one. In five-syllable words, the initial syllable was significantly higher in F0 than the second, third and fourth ones, the ultima was significantly higher than the third and fourth syllables, and, additionally, the second syllable had significantly greater F0 than the fourth one. Finally, in six-syllables words, a post-hoc Tukey test did not show any of the individual syllable combinations to be significantly different from each other, even though a single-factor ANOVA resulted in significance (p=0.031).

As already noted, Figure 19 and Figure 20 show a consistent pitch pattern at the right edge of words of all syllable counts, with a gradual fall from the left edge to the penult and a sharp rise on the ultima. To test for its significance, 3-6 syllable words coded for syllable number counting from the right (RIGHT-EDGE): ULTIMA, PENULT, and ANTEPENULT. In a mixed-effects model, RIGHT-EDGE position was taken as a fixed effect and SPEAKER and TOKEN as random intercepts. There was a significant effect of RIGHT-EDGE (p<0.01) in words of all syllable counts (3-6).

These results, therefore, corroborate those reported in Borise (2017) and Borise & Zientarski (2018), in which the penult was also identified as a locus of low pitch. They are also consistent with Zhghenti’s (1953; 1958) results, in which F0 values were found to drop on the penult and ultima of the stimuli. The fact that the ultima, in Zhghenti’s results, did not have high F0 values, unlike in the current study, is likely due to the fact that his stimuli were not embedded in carrier phrases, and as such, were subject to right-edge effects of declarative Intonational Phrases, which typically end in a low tone.

As for the pitch properties of the left edge of the words in the dataset, even though the aggregated data shows that the initial syllables carries a high pitch target, this is not supported by the individual speaker
data, in which there is no consistent pitch pattern at the left edge of words. Furthermore, as Figure 20 shows, the high tone on the initial syllables in words of all syllable counts is found only at the very beginning of the syllable, with F0 values dropping sharply even before the midpoint of the initial syllable is reached. These factors, taken together, mean that the initial syllable does not have a consistent pitch specification – in contrast with, e.g., the penultimate syllable, which is consistently low both in the aggregated data and in the individual speaker data. This fact is discussed in more detail in Section 2.3.

Non-words were similar in their F0 properties to real words, as shown in Figure 28 and Table 11. This was also the case in the individual speaker data. However, a single-factor ANOVA did not find the differences between average syllable F0 values to be significant in the non-word dataset. This was the case for non-words of three (p=0.31), four (p=0.3), and five syllables (p=0.1). A possible reason for this lack of significance is the non-word dataset being considerably smaller than the full dataset.

Overall, as this section showed, real words and non-words have considerable regularity in their F0 properties. Most noticeably, there is a consistent sharp rise on the final syllable in words of all syllable counts. Moreover, this rise, in words of all syllable counts, starts exactly on the penultimate syllable, while the overall F0 contour of all preceding syllables is falling towards the penult.
Table 11. Average F0 values per syllable in non-words (Hz)

<table>
<thead>
<tr>
<th>σ no.</th>
<th>σ count</th>
<th>1st σ</th>
<th>2nd σ</th>
<th>3rd σ</th>
<th>4th σ</th>
<th>5th σ</th>
<th>6th σ</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 σ</td>
<td>186.08</td>
<td>177</td>
<td>187.59</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 σ</td>
<td>185</td>
<td>178.31</td>
<td>173.57</td>
<td>183.21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 σ</td>
<td>185.38</td>
<td>176.71</td>
<td>171</td>
<td>170.61</td>
<td>190.68</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 28. Average F0 values per syllable in non-words

Figure 29. Average F0 values per syllable in non-words, speaker F1.

Figure 30. Average F0 values per syllable in non-words, speaker F2.
Figure 31. Average F0 values per syllable in non-words, speaker F3.

Figure 32. Average F0 values per syllable in non-words, speaker F4.

Figure 33. Average F0 values per syllable in non-words, speaker F5.

Figure 34. Average F0 values per syllable in non-words, speaker M1.

Figure 35. Average F0 values per syllable in non-words, speaker M2.
2.2.3 Intensity

For the intensity measurements, the data from speakers F2 and M2 was left out, due to the fact that the recording technique used for them involved gain normalization, which alters the intensity properties of the acoustic signal. The dataset for this measurement, therefore, consisted of data form the five remaining speakers: F1, F3, F4, F5 and M1.

As would be expected, intensity values fall throughout lexical items of all syllable counts, as shown in Figure 36 and Table 12. However, after falling sharply to the penultimate syllable, the intensity values then plateau or undergo a slight rise on the ultima. These results are consistent with those reported in Zhghenti (1953; 1959), as discussed in Section 1.4, in that Zhghenti also notes that in his data the intensity values drop on the penultimate syllable. In contrast with the present findings, however, there is no subsequent rise in intensity in Zhghenti’s data. As with the F0 values discussed in the preceding section, this is likely attributable to the fact that Zhghenti’s stimuli were not embedded into carrier phrases, and, as such, exhibited properties typical of the right edge of an Intonational Phrase.

![Figure 36. Average syllable intensity in words 1-6 syllables long, data from speakers F1, F3, F4, F5, M1.](image-url)
Table 12. Average syllable intensity in words 1-6 syllables long; data from five speakers (dB)

<table>
<thead>
<tr>
<th>σ no.</th>
<th>1st σ</th>
<th>2nd σ</th>
<th>3rd σ</th>
<th>4th σ</th>
<th>5th σ</th>
<th>6th σ</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 σ</td>
<td>67.85</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 σ</td>
<td>67.52</td>
<td>66.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 σ</td>
<td>67.22</td>
<td>65.28</td>
<td>64.86</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 σ</td>
<td>67.06</td>
<td>66.22</td>
<td>63.98</td>
<td>63.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 σ</td>
<td>67.64</td>
<td>66.99</td>
<td>65.3</td>
<td>63.04</td>
<td>63.31</td>
<td></td>
</tr>
<tr>
<td>6 σ</td>
<td>66.96</td>
<td>67.56</td>
<td>65.64</td>
<td>64.86</td>
<td>61.44</td>
<td>62.62</td>
</tr>
</tbody>
</table>

In individual speaker data, the same trend is found in speakers F1, F3 and F5. Speaker M1 has an overall shallower drop in intensity throughout the word, while in speaker F4 the rise in intensity on the ultima is much higher than in other speakers.

Figure 37. Average syllable intensity, speaker F1

Figure 38. Average syllable intensity, speaker F3
A single-factor ANOVA combined with a post-hoc Tukey test reveals an interesting pattern of significant differences. In trisyllabic words, the initial syllable is significantly different from the following two. In words of four syllables, as would be expected based on Figure 36, the initial and second syllables and the penult and ultima, respectively, are not significantly different from each other, while all other syllable combinations are. The same picture is obtained in five-syllable words: here, too, all syllable combinations result in significant differences, other than those between the initial and second syllables and the penult and ultima, respectively. This illustrates well the general intensity pattern known from Zhghenti’s (1953; 1959) work, according to which the intensity in a Georgian word is high on the initial syllables, and drops on the penult and ultima. A slightly different but similar pattern holds in six-syllable words: here, the
penultimate (fifth) syllable is significantly different in intensity from all others, except for the ultima and the fourth syllable. Additionally, the initial and second syllables are significantly different from the ultima. Overall, therefore, in words of all syllable counts there is a robust distinction between the final two syllables, which are lower in intensity and all syllables preceding them, which are comparatively high in intensity.

In non-words, the intensity results are similar, though the hypothesis about the division of the word into the final two syllables and the rest of the word is less robust. As Figure 42 and Table 13 show, in non-words the fall in intensity from the penult to the ultima is almost as steep as the fall leading to the penult.

![Figure 42. Average syllable intensity in words 1-6 σ long, data from speakers F1, F3, F4, F5, M1](image)

<table>
<thead>
<tr>
<th>σ count</th>
<th>1st σ</th>
<th>2nd σ</th>
<th>3rd σ</th>
<th>4th σ</th>
<th>5th σ</th>
<th>6th σ</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 σ</td>
<td>67.31</td>
<td>65.69</td>
<td>64.72</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 σ</td>
<td>67.33</td>
<td>66.59</td>
<td>64.81</td>
<td>63.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 σ</td>
<td>68.05</td>
<td>68.23</td>
<td>65.67</td>
<td>64.59</td>
<td>63.31</td>
<td></td>
</tr>
</tbody>
</table>
The speakers’ individual patterns are considerably more variable:

Figure 43. Average syllable intensity in non-words, speaker F1

Figure 44. Average syllable intensity in non-words, speaker F3

Figure 45. Average syllable intensity in non-words, speaker F4.

Figure 46. Average syllable intensity in non-words, speaker F5

Figure 47. Average syllable intensity in non-words, speaker M1
A single-factor ANOVA followed by a post-hoc Tukey test showed that in trisyllabic non-words, none of the combinations of syllables reached significance (p=0.065). In non-words of four syllables, the difference between initial syllables and third and fourth syllables, as well as between second and fourth syllables reached significance. In five syllable non-words, only the difference between initial and second syllables and final syllables reached significance. This means that penultimate syllables do not play nearly as important a role as a reference point for the intensity fall and rise in non-words as they do in the complete dataset. In contrast to real words, where intensity dropped on the penult, and the penult was significantly different from the other syllables in its intensity values, in non-words the significant differences are simply found between the right and left edges of the word, taking the reference to the penultimate syllable out of the equation.

2.3 Discussion

To recap the findings from Section 2.2, the initial syllable in Georgian has greater duration than all subsequent syllables in words 2-5 syllables long. The absolute duration of the initial syllable decreases as the number of syllables in a word increases, as expected from the point of view of polysyllabic shortening (Lehiste 1972). Six-syllable words, however, show a different, rhythmic pattern, with odd syllables having greater duration than even syllables. This sub-pattern is also present in each speaker’s individual data, and deserves further exploration in future work. The durational properties of non-words differ from those of real words in a systematic way. In four and five syllable non-words, the penultimate syllables are comparable or greater in duration than the initial syllables in all speakers. In speakers F2 and M2, the same is true in trisyllabic non-words as well, with the penultimate syllable having greater duration than the initial one, contrary to the robust general tendency for the initial syllable to have greater duration than the subsequent syllables.

In terms of F0 properties, in words of all syllable counts, the penultimate syllables have consistently lower F0 values than the surrounding syllables, with F0 values falling from the left edge of the word to the penult, and sharply rising again on the ultima. While the relative height of the fall and rise in F0 varies from
speaker to speaker, the overall pattern is present in all speakers. These results are reminiscent of those in Borise (2017), who reports that the penultimate syllables of predicates in wh-questions and utterances containing narrow focus carry low pitch targets, in contrast with predicates in neutral declaratives.

Both right and left edges of the stimuli had relatively high F0 values. With respect to the right edge, high F0 values are robustly attested, including in the individual data from all speakers. The same cannot be said about the left edge, however. Here, the F0 values, as seen in the individual speaker data, were considerably more varied. Furthermore, when F0 at four points per syllable is examined, it is clear that the high F0 values on the initial syllable drop very rapidly, even before the mid-point of the initial syllable is reached.

Finally, the intensity results aligned with those known from the older studies, in that the overall intensity contour dropped from the left edge towards the penultimate syllable, further plateauing or slightly increasing on the ultima (though note the exceptional behavior of speaker F4 in this regard).

Notably, non-words for the most part adhered to the same patterns as real words, with respect to all three acoustic parameters examined (duration, F0, intensity). This shows that the stress-assignment rules (and rules governing the prosodic pattern more broadly) are automatic in Georgian, since they apply both to the actual word stock of the language and non-words that the speakers have not encountered before. The greatest point of deviation of non-words from the full dataset was found in syllable duration, where non-words exhibited a tendency for greater duration of the penultimate syllable as compared to surrounding syllables. Such a tendency is not attested in the full dataset.

What is the best analytical approach to the current results? It is apparent that the acoustic properties that are commonly used in marking word stress (and other intonational contrasts) – duration, F0 and intensity – regularly anchor to the initial and penultimate syllables. This is consistent with the existing literature that takes the initial and/or penultimate syllables in Georgian to be stress loci. Notably, there is no evidence in favor of the antepenultimate syllable as a potential locus of stress. This, in turn, is consistent
with Alkahzishvili (1959: 402), who specifically notes that he found no acoustic evidence supporting the idea of antepenultimate stress in his data. Thus, it is unclear what acoustic evidence, if any, contributes to the speakers’ perception of the antepenultimate syllables as carrying stress.

Of the two other potential stress loci, the initial syllable, as shown here, is marked by a consistent durational effect. This effect must be attributed to the initial syllable carrying word stress. More specifically, it is not easy to interpret this durational effect as anything other than a manifestation of word stress. A potential explanation of it being a kind of an edge-related lengthening would only work at the right edge of a phrase. Initial strengthening, another potential alternative explanation, is known to have an effect on the initial consonant, but does not extend to the vowel in the initial syllable (Fougeron & Keating 1997; Byrd, Krivokapić & Lee 2006; Barnes 2008). Therefore, in the absence of other plausible explanations, the durational evidence presented here strongly suggests that Georgian has duration-cued word stress, fixed on the initial syllable in words of all syllable counts.

The penultimate syllable has a different set of properties: it consistently carries a low pitch target and is also a locus of a drop in intensity. Additionally, in non-words, the penult receives greater duration, which may be attributable to a degree of hesitation the speakers feel when faced with a non-word. These properties, and especially their co-occurrence on a single syllable, also may be indicative of a degree of stress.

One way of analyzing these phonetic results, the durational effect on the initial syllable and the F0 effect on the penult, would be to suggest that Georgian is a polar/dual stress system (Gordon 2002; van der Hulst 2014), in which the primary and secondary stress are fixed at the opposite edges of a prosodic word. However, it is unclear how such an analysis can account for the patterns found in trisyllabic and disyllabic words. In particular, in trisyllabic words, these two loci are adjacent, and in disyllabic words they coincide, which is possible to see since the two loci are marked by different acoustic properties, duration and F0. Such behavior is atypical of two degrees of stress, which usually resist being adjacent, let alone overlapping.
Instead, I propose that the penultimate syllable in Georgian is reserved for pitch targets that are part of the right-edge intonational make-up of a phrase (cf. Gordon 2014), and does not carry stress. Specifically, the penultimate syllable in Georgian is a locus for phrase accent realization. This approach accounts for the consistently low F0 values on the penultimate syllables, which has been noted in the literature as well as in the current study. The low pitch target on the penult can be followed by a high or low boundary tone, depending on the type and position of the prosodic phrase that it is part of. Since Georgian can accommodate bitonal boundary tones on the final syllable (Borise 2017), it is clear that the pitch target on the penult is independent from the boundary tone on the ultima. In the next section, I provide independent evidence for the existence of low phrase accent in Georgian, anchored to the penultimate syllable, in order to contextualize the low pitch target discovered in the current study.

3. Phrasal prosody of Georgian

The current section draws a parallel between the low pitch target on the penultimate syllable that was found in the study discussed in the previous section, and a low phrase accent found on the penultimate syllables of verbs in narrow focus contexts and questions. Since the latter pitch target is part of the inventory of phrasal prosodic pitch targets in Georgian, introducing some theoretical background is required in order to discuss the prosodic facts. Therefore, the current section first lays out the main tenets of Autosegmental-Metrical theory (Section 3.1) and its application to Georgian (Section 3.2), and then proceeds to the discussion of the phrase accent anchored to the penultimate syllable.

3.1 Autosegmental-Metrical theory

Autosegmental-Metrical Theory (AM) is one of the main approaches to analyzing prosodic systems, originally developed in Lieberman (1975), Bruce (1977), and Pierrehumbert (1980), and then applied to a variety of languages in Ladd (1983), Gussenhoven (1984), Beckman & Pierrehumbert (1986), Pierrehumbert & Beckman (1988), and much subsequent work. The main tenet of AM theory is that an intonational pattern can be modelled as a sequence of pitch targets (prominence), their grouping (phrasing),
and transitions between them (intonation). Notably, the AM theory focuses specifically on pitch targets as the meaningful events in the prosodic sequence, with transitions between them thought of as *interpolation*. In doing so, the AM theory stands in opposition to some other analytical approaches to prosody, such as the British school of prosodic research or the approach developed at the Institute for Perception Research in Eindhoven (known as IPO), which take different types of F0 falls and rises to be meaningful analytical units (Ladd 2008: 47).

In the AM tradition, there are two distinct types of pitch targets: prominence-lending pitch accents, anchored to the syllables that carry some degree of stress, and non-prominence-lending boundary tones, aligned with edges of prosodic domains. Other types of pitch targets, such as phrase accents, have a more complex theoretical status, and have been variably analyzed as boundary tones for medium-level prosodic phrases, such as phonological phrases, or pitch targets that are found between the last pitch accent and a boundary tone, often taking the form of pitch stretches (Bruce 1977; Pierrehumbert 1980; Ladd 1983; Grice, Ladd & Arvaniti 2000). In some cases, phrase accents have also been shown to have a secondary association with stressed syllables or syllables carrying a lexical tone (Grice, Ladd & Arvaniti 2000).

The analytical approach to the values of pitch targets in the AM theory is maximally simple – i.e., it only allows for a distinction between high (H) and low (L) tones. These values are not absolute and take into account the relation of a given pitch target to the speaker’s overall pitch range as well as the surrounding pitch targets. Furthermore, in addition to simple tones, complex pitch targets consist of a combination of tones (two, or, in some cases, three).

Prosodic phrasing in AM theory is taken to be recursive in that smaller prosodic units, such as prosodic words, are grouped into larger prosodic units such as prosodic phrases and intonational phrases. Depending on the analysis of a given language, two or three distinct levels of prosodic phrasing are distinguished. The smallest prosodic unit typically used in the AM theory is the prosodic word (ω), and the largest one is the Intonational Phrase (IP). There are several terminological traditions for the intermediate levels of prosodic
phrasing, including phonological phrases (φ), intermediate phrases (ip), minor (MiP) and major (MaP) phrases; see Shattuck-Hufnagel & Turk (1996) for a discussion of these categories.

Bringing pitch targets and prosodic phrasing together, pitch accents are found in the smaller prosodic phrases, such as phonological/intermediate phrases, while all levels of prosodic phrases can carry initial and/or final boundary tones. In the AM notation, pitch accents are marked by asterisks, so that simple pitch accents are represented as H* and L*, and in the complex ones, the main pitch target, aligned with the stressed syllable, is marked by an asterisk, with leading or off-trailing tones preceding or following it: H*+L, H+L*, etc. Intonational Phrase boundaries, simple or complex, are marked by a percentage sign (H%, LH%), and intermediate/phonological phrase boundaries as well as phrase accents are often marked with a dash: H-, L-, etc.

Notably, AM theory is not a theory of syntax-prosody interface, in that it deals specifically with analyzing prosodic patterns and properties. Other theories, such as the Match Theory (Selkirk 2009), have been developed for analyzing the interaction of syntax and prosody, building on some of the ideas borrowed from AM theory, such as the alignment of certain constituents with boundary tones.

3.2 Autosegmental-Metrical approach to phrasal prosody in Georgian

Issues of Georgian phrasal prosody have attracted considerable scholarly interest, especially in recent years, and include such studies as Tevdoradze (1978; 2005), Bush (1999), Müller (2005), Skopeteas, Féry and Asatiani (2009), Skopeteas and Fanselow (2010), Asatiani and Skopeteas (2012), Skopeteas and Féry (2010; 2011; 2016), Jun, Vicenik and Lofstedt (2007), and Vicenik and Jun (2014). These investigations cover a wide range of issues, from prosody of neutral statements to that of questions and statements containing narrow focus.

Jun et al. (2007) and especially Vicenik & Jun (2014) provide a detailed Autosegmental-Metrical (AM) description of Georgian prosody, covering the main levels and types of prosodic phrasing and the inventory of pitch accents and boundary tones available in the language. The analysis proposed in this dissertation is
based on their approach, though with some modifications. The key insights of Vicenik & Jun (2014) include the following:

i. An utterance in Georgian is comprised of Accentual Phrases (APs), all but the last one of which are characterized by rising pitch, and are subject to downstep; typically, each prosodic word forms an AP (Figure 48). The basis for proposing that every prosodic word in Georgian forms an AP lies in the fact that there is evidence for a final boundary tone on each prosodic word. This strongly suggests that prosodic words in Georgian also form minimal prosodic phrases, such as APs.

ii. As Figure 48 shows, in the unmarked, default pattern for all-new, broad-focus declarative utterances each AP has an overall rising intonational contour, starting low and ending high. In Vicenik & Jun’s analysis, this is captured by introducing a low pitch accent L* on the initial syllable of an AP,14 and a high final boundary tone on the final syllable of the AP, Ha (where ‘a’ indicates that the boundary is part of the AP). This is illustrated in Figure 48, with gloss and translation of the example provided in (10):

(10) Giorgi-s mo-s-c’on-s dzalian lamazi gogo Tbilisi-dan.
    G.-DAT PRV-3SG-like-PRS.3SG very beautiful girl.NOM Tbilisi-from
    ‘Giorgi likes a very beautiful girl from Tbilisi.’

---

14 Since in AM theory intonational pitch accents are anchored to syllables carrying word stress (Ladd 2008: 49), such an analysis presupposes fixed initial stress in Georgian. However, as the study reported on in Section 1.3 shows, this association is somewhat more nuanced in Georgian: in particular, IP-initial Accentual Phrases do not exhibit reliable evidence for the presence of a pitch accent.
iii. The initial AP of an IP, in addition to the overall rising realization, can also carry an overall falling tone, as shown in Figure 49, with the gloss and translation of the example are provided in (11); cf. also Skopeteas & Féry (2016) for a discussion and quantitative results.¹⁵

N.NOM father-DAT VER-care-SF-PRT.3SG
‘Nino takes care of the father.’

¹⁵ Skopeteas & Féry (2016) analyze this falling contour as vacuous variation on the rising contour that is typical of APs. However, it is possible that there is some categorical difference between them – i.e., the falling contour might be reserved for given/topical information. This question requires further investigation.
iv. Importantly for our purposes, the prominent pitch target at the right periphery of an AP, the final boundary tone, is phrasal in nature, and not associated with word stress. The rise in pitch and the high pitch target itself typically are contained within the final syllable, and, therefore, the final high boundary tone can be analyzed as anchored to the final syllable.

v. APs such as a noun and its modifying adjective(s) can be optionally combined into intermediate phrases (ips). APs combined into an ip behave differently from free-standing APs in that they do not have an overall rising pattern. Instead, such a pattern is the property of the ip as a whole: that is, if an ip is found in the middle of an utterance, it ends in a high boundary tone H-, as shown in Figure 50; the gloss and translation of the example are provided in (12).

(12) \textit{Manana-m dzalian didi alubal-i gada-a-gd-o.}  
M.-ERG very big sour_cherry PRV-VER-drop-AOR.3SG  
‘Manana dropped a very big sour cherry’
vi. Wh-phrases, regardless of their length, are prosodically grouped with the verb immediately following them, as shown in Figure 51, with the gloss and translation provided in (13). The obligatory combining of wh-elements (as well as other focal elements) into a single prosodic phrase with the following verb is discussed in detail in Chapter 7.

(13) *Romel-ma gamomdziebel-ma ga-a-bednier-a lamaz-i meomar-i?*

which-ERG investigator-ERG PRV-VER-make happy-AOR.3SG beautiful-NOM soldier-NOM

‘Which investigator made the beautiful soldier happy?’
vii. In terms of pitch targets, Georgian has pitch accents, which are found on the initial syllable of an AP, and final boundary tones, which mark the rightmost syllable of all three levels of prosodic constituents: APs, ips, and IPs. When several right-edges, such as an AP and an IP edge, coincide, the boundary tone of the higher-level phrase overrides that of the lower-level phrase, so that there is no tonal crowding; note the absence of final boundary tones Ha/La in the final APs in Figure 48 through Figure 51 above. Table 14 below summarizes the tonal inventory proposed for Georgian by Vicenik & Jun (2014). The same inventory is adopted here, with one exception: following Borise (2017), I take the phrase accent in Georgian to be L, not H+L. It is discussed in more detail in the next section.

Table 14. A full inventory of phrasal pitch targets in Georgian, according to Vicenik & Jun 2014

<table>
<thead>
<tr>
<th>Phrase type</th>
<th>Accents</th>
<th>Notes</th>
<th>Tonal targets</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accentual phrase</td>
<td>H*</td>
<td>common with La</td>
<td>La</td>
<td>common with H*</td>
</tr>
<tr>
<td></td>
<td>L*</td>
<td>common with Ha</td>
<td>Ha</td>
<td>common with L*</td>
</tr>
<tr>
<td></td>
<td>LH*</td>
<td>a rise entirely within the 1st σ</td>
<td>L+Ha</td>
<td>common with L+H*</td>
</tr>
<tr>
<td></td>
<td>L+H*</td>
<td>late rise; peak not reached till the next σ</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>H+L</td>
<td>optional phrase accent on the antepenult and penult</td>
<td>H-</td>
<td>very common</td>
</tr>
<tr>
<td>Intermediate phrase</td>
<td></td>
<td></td>
<td>L-</td>
<td>rare</td>
</tr>
<tr>
<td>Intonational phrase</td>
<td></td>
<td></td>
<td>L%</td>
<td>in declaratives</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>H%</td>
<td>in YNQ and WHQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HL%</td>
<td>in YNQ</td>
</tr>
</tbody>
</table>
3.3 Phrase accent

As Table 14 shows, in addition to pitch accents and boundary tones, Georgian possesses another type of a pitch target, distinct from the former two: the phrase accent H+L. In Vicenik & Jun’s analysis, this pitch target is found in yes-no questions (YNQs), wh-questions (WHQs), and utterances with narrow focus on one of the constituents, and is located on the antepenultimate and penultimate syllables of the verb, as shown in Figure 52 and Figure 53. It should be noted, however, that Vicenik & Jun allow for more than one H+L in these contexts – i.e., in such contexts, H+L phrase accents are also found on other constituents, in addition to the one found on the verb.

![Figure 52. H+L phrase accent on the verb bans 'is washing' in 'Is Ia washing Lali?'](Vicenik & Jun 2014: 170)

\[\text{Figure 52. } H+L\text{ phrase accent on the verb } \text{bans 'is washing'} \text{ in 'Is Ia washing Lali?'} \text{ (Vicenik & Jun 2014: 170)}\]

\[\text{In this figure, the initial H tone of the H+L pitch target overlaps with the pitch accent } H^*, \text{ so that only the } +L \text{ portion of it is labelled.}\]
Because of its placement on the penultimate syllable, the phrase accent is reminiscent of the analyses postulating antepenultimate or penultimate words stress in Georgian. It also resembles the low pitch target found on the penultimate syllable in the study reported on in the previous section. The current section, therefore, brings together numerous studies that found evidence for the existence of the phrase accent, and for its phrasal (as opposed to word-level) nature. Building on these results, I suggest that the low pitch target found on the penultimate syllable in the preceding chapter is likely to be a manifestation of the same phenomenon.

To start with, note that in Vicenik & Jun’s (2014) analysis, the category in question, H+L, is labelled a phrase accent. This notion, going back to Bruce (1977), Pierrehumbert (1980) and Beckman & Pierrehumbert (1986) is used in AM Theory to refer to the possible pitch targets that may be found between the final pitch accent and the boundary tone of the Intonational Phrase; see Grice et al. (2000) for a detailed overview of the evolution and use of the notion. The H+L accent in Vicenik & Jun’s (2014) analysis, however, hardly fits the profile of a canonical phrase accent. Firstly, in Vicenik & Jun’s (2014) analysis, more than one H+L is allowed in a single IP, which doesn’t match the typical distribution of a phrase accent: between the final pitch accent and the final boundary tone of an IP. Secondly, as their canonical distribution suggests, phrase accents typically are not rigidly anchored to a particular syllable, but instead are used to
refer to a stretch of pitch between two other pitch targets, the final pitch accent and the boundary tone of an IP. The Georgian H+L, however, is firmly anchored to the antepenultimate and penultimate syllables of an AP/ip that it is found in. Therefore, the status of H+L, as discussed in Vicenik & Jun (2014), requires further investigation, both instrumental and theoretical.

While Jun et al. (2007) and Vicenik & Jun (2014) were the first to provide a detailed overview of the properties and distribution of H+L, they were not the first to notice it. Bush (1999) in a study of the prosody of YNQs in Georgian concludes that the penultimate syllable of verbs in YNQs is always marked by a low tone, before a sharp rise on the final syllable. In his analysis, however, this low tone is part of a complex phrase accent, L+H¹, and, in line with Beckman & Pierrehumbert’s (1986) analysis of phrase accents in English, Bush (1999) takes the L+H¹ phrase accent to act as a boundary tone for phonological phrases (a level of phrasing corresponding to ip in Vicenik & Jun’s 2014 analysis). However, in order to account for the rigid placement of the L part of the phrase accent on the penultimate syllable (as opposed to the more varied placement that parts of complex tones usually show), his account requires additional analytical assumptions. Consequently, Bush introduces an additional feature, [+early peak], that applies to L, but notes that this solution is not a satisfactory one:

“… it is the timing of the low tone that troubles us. <...> the penultimate syllable of the question is always low, followed by the rise on the final syllable. This rise does not appear to ever start on the penultimate syllable. It appears that we need some way of saying explicitly that the low tone must be associated with the penultimate syllable. Within our theory this cannot be done directly, because boundary tones are associated only with boundaries, not with individual syllables.” (Bush 1999: 7)

The issues related to the right periphery in Georgian, particularly in YNQs, are further investigated in Müller (2005). The object of her inquiry is the right periphery of the IP, as opposed to the AP/ip, though the empirical issues are similar. She notes that the right periphery of the IP in Georgian is characterized by a LHL or LH tonal movement, as exemplified in Figure 54 and Figure 55, respectively.
Müller (2005) also takes the L on the penult to be a phrase accent, but does not discuss the possible problems with this approach. The HL portion of the contour, in her analysis, is a complex boundary tone. Similarly, with the LH contour, L is a phrase accent and H is a boundary tone. Müller (2005: 49) specifically notes that none of these targets are associated with word stress, which she takes to be antepenultimate.

Recently, Vicenik & Jun’s (2014) notion of H+L was further considered in Borise (2017), where two conclusions are reached. Firstly, this pitch target is associated with verbs in YNQs or wh-/focus-verb ips only, to the exclusion of other contexts, and as such, can be viewed as a prosodic marker of focus in Georgian. Moreover, because Georgian allows considerable freedom of word order, including variable verb placement, it is easy to show that the pitch target in question is indeed associated with the verb, and not
with a specific clausal position; this is illustrated in Figure 56, Figure 57 and Figure 58 below. In particular, Figure 56 shows an utterance-initial verb carry L, Figure 57 shows the same for an utterance-medial verb, and Figure 58 does so for an utterance-final verb.

**Figure 56.** L phrase accent, corresponding to H+L in Vicenik & Jun’s analysis on the verb šeč’ama ‘eat’ in ‘Did Manana eat the cherry?’, with the verb in the clause-initial position (Borise 2017)

**Figure 57.** L phrase accent, corresponding to H+L in Vicenik & Jun’s analysis on the verb šeč’ama ‘eat’ in ‘Did Manana eat the cherry?’, with the verb in the clause-medial position (Borise 2017)
Figure 58. L phrase accent, corresponding to H+L in Vicenik & Jun’s analysis on the verb šeč’ama ‘eat’ in ‘Did Manana eat the cherry?’, with the verb in the clause-final position. (Borise 2017)

Secondly, Borise (2017) demonstrates that the H element in H+L is optional, since in some focal contexts the L on the penultimate syllable is not preceded by a high tone on the antepenult. This is particularly apparent in disyllabic verbs in YNQs, where the first syllable, as the penultimate, carries the L pitch target, but the H element is not realized – neither on the same syllable nor on the preceding word. This provides evidence that the pitch target in question is better thought of as L, as opposed to H+L.

Figure 59. L (as opposed to H+L) is realized on a non-verbal predicate simartle an č’ori ‘truth or a rumor’ in a YNQ ‘Is it true or [is it] a rumor that Givi likes Manana?’ (Borise 2017)

Finally, Skopeteas & Féry (2016) in their work on the prosodic and syntactic properties of preverbal focus in Georgian also comment on the general intonational properties of Georgian, including word stress.
In particular, they adopt the position that disyllabic and trisyllabic words in Georgian have initial stress, while longer words carry a primary stress on the antepenult and a secondary stress on the initial syllable (cf. Section 1.1). However, in their sample this divide also corresponds to the noun vs. verb distinction: specifically, all disyllabic words in their sample are nouns, while all words four-six syllables long are verbs; there are no trisyllabic stimuli in the sample. Therefore, it is impossible to say with confidence whether the difference in accentual properties is rooted in syllable count, part of speech identity, or both. Nevertheless, importantly for our purposes, Skopeteas & Féry also find that, particularly in focal contexts, verbs appear to carry pitch targets on the antepenult and/or penult. This is illustrated in Figure 60, which provides F0 contours for verbs of four, five and six syllables, each found in broad focus utterances and utterances with narrow focus on the verb: *emdureba* ‘was annoyed’, *emaleba* ‘hid’, *emudareba* ‘begged’ and *eloliaveba* ‘cared for’. As you can see in Figure 60, in narrow focus contexts but not in broad focus ones, the F0 values fall sharply on the penultimate syllable, which indicates the presence of a low pitch target. The distribution of this low pitch target corresponds to that of the phrase accent L.

![Figure 60. The antepenultimate and/or penultimate syllables of verbs appear to carry a pitch target, particularly in focus ('verb') contexts (Skopeteas & Féry 2016: 21)](image)
To sum up the individual data points brought together in the current chapter, there is robust evidence suggesting that, in Georgian, there exists a pitch target that is anchored to penultimate syllables in verbs in narrow focus contexts and questions. The very fact that the distribution of this pitch target makes reference to a particular information-structural context suggests that it is phrasal (as opposed to word-level) in nature. In particular, phrasal prosody is known to vary based on an information structural context – such as broad focus, narrow focus, etc. – while the locus or presence of word stress is not typically affected by such factors.

Finally, recall form the previous section that the penultimate syllable was also found to carry a low pitch target in the current study. The information-structural status of the examples in the study is different from those that the phrase accent has been discussed in so far: nouns in broad focus conditions as opposed to verbs in narrow focus contexts and questions. The distributional properties of the two phenomena, however, are parallel: both are anchored strictly to the penultimate syllable, regardless of the syllable count in a word. Based on these facts, I suggest that the two low pitch targets are likely to be subtypes of one and the same prosodic phenomenon, and further exploration of one of them should not leave the other one out of the picture.

4. Conclusions and theoretical implications

This chapter showed, based on novel instrumental evidence, that the initial syllable in Georgian carries fixed word stress, which is cued by syllable duration. Furthermore, it also showed that the penultimate syllable carries a low intonational pitch target, which resembles a phrasal accent, and the ultima is the locus of a boundary tone, which can be low or high.

The current results have implications for the theory of word stress. In particular, even though there is evidence for fixed initial stress in Georgian, stress does not play a significant role in the overall phonological make-up of the language. As already noted, it does not cause other phonological processes, such as reduction of vowels in the unstressed syllables, or morphological processes, such as regular variation in
stress placement in declensional or conjugational paradigms. Based both on the existing literature (Chikobava 1942) and native speakers’ intuitions, initial stress is not nearly as prominent as phrasal intonational pitch targets located on the penultimate and final syllables. Following Hyman’s (2012) analysis of the various degrees to which languages ‘care’ about their stress systems, Georgian patterns with languages in which stress is not subject to phonological activation. The notion of phonological activation is due to Clements (2001: 2): “features are specified in a given language only to the extent that they are needed in order to express generalizations about the phonological system”. With respect to stress, this notion can be used to account for the following cross-linguistic patterns: “Languages such as Hungarian or Turkish seem different because their metrical structure has little or no relevance outside the stress system itself. The contrast with English, whose phonology cares so much about stress, is quite striking. At the other extreme, Bella Coola cares so little that we can’t even determine if it has word stress at all” (Hyman 2012: 34). Georgian, therefore, patterns together with Bella Coola, Hungarian and Turkish, as opposed to languages like English.

Overall, then, by having word-level stress but relying mainly on phrasal prosody, such as intonational phrase accent, Georgian finds itself in a typologically unusual middle ground between languages that have strong word-level stress, such as English, and those that have been argued to rely solely on phrasal prosody, such as French or Ossetic.
Chapter 3. Basic Georgian syntax

This chapter is dedicated to establishing the basic properties of Georgian morphology and syntax. The morphological facts, such as verbal agreement and TAM marking, as well as case marking on the nominals, are provided here in order to facilitate understanding of the examples and glosses used in the dissertation. In turn, the basic syntactic facts discussed here show that the major clausal constituents – the verb and its arguments – have an underlying S (IO) DO V order, and, in a neutral declarative, do not leave the VoiceP/vP domain of the clause. This is also true of neutral VO clauses, in which the verb undergoes short movement to v⁰ and switches places with the DO in hierarchical order, and ultimately linear order.

The basic syntactic facts are discussed here in order to motivate the clausal architecture in Georgian that the rest of the dissertation relies on, which is shown in (14). Note that the positions of core constituents are not shown in (14), since they vary by tense (e.g., the subject position) and word order (e.g., broad focus OV and VO), as the remainder of this chapter shows.
The syntactic evidence presented here provides motivation for treating the clausal spine above the VP as a head-initial structure, despite the fact that many other phrase types in Georgian are indeed head-final. The evidence for this comes from their being several head-initial projections in the clausal spine, such as AuxP and CP, which are discussed below in more detail. The motivation for the existence of the PredP projection is provided in Chapter 5. A high AspP projection, corresponding to outer aspect, is used here following Lomashvili (2011), though nothing in the current analysis hinges on this choice.

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17 The name of the projection utilized here, PredP, has no immediate connection to the projection with the same name introduced in Bowers (1993). Instead, the PredP projection argued for here resembles FocusP that has been proposed for Hungarian (Bródy 1990; Szabolcsi 1981; É. Kiss 1998; Szendrői 2001), Persian (Karimi 2008; Toosarvandani 2008; Megerdoomian & Ganjavi 2000) and other verb-final languages in which movement of focus to a dedicated projection is postulated (note that in Georgian, this projection mainly hosts wh-phrases, with narrow foci only moving to it in clauses containing an invariant modal unda ‘have to, must’). Naming this projection PredP (as opposed to FocusP) intends to capture the fact that the material housed in it – namely, a wh-phrase/narrow focus and the verb – constitutes the focus/comment of the clause in information structural terms (as opposed to the topic of the clause), which also closely resembles the notion of a (logical) predicate in Den Dikken’s (2005; 2006; 2013) work. The connection between the notions of focus and predication, as well as those between the FocusP and PredP, are to be explored in future work.
This chapter is structured in the following way. Section 1 introduces the basics of Georgian verbal and nominal morphosyntax. Section 2 establishes that Georgian exhibits consistent head-final properties at the level of VP, NP and PP, while phrasal categories higher on the clausal spine are head-initial. Section 3 further advocates for OV as the underlying word order and for S (IO) DO V as the underlying relative order of major constituents. Section 4 builds on that and provides evidence supporting the hypothesis that the nominal arguments (S and O) do not leave their base positions in the course of the derivation. Finally, Section 5 argues that in neutral broad-focus declaratives the verb remains in situ, though it leaves the V in broad-focus VO word orders and yes/no-questions (YNQs).

1. Basic morphosyntactic properties

Georgian is a morphologically rich language, especially in the realm of verbal morphology. Since verbal arguments (subject, direct and indirect objects) are cross-referenced on the verb, Georgian allows extensive pro-drop. At the same time, argument encoding in verbal morphology is highly complex, with agglutinative, fusional and zero exponents for the categories of number and person, which can lead to ambiguity (Anderson 1984; 1986; 2001; Béjar 2000; 2003; Carmack 1997; Gurevich 2003; Makharoblidze 2012, a.o.), as in (15):

(15)  g-i-q ʾvar-xar-t
      2-VER-love-1-PL
      ‘We love you (sg.)’/’I love you (pl.)’/’We love you (pl.)’

The applicative marker, called here a version marker (VER), following the tradition in Kartvelian linguistics,18 is used for valency alternations, such as allowing an indirect object to be cross-referenced on the verb (Harris 1981: 87), as shown in (16), as well as marking categories such as voice, aspect, and modality (Nash 2017).

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18 The term version marker was first introduced by Shanidze (1926) and then used in Tschenkeli (1958), Vogt (1971), Aronson (1990), and subsequent work.
(16) a. Gela-m še-k’er-a axal-i šarval-i šen-tvis.¹⁹
G.-ERG PRV-sew-AOR.3SG new-NOM trousers-NOM 2SG-for
‘Gela made new trousers for you.’

b. Gela-m še-g-l-k’er-a axal-i šarval-i (šen).
G.-ERG PRV-2-VER-sew-AOR.3SG new-NOM trousers-NOM 2SG
‘Gela made new trousers for you.’ (Harris 1981: 87)

Verbal paradigms with particular TAM specifications in Georgian are also known as screeves; this
term, going back to Georgian mts’k’rivi ‘row’, is traditionally used in Georgian grammars in order to
emphasize that fact that TAM specifications of a particular screeve are fusional, and, e.g., the tense of a
given screeve cannot be changed while mood and/or aspect are held constant (Chikobava 1950; Kavtaradze
1954; Shanidze 1973, a.o.). Screeves are organized into three series according to their case alignment
properties: the present, aorist and perfect series (Harris 1981: 46; Aronson 1990: 41; Melikishvili 1998;
2001). The cases that the verbal arguments take in each of the series are discussed in Section 4 in the current
chapter.

Tense-aspect-mood (TAM) morphology is represented by numerous preverbs (PRV), which encode
aspect, and so-called stem formants (SF) and stem markers (SM), which signal tense and mood. Georgian
does not allow preverbs and verbs to be inverted or separated from each other by other material, in contrast
with languages such as German (Zeller 2003), Hungarian (Szendrői 2003; 2004), or Estonian (Ackerman
2003).

In the realm of nominal morphology, Georgian distinguishes two numbers and seven morphological
cases (nominative, ergative, dative, genitive, instrumental, adverbial and vocative). There are no
determiners and no grammatical gender. Modifying adjectives show case concord with their head noun
(Fuchs 2016).

¹⁹ Glosses in the examples cited from other work are modified for uniformity.
Georgian exhibits split case marking, with the case marking of subjects, direct and indirect objects varying by tense. In the present series, subjects are marked by nominative and direct objects are marked by dative (17), while in the aorist series, ‘active’ (transitive and unergative) subjects carry ergative, ‘inactive’ (unaccusative) subjects carry nominative, and direct objects carry nominative case (18).

(17) a. Giorg-i dges mankana-s q’idul-ob-s.  
G.-NOM today car-DAT buy-SF-PRS.3SG  
‘Giorgi is buying a car today.’

b. Elene a-cemin-eb-s.  
E.NOM VER-sneeze-SF-PRS.3SG  
‘Elene is sneezing.’

c. Močveneba u-činar-d-eb-a  
ghost.NOM VER-disappear-INCH-SF-PRS.3SG  
‘The ghost is disappearing.’

(18) a. Giorgi-m gušin mankana i-q’id-a.  
G.-ERG yesterday car.NOM VER-buy-AOR.3SG  
‘Giorgi bought a car yesterday.’

b. Elene-m da-a-cemin-a.  
E.-ERG PRV-VER-sneeze-AOR.3SG.  
‘Elene sneezed.’

c. Močveneba ga-u-činar-d-a.  
ghost.NOM PRV-VER-disappear-SM-AOR.3SG  
‘The ghost disappeared’

The perfect series is also known as ‘inverse’, in which ‘active’ subjects appear in the dative case, whereas ‘inactive’ subjects and direct objects appear in the nominative case. The verbs in the perfect series also have an evidential meaning – specifically, such utterances convey the notion that the speaker may not have witnessed the event, but has a memory about it happening, a presumption about it happening, or know of its result (Peikrishvili 1974). There is no dedicated evidential morpheme.

(19) a. Marik’a-s Giorg-i da-u-xat’-av-s.  
M.-DAT G.-NOM PRV-VER-draw-SF-PRF.3SG  
‘Marika has (evidently) drawn Giorgi.’
b. *Mamuk’a-s magrad u-muš-av-i-a.*
   M.-DAT hard VER-work-SF-SM-PRF.3SG
   ‘Mamuka (evidently) has worked hard.’

c. *Q’avil-i ga-šl-i-a.*
   flower-NOM PRV-open-SM-PRF.3SG
   ‘The flower has (evidently) opened.’

Case marking of the verbal arguments is summarized in Table 15:

<table>
<thead>
<tr>
<th>Series</th>
<th>‘Active’ subjects (transitive &amp; unergative)</th>
<th>‘Inactive’ subjects (unaccusative)</th>
<th>Objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td>Nominative</td>
<td></td>
<td>Dative</td>
</tr>
<tr>
<td>Aorist</td>
<td>Ergative</td>
<td></td>
<td>Nominative</td>
</tr>
<tr>
<td>Perfect</td>
<td>Dative</td>
<td></td>
<td>Nominative</td>
</tr>
</tbody>
</table>

To recapitulate, case marking in the present series corresponds to that found in languages with nominative-accusative case marking, with all subjects being marked nominative, and objects being marked dative. In contrast, in the aorist and perfect series, the picture is different, with ‘inactive’ subjects siding with objects in their case-marking properties. This variance in subject marking according to its ‘active’/‘inactive’ status has led to a number of works treating Georgian as an ergative or, more precisely, split-ergative language, including Hewitt (1987; 1995) Nash (1995; 1997; 2017), Boeder (1979), King (1994), Tuite (1999) and Andréasson (2001). These accounts are not unproblematic, however.

The main argument against treating Georgian as (split)-ergative comes from the fact that Georgian subjects that carry ergative are not just transitive subjects (which is the case in typical ergative languages), but also include subjects of unergatives. Accordingly, a number of authors have argued against treating Georgian as a (split)-ergative language and for a more precise characteristic of it as a split-active language, recognizing the fact that in some (but not all) verbal series, case marking of the arguments differentiates ‘active’ subjects (both transitive and unergative) from inactive/unaccusative subjects and object; cf. Aronson (1970), Comrie (1973), Klimov (1973; 1977; 1979), Harris (1981), Asatiani (1982), Amiridze (1998; 2006) and Melikishvili (1998; 2001).
Note, however, that the difference between the two types of accounts is not as clear-cut as the above might suggest. In particular, some accounts of Georgian as (split-)ergative adopt a view expressed in Hale and Keyser (1993), according to which unergative verbs are, in fact, transitive, and have an implicit object. A similar view of Georgian unergatives is espoused by Nash (2017), who suggests that Georgian unergatives are covert causatives, in such a way that a statement *Nino laughed* is internally structured as *Nino caused herself to laugh*. Nash’s (2017) approach to ergative licensing is adopted here; nothing else in the current account hinges on treating Georgian as (split-)ergative or (split-)active.

2. Headedness

Georgian is a language with mixed headedness. On the one hand, postpositional phrases (PPs), genitive + noun combinations, participial relative clauses (RCs), small clauses (SCs), object+verb idioms, and finite+nonfinite verb constructions are clearly head-final, as exemplified below. On the other hand, AuxP and CP exhibit head-initial properties, which means that the clausal spine in Georgian above the VP is a head-initial structure.

To start with the head-final projections, consider postpositional phrases (Georgian does not have prepositions). In postpositional phrases, the postposition always follows the noun phrase (20), and in noun + genitive combinations, the genitive precedes its head noun (21); these properties commonly go together (Greenberg 1963) and are typical of head-final languages.

(20) a. **alkimik’os-eb-is-tvis**
    alchemist-PL-GEN-for
    ‘for the alchemists’

    b. * **tvis** alkimik’os-eb-is
        for alchemist-PL-GEN
        (‘for the alchemists’)

(21) a. **Amerik’-is še-ert-eb-ul-i št’at’-eb-i**
    America-GEN PRV-one-SF-PTCP-NOM state-PL-NOM
    ‘United States of America’
Similarly, in participial RCs (22) and small clauses (23) the predicative element, such as a participle or an adjective, follows all other elements, which is typical of head-final languages. Unavailability of (b) in (23) is particularly illustrative: since small clauses lack higher functional projections that the verb can move to (cf. Johnson & Tomioka 1997), they reveal the underlying word order of the VP.

(22) a. \[\text{[pres} \text{Eka-}\text{PRF} \text{PTCP-}\text{NOM} \text{book-}\text{NOM}] \quad \text{c’ign-i}\]
   Eka-GEN PRV-read.PRF-PTCP-NOM book-NOM
   ‘the book Eka read’

(23) a. \[\text{[sc Gela-}\text{G.}\text{-DAT} \text{smart-as} \text{consider-SM-PRS.3SG}] \quad \text{tvl-i-s.}\]
   M.NOM G.-DAT smart-as consider-SM-PRS.3SG
   ‘Manana considers Gela smart.’

   b. \[\text{[sc c’k’vian-}\text{Gela-}\text{G.}\text{-DAT} \text{smart-as} \text{consider-SM-PRS.3SG}] \quad \text{tvl-i-s.}\]
   M.NOM smart-as G.-DAT consider-SM-PRS.3SG
   (‘Manana considers Gela smart.’)

In object + verb idioms, the idiomatic reading is more readily available in the OV order than in the VO order. Asatiani & Skopeteas (2012: 128) show, based on Google searches, that the OV order is much more frequent in idiomatic expressions (86.5%) than VO. It should be noted, though, there is some inter-speaker variation with respect to the sharpness of the contrast, as well as variation between individual idioms, as shown in (24) and (25); see also Skopeteas & Fanselow (2010: 1375). Since idiomatic expressions are non-compositional in nature, and idiomatic readings can be disrupted by syntactic movement (Katz & Postal...
1963; Weinreich 1966; Chafe 1968), the most natural word order in an idiomatic expression, arguably, corresponds to the underlying order of elements in it – in our case, OV. 20

   M.NOM fly-PL-DAT VER-count-SM-PRS.3SG ceiling-on
   ‘Manana is twiddling her thumbs.’ (lit.: counting flies on the ceiling)

b. ??*Manana* i-tvl-i-s buz-eb-s č’er-ši.
   M.NOM VER-count-SM-PRS.3SG fly-PL-DAT ceiling-on
   ‘Manana is twiddling her thumbs.’ (lit: counting flies on the ceiling)

(25) a. Nino-m ena mi-u-tan-a Dat’o-s.
   N.-ERG tongue.NOM PRV-VER-bring-AOR.3SG D.DAT
   ‘Nino spilled the beans to Dato.’ (lit.: brought her tongue to Dato)

b. ? Nino-m mi-u-tan-a ena Dat’o-s.
   N.-ERG PRV-VER-bring-AOR.3SG tongue.NOM D.DAT
   ‘Nino spilled the beans to Dato.’ (lit: brought her tongue to Dato)

In clauses involving verbs *akvs/h’qavs* ‘have’ 21,22 and a participial complement, *akvs/h’qavs* canonically follows the participial complement (Asatiani & Skopeteas 2012), as is, again, characteristic of head-final languages (Greenberg 1963). Note that Georgian also allows for the verbs *akvs/h’qavs* ‘have’ to precede the participial complement, in line with allowing both OV and VO word orders with simple nominal direct objects, as is discussed in Section 5.3 in the current chapter:

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20 Though cf. also Fraser (1970), Nunberg et al. (1994) and Bruening (to appear) on the varying behavior of different subtypes of idioms, including object + verb idioms.

21 Georgian has two verbs ‘to have’, with the present tense third person singular forms *akvs* and *hq’avs*; *akvs* is used with an inanimate possessum (*I have a car*), while *hq’avs* is used with an animate possessum (*I have a cousin*). Both verbs can take participial complements.

22 *Akvs* and *hq’avs* are third person singular forms of the verbs ‘to have’ in the present tense. Given that Georgian does not have true infinitives, *masdar* nominalizations are often used as the base form of the verb, even though *masdar* forms may be morphophonologically different from the finite forms – e.g., due to root suppletion, which is very common in Georgian. For instance, the *masdar* form of *akvs* is *kona*, and the masdar of *hq’avs* is *q’ola*. In this work, third person singular forms of the present tense paradigm are used as base forms of verbs instead of the *masdar*, in order to allow for easier recognition of related forms.
N.-DAT ice-cream-NOM PRV-buy-PTCP VER-have-3SG
‘Nino has bought ice-cream.’

b. Nino-s a-kv-s [naq‘in-i na-q‘id-i.]
N.-DAT VER-have-3SG ice-cream-NOM PRV-buy-PTCP
‘Nino has bought ice-cream.’

Head-final order in the verbal domain in Georgian has also been argued for in generative work on the structure of the verbal projections in Georgian; cf. Lomashvili (2011).

In contrast with prototypical head-final languages such as Korean and Japanese, Georgian is not consistently head-final across all phrase types. Embedded CPs and tensed RCs show that with respect to the higher clausal projections, Georgian exhibits head-initial order. This is consistent with the Final-Over-Final Condition (FOFC), according to which head-final projections can be dominated by head-initial ones higher in the structure, but not vice versa (Sheehan et al. 2017). Specifically, the complementizer rom is always initial in an embedded complement CP:

(27) Marik’a pikrob-s [rom Giorgi-m (*rom) mankana-s (*rom) i-q‘id-a
M.NOM think-PRS.3SG COMP G.ERG COMP car-DAT COMP VER-buy-AOR.3SG

(*rom)].
COMP
‘Marika thinks that Giorgi bought a car.’

Similarly, Erschler (2015) notes that initial placement of rom is always judged as more felicitous compared to non-initial, though he finds more variability in judgements, as shown in (28):

(28) Manana pikrob-s [rom Rezo (*rom) saxl-s (*rom)
a-šen-eb-s].
M.NOM think-PRS.3SG COMP R.NOM COMP house-DAT COMP
VER-built-SF-PRS.3SG
‘Manana thinks that Rezo is building a house.’

(Erschler 2015: 44)
Rom also (optionally) appears initially in embedded questions in so-called wh-scope marking constructions. In these structures, a wh-phrase in an embedded clause co-occurs with another wh-phrase in the matrix clause, which marks its scope; cf. Fanselow (2006) and Dayal (1993; 2000), among others, on wh-scope marking in a number of languages, e.g., Hindi, German and Bangla. The distributional and analytical properties of wh-scope marking are discussed in greater detail in Chapter 5.

(29) Ra tkv-a Manana-m (rom) vin a-k’ots-a Giorgi-s?
what say-AOR.3SG M.-ERG COMP who PRV-kiss-AOR.3SG G-DAT
‘What does it seem to Manana, who kissed Giorgi?’

Similarly to rom, the interrogative complementizer tu is also found in the right periphery of an embedded clause. In embedded yes/no-questions, it occupies a Wackernagel (second) position. As the word order in the embedded clause may vary, depending on its information structure, there is no restriction as to which constituent precedes tu in an embedded yes/no-question, as shown in (30):

(30) Nino-s u-nda i-c-od-e-s (tu) [NP dzalian (tu) didi (tu)]
N.-DAT VER-want VER-know-SM-OPT-3SG COMP.Q very COMP.Q big COMP.Q
mankana] (tu) i-q’id-e Germania-ši (tu) šaršan (tu)
car.NOM COMP.Q VER-buy-AOR.2SG Germany-IN COMP.Q last_year COMP.Q
‘Nino wants to know if you bought a very big car in Germany last year.’

As (30) also shows, tu appears after the first constituent of the embedded clause, dzalian didi maknaka ‘a very big car’. This provides evidence against Prosodic Inversion (Halpern 1992; 1995; Bošković, Beukema & Den Dikken 2000; 2001) as a mechanism for deriving the second position placement of tu. In a prosodic inversion scenario, clitics are generated on the left and undergo inversion to enclitise to the first prosodic word; in (30), a Prosodic Inversion account predicts that placement of tu to the right of the first prosodic word, dzalian ‘very’, should be available, contrary to fact.

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23 Erschler (Erschler 2015: 46) notes that tu may also also be found further to the right in the embedded clause. My consultants, however, rejected placement of tu further to the right of the second position.
In embedded wh-questions, *tu* obligatorily precedes the wh-phrase and occupies the initial position in an embedded wh-question, as shown in (31) below. This fact is used for determining the structural position of wh-phrases in Chapter 5.

(31)  Manana-m sa-int’eres-eb-s,  *tu*   vin   (*tu)  a-k’ots-a  mas.
     M.-ERG PFX-interest-SF-PRS.3SG  COMP.Q  who  COMP.Q  PRV-kiss-AOR.3SG  3SG.DAT
      ‘Manana is wondering who kissed her.’

Relative pronouns behave similarly to complementizers. There are several types of relative clauses in Georgian, including those headed by a relative pronoun *romel*- or relative pronouns formed by merging a wh-word and the particle -c (cf. Foley 2013), or headed by the complementizer *rom* without an overt relative pronoun. Like the distribution of complementizers, the behavior of relative pronouns also indicates that the left periphery of a relative clause is head-initial. Specifically, in relative clauses with a relative pronoun *romel*- or one formed by wh-word and a particle -c, the relative pronoun is initial in the relative clause, as shown in (32).

The syntactic status of -c has not been investigated systematically, but given its distribution, it behaves as a C0, which is what I take it to be; like other complementizers, -c can only be found in the left (and not right) periphery of the clause, which is consistent with the CP being head-initial. Accordingly, the relative pronoun *romel*- and those built on wh-words, such as *vin*- , are merged in Spec, CP.

(32)  a.  [DP k’ac-i  [CP *romel-ma  [c -c  [TP ... [Vpr še-gh-eb-a  saxl-i]]]]]
     man-NOM  which-ERG  COMP  PRV-paint-SF-AOR.3SG  house-NOM
     ‘the man who painted the house’

24 Relative pronouns + nouns carrying genitive case present an exception to this generalization, as described by Aronson (1990: 183). In such cases, shown in (i) and (ii) below, the noun or the postposition following the noun carry -c, in a structure that likely involves pied-piping of dependent material along with the relative pronoun:

(i)  Sakartvelo, roml-is  deda-kalak-i-c  Tbilisi-a,  sabč’ota  k’avšir-ši-a.
     Georgia which-GEN mother-city-NOM-COMP Tbilisi-COP  Soviet  Union-in-COP
     ‘Georgia, the capital of which is Tbilisi, is in the Soviet Union.’ (Aronson 1990: 183)

(ii)  Vano-m gada-targmn-a  c’ign-i,  roml-is  šesaxeb-ac  mo-g-c ’er-e-t.
     V.-ERG PRV-translate-AOR.3SG  book-NOM  which-GEN about-COMP PRV-2-write-SM-PL
     ‘Vano translated the book which I wrote to you (pl.) about.’
Relative clauses with a complementizer *rom* and without an overt relative pronoun have slightly different properties: in contrast with *romel-* VP, *rom* cannot be initial in a relative clause, and instead is found between the second position in the relative clause and the immediately preverbal position (the verb is often final in a relative clause, but it does not have to be); cf. Foley (2013: 11), Bhatt & Nash (2018). Recall that in complement clauses, *rom* is initial, as shown in (28) above.

(33)  
\[
\text{[DP } c\text{'igni [CP (*rom) gušin (rom) Vano-m (rom) Tamaz-s (rom)] book.NOM. COMP yesterday COMP V.-ERG COMP T.-DAT COMP N.-GEN-for COMP 1SG-at COMP PRV-VER-give.CAUS-AOR.3SG COMP]}
\]

Nest’an-is-tvis (rom) čem-tan (rom) *da-a-cemin-a* (*rom)*].

To recap the evidence from complementizers and relative pronouns, Georgian CP is a head-initial projection. An alternative approach, according to which *rom* and *tu* are generated in a head-final projection would require non-trivial additional assumptions as to how they reach their surface positions, given that Prosodic Inversion does not apply to Georgian, as was shown in (30) above. As a side note, it is also worth pointing out that *k‘i*, an enclitic marker of contrast, should not be treated as a C⁰, given that it can mark both topics and foci, if they have a contrastive reading (B-Violette 2016). While treating it as a C⁰ would be possible for topics, it is not feasible for foci, which do not undergo movement to CP. In order to avoid a disjoint account of *k‘i*, I am setting it aside.

Further evidence for there being head-initial projections in the Georgian clausal architecture comes from the distribution of modal verbs. In particular, the non-inflecting modal *unda* ‘have to, must’, in contrast with finite verbs, can only be found clause-medially and cannot surface clause-finally, contrary to what
would be expected in a strictly head-final language, as shown in (34).\(^25\) This means that AuxP, where the modal is merged, is a head-initial projection.

(34) a. \textit{Xval} P’ragha-ši K’arl-is xid-i \textit{unda} v-nax-o-t.
    tomorrow Prague-in Charles-GEN bridge-NOM MOD 1-see-OPT.1-PL
    ‘We have to see Charles Bridge in Prague tomorrow.’

    b. *\textit{Xval} P’ragha-ši K’arl-is xid-i v-nax-o-t \textit{unda}.
    tomorrow Prague-in Charles-GEN bridge-NOM 1-see-OPT.1-PL MOD
    (‘We have to see Charles Bridge in Prague tomorrow.’)

To sum up the evidence presented so far, nominal phrases, postpositional phrases and the lowest verbal domain, the VP, in Georgian are head-final. More evidence in favor of the VP being head-final is provided in the next section, which argues that OV is the underlying word order in Georgian. At the same time, we have seen that the highest (CP) domain on the clause spine is head-initial, and so is the AuxP projection, which houses the modal verb \textit{unda} ‘have to, must’. Finally, I also proposed that broad-focus VO is derived via V-to-v movement of the verb, with the vP-projection also being head-initial.

Bringing together the facts discussed above, while there is solid evidence that the VP in Georgian is head-final, there is also reliable evidence that the AuxP and CP that are found higher up in the clause are head-initial. Furthermore, Section 5.3 below shows that broad-focus OV and VO do not differ from each other in their interpretational properties, which suggests that VO is not derived by right-dislocation/right-adjunction of the object. An alternative derivation of broad-focus VO, advocated in Section 5.3, relies on short leftward V-to-v movement of the verb, which accounts for the lack of interpretational differences.

\(^{25}\) A possible analytical alternative to treating \textit{unda} ‘have to, must’ as a modal head is to treat it as an invariant adverb. However, the modal analysis, as opposed to the adverb analysis, is supported by negation facts. In particular, as Section 5.1 in the current chapter shows, the exponents of negation \textit{ar}, \textit{ver} and \textit{mu} can only apply to verbs; constituent negation in Georgian is limited and has a different mechanism: it is marked by a postposing exponent of negation \textit{ara}. The modal \textit{unda} ‘have to, must’ can be preceded by an exponent of negation, which supports its status of a modal (i.e., verb-like) head, as opposed to an adverb:

\begin{itemize}
  \item[(i)] \textit{Is ar unda ga-xd-e-s p’rezident’-i.}
  \text{3SG NEG MOD PRV-become-OPT-3SG president-NOM}
  ‘He should not become a president.’
\end{itemize}
between the two structures, given that the direct object in both is found in situ. Most importantly for our purposes in the current chapter, such movement can only take place if the vP is head-initial. From a theoretical point of view, the Final-over-Final-Condition (FOFC; Sheehan et al. 2017) allows for head-initial projections to dominate head-final ones but not vice versa.\textsuperscript{26} Applied to Georgian, this means that, once the head-initial vP is introduced, all projections dominating it are also head-initial.

In summary, there is evidence for there being both head-initial and head-final projections in Georgian, which makes it a mixed-headedness language. In this, Georgian clausal architecture is similar to that found in German and Germanic (other than English), where verbal and adjectival projections are head-final, while nominal and lexical functional heads (complementizers, articles) are head-initial; cf. a detailed comparative analysis of Germanic clause structure in Haider (2010). Note that there is also an obvious difference between Germanic and Georgian: while that former has strong verb-second properties, the latter does not. The verb-second requirement provides a significant piece of evidence in favor of the clausal spine above the VP being head-initial in Germanic, given the clause-medial surface position of the verb in root clauses, and is canonically accounted for as V-to-T-to-C movement (Weerman 1989; Kiparsky 1995; 1996, a.o.). In Georgian, in the absence of the verb-second requirement, other evidence is brought to bear on head-initial projections in the clausal architecture. This evidence includes clause-medial modals, such as \textit{unda} ‘have to, must’, clause-initial complementizers, the availability of broad-focus VO (Section 5.3) and the possibility for clause-initial placement of verbs in yes-no/questions (Section 5.4).

3. \textbf{S (IO) DO V as the underlying word order}

With respect to headedness, the previous Section established that Georgian presents evidence for the following headedness properties:

\textsuperscript{26} This generalization applies to the clausal spine; FoFC allows for a head-initial nominal projection to be a complement in a head-final projection.
Table 16. Headedness in Georgian

<table>
<thead>
<tr>
<th>Phrase type</th>
<th>Head-initial</th>
<th>Head-final</th>
</tr>
</thead>
<tbody>
<tr>
<td>PP</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Gen+N</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>participial RC</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>small clause</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>vP</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>AuxP</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>complement CPs with complementizers <em>tu, rom</em></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>RC with the complementizer <em>-c</em></td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

In contrast with these rigid headedness constraints, there is considerable flexibility with respect to the derived order of the elements within the VP, with both head-initial and head-final orders (VO and OV) widely attested. Both orders are frequently found in discourse and can be found in all-new contexts (Tuite 1998b: 42). According to an overview of the literature on the topic provided in Skopeteas & Fanselow (2010), most authors agree that the OV order is underlying (Pochkhua 1962; Aronson 1982: 47; Nash 1995; McGinnis 1997a; 1997b; Harris 2000: 141; Boeder 2005: 64), though cf. Amiridze (2006) for a view that (mono)transitive verbal projections in Georgian are head-initial, Tschenkeli (1958: 12) for a view that all transitive verbal projections are head-initial, and Harris (1981: 22) and Anderson (1984: 186) for a view that the underlying order of the verb and object in Georgian is unspecified. In line with the majority of authors, and also in line with the evidence from other projections, provided in Section 2 above, I take the underlying order of the elements in the VP in Georgian to be OV, since it accounts best for the full range of data. In contrast, VO and mixed/undefined approaches cannot account for the OV order being the only available one in small clauses, and in idioms.

Several small-scale corpus investigations of the possible orders of major clausal constituents in Georgian have been reported in the literature and are discussed in the remainder of this section. According to the results, there is a general preference for OV in conservative registers/written styles, while in

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27 More on the vP being head-initial in Section 5.3 of this chapter.
colloquial registers OV and VO are equally common. For instance, Vogt (1971: 222) reports that on fifty pages, randomly chosen from Mikheil Javakhishvili’s 1925 novel Jaq’os xiznebi (‘Jaqo’s Dispossessed’), 2/3 of clauses containing S, O and V had SOV order, and about 1/6 had SVO order. At the same time, in Rčeuli kartuli xalxuri zghap’ rebi (‘Popular Georgian folk tales’), OV and VO were equally frequent (Vogt 1971: 222); cf. also Skopeteas and Fanselow (2010).

In addition to register differences, it has also been shown that the preference for VO increases as the number and complexity of constituents increases, as shown in Skopeteas & Fanselow (2010: 1383) based on Aprionidze (1986: 137) (Table 17); cf. also Hawkins (1994: 177) on Early Immediate Constituents and Heaviness Principle. Note, however, that the information-structural status of these constituents in Table 17 is unknown. The structural account of broad-focus VO orders in Georgian is provided in Section 5.3.

Table 17. V position and sentence length (data from Aprionidze 1986:137-140, presented in Skopeteas & Fanselow 2010)

<table>
<thead>
<tr>
<th>n of constituents</th>
<th>total</th>
<th>non-final V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>n</td>
</tr>
<tr>
<td>2</td>
<td>8 466</td>
<td>2 050</td>
</tr>
<tr>
<td>3</td>
<td>13 785</td>
<td>5 268</td>
</tr>
<tr>
<td>4</td>
<td>7 616</td>
<td>4 193</td>
</tr>
<tr>
<td>5</td>
<td>1 662</td>
<td>1 103</td>
</tr>
<tr>
<td>6</td>
<td>191</td>
<td>146</td>
</tr>
</tbody>
</table>

With OV as the underlying order, how does the indirect object fit into the picture? Amiridze (2006: 57) argues for S-IO-DO-V as the underlying word order based on binding facts: regardless of whether the IO precedes or follows the DO linearly, it can bind it, suggesting that the IO c-commands the DO. This is illustrated in (35) below. Similarly, regardless of whether the DO precedes or follows the IO linearly, it cannot bind it, as shown in (36). The fact that the possible permutations in surface word order, such as in (b) in (36), do not lead to creating a new possible antecedent for the anaphor suggests that such word order
changes constitute scrambling of the A-bar type, since A-bar movement does not create new possible antecedents.\(^{28}\)

(35)  
a.  
\[ \text{Me } Bakar-s; \ [tavis-i \text{ } tav-i]; \ agh-v-u-c’er-e. \]

1SG B.-DAT 3REFL.GEN.SG-NOM self-NOM PRV-1SG-VER-write-AOR.3SG  
‘I described Bakar to himself.’ (Lit.: I to.Bakar himself described.’)

b.  
\[ \text{Me } [tavis-i \text{ } tav-s]; \ Bakar-s; \ agh-v-u-c’er-e. \]

1SG 3REFL.GEN.SG self-DAT B.-DAT PRV-1SG-VER-write-AOR.3SG  
‘I described Bakar to himself.’ (Lit.: I to.himself Bakar described.’)

(36)  
a. * \[ \text{Me } [tavis \text{ } tav-s]; \ Bakar-i; \ agh-v-u-c’er-e. \]

1SG 3REFL.GEN.SG self-DAT B.-NOM PRV-1SG-VER-write-AOR.3SG  
‘I described Bakar to himself.’ (Lit.: I to.himself Bakar described.’)

b. * \[ \text{Me } Bakar-i; \ [tavis \text{ } tav-s]; \ agh-v-u-c’er-e. \]

1SG B.-NOM 3REFL.GEN.SG self-DAT PRV-1SG-VER-write-AOR.3SG  
‘I described Bakar to himself.’ (Lit.: I Bakar to.himself described.’) (Amiridze 2006: 57)

Lomashvili (2011: 116) also takes the underlying word order S-IO-DO-V to be basic, but mainly based on theory-internal considerations: specifically, the structure of the applicative projection (ApplP), in which the IO, merged in Spec, ApplP c-commands the DO, a complement of Appl\(^9\) (Pylkkänen 2002; Cuervo 2003; Jeong 2007).

(37)  
a. \[ \text{Lali-m } Gia-s \text{ } namcxvar-i \text{ } gamo-u-cx-o. \]

L.-ERG G.-DAT cake-NOM PRV-VER-bake-AOR.3SG  
‘Lali baked Gia a cake.’ (Lomashvili 2011: 115)

---

\(^{28}\) In contrast with the reflexive *tavisi tav* ‘3SG.REFL’, which, if used as an indirect object, cannot be bound by the direct object, Georgian reciprocal *ertmaneti* ‘RECP’ can. More specifically, *ertmaneti* ‘RECP’ allows for both binding scenarios: as a direct object, it may be bound by the indirect object, and as an indirect object, it may be bound by the direct object (Nash 2016), as shown in (i). The variation in version marking on the verb, allowed here, has no bearing on the binding properties, since both version markers are allowed with both constructions.

(i)  
a. \[ \text{Txa-m } bu-eb-s \text{ } ertmanet-i \text{ } a-čven-a/ \text{ } u-čven-a. \]

goat-ERG owl-PL-DAT RECP-NOM VER-show-AOR.3SG/ VER-show-AOR.3SG  
‘The goat showed the owls each other.’

b. \[ \text{Txa-m } bu-eb-i \text{ } ertmanet-s \text{ } a-čven-a/ \text{ } u-čven-a \]

goat-ERG owl-PL -NOM RECP-DAT VER-show-AOR.3SG/ VER-show-AOR.3SG  
‘The goat showed the owls to each other.’ (Nash 2016)
   E.-erg G.-DAT key-PL-NOM PRV-VER-lose-AOR.3SG
   ‘Erekle hid the keys from Gia.’ (Lomashvili 2011: 123)

The surface distribution of the three verbal arguments can be more varied. Pochkhua (1962: 109) reports that, in addition to SOV, S-IO-DO-V and S-DO-V-IO were most common in his data drawn from scholarly manuals Deda ena (‘Mother tongue’) and P’irveli nabiji (‘The first step’), as well as some other literary texts. Similarly, according to Vogt (1971: 222), S-IO-DO-V and S-IO-V-DO orders are equally common.

Overall, based on the evidence presented in this section, I take Georgian to have the underlying word order S (IO) DO V, which is consistent with the head-final properties other projections show. Discourse-motivated movement, however, can often lead to other surface orders. Furthermore, even though VO orders are attested in all-new broad-focus clauses, I take them to be derived, which I defend in Section 5.3 in the current chapter.

4. Structural positions and case-licensing of nominal constituents

In terms of its location on the clausal spine, I take the position of the verb in Georgian to be low; the reasoning for that is detailed in Section 5. As for verbal arguments, I am following the existing proposal by Nash (2017), according to which subjects in Georgian do not raise to Spec, TP, though, depending on the series of the verb and the case that the subject carries as a result of that, subjects can be generated in different projections. Similarly, there is evidence that DOs stay in their base position. The precise structural positions that are adopted for verbal arguments in the current work are discussed in the remainder of the current section.

As detailed in Section 1 of the current chapter, case marking of verbal arguments in Georgian varies between nominative, ergative, and dative, depending on the series of the verb. This was illustrated in Table 15 in Section 1 of the current chapter, repeated below as Table 18.
Table 18. Case marking by series

<table>
<thead>
<tr>
<th>Series</th>
<th>‘Active’ subjects</th>
<th>‘Inactive’ subjects</th>
<th>Objects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(transitive &amp; unergative)</td>
<td>(unaccusative)</td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td>Nominative</td>
<td>Dative</td>
<td></td>
</tr>
<tr>
<td>Aorist</td>
<td>Ergative</td>
<td>Nominative</td>
<td></td>
</tr>
<tr>
<td>Perfect</td>
<td>Dative</td>
<td>Nominative</td>
<td></td>
</tr>
</tbody>
</table>

With respect to case licensing, there are several existing views on the mechanics of case assignment in Georgian – notably, Legate (2008) and Nash (2017). However, the two analyses align in those of their properties that are most important for our purposes. In particular, according to both proposals, case licensing on verbal arguments in Georgian is achieved in situ. That said, the two analyses diverge in some important respects – such as with respect to treating ergative case as dependent (Nash 2017) or inherent (Legate 2008). Furthermore, Nash’s (2017) account of case licensing is a hybrid one, along the lines of Baker and Vinokurova (2010), in that some cases, according to Nash, are assigned by functional heads, but others nominals receive case simply by virtue of the fact that they are in the same domain as another nominal that also receives case (dependent case; cf. Marantz 1991; Bobaljik 2008). I refrain here from working out the details of any particular approach to case in this work and, instead, summarize both of them below; note that, while diverging in the mechanics of case assignment, they are in accord about the structural positions of the respective nominals. Nothing in the analytical part of this dissertation – i.e., in the properties of wh-question formation or focus interpretation – depends on the mechanics of case assignment discussed here.

To start with the present series, both Legate (2008) and Nash (2017) suggest that the nominative case is licensed by T⁰, via c-command. Evidence for T⁰ as the licenser for nominative case comes from the regular absence of this case in the absence of T⁰. For example, masdar nominalizations, which do not have a T⁰, cannot have a nominative argument, as shown in (a) in (40) below; the structure of nominalizations is discussed in more detail in Section 2.5 in Chapter 5.

The nominative-marked argument, therefore, is always found in the scope of T⁰, though its thematic role and structural position vary by series. In particular, in the present series, there is a dedicated Voice⁰ head (Kratzer 1994); cf. Nash’s (2017) Event⁰), which is merged above vP and combines two functions.
On the one hand, Voice\(^0\) thematically licenses the external argument of vP. On the other hand, it expresses the localization of the eventuality with respect to the reference time in T\(^0\), which means that it is anaphorically dependent on T\(^0\). In the present series, the nominative subject is merged in Spec, VoiceP and marked as nominative by the c-commanding functional head T\(^0\), as is shown in (38) and (39) below. In transitive clauses in the present series, the lower argument, located in the VP, is assigned dative case. According to Nash (2017), dative case of the direct object is assigned by Voice\(^0\), which c-commands it, though such dative can also be assigned as a dependent case. An argument for the latter analysis, again, comes from nominalizations: since a nominative subject does not survive in nominalizations, the dative, dependent on it, is also unavailable in nominalizations; as a result, direct objects in nominalization are marked genitive, as shown in (40).

(38)  \textit{Giorg-i cur-av-s.} \\
G.-NOM swim-SF-PRS.3SG \\
‘Giorgi is swimming.’

(39)  \textit{Giorg-i lobian-s č’am-s.} \\
G.-NOM lobiani-DAT eat-PRS.3SG \\
‘Giorgi is eating lobiani.’

(40)  a. (*\textit{Giorg-i}) lobian-is č’am-a. \\
G.-NOM lobiani-GEN eat-NMLZ \\
(‘Giorgi’s eating of lobiani.’)

b. * lobian-s č’am-a. \\
lobiani-DAT eat-NMLZ \\
(‘eating of lobiani.’)

In accordance with the structural description above, the hierarchical positions of verbal arguments in the present series are illustrated in (41) below, based on the example (39); note that an intransitive subject would likewise be found in Spec, VoiceP in the present series.
Next, consider the aorist series, where subjects carry ergative and objects carry nominative. In the absence of Voice$^0$ (Event$^0$) in ergative constructions, T$^0$ directly takes a vP as its complement (other functional projections, such as high AspP, notwithstanding). If the verbal domain contains one argument, its case is checked against T$^0$ and is nominative, as shown in (42). This is the case for unaccusative verbs in aorist series.

\begin{equation}
\text{(42) } \text{Giorgi-da-brun-d-a.}
\end{equation}
\begin{tabular}{l}
Giorgi-NOM \quad PRV-return-SM-AOR.3SG \quad 'Giorgi returned.'
\end{tabular}

For Georgian unergatives, I am adopting Nash’s (2017) covert causative analysis, in the spirit of Hale and Keyser (1993), which groups them together with transitive verbs. In transitive contexts in the aorist series, where two arguments need to have their case checked, it is the lower of the two, the direct object, that receives the nominative case from T$^0$, as shown in (43):

\begin{equation}
\text{(43) } \text{Giorgi-m lobiani še-č'ams.}
\end{equation}
\begin{tabular}{l}
Giorgi-ERG \quad lobiani-NOM PRV-eat-AOR.3SG \quad 'Giorgi ate lobiani.'
\end{tabular}

According to Nash (2017), ergative in Georgian is assigned in Spec, vP via dependent case mechanism. Specifically, ergative is assigned in the absence of the VoiceP (EventP) projection, which would have
allowed the subject to receive (nominative) case from $T^0$. Instead, ergative is assigned in configurations where $T^0$ “sees” two arguments with unvalued case features in the same vP domain and marks the higher of the two with the dependent case. The presence of the ergative is therefore a sign that VoiceP is absent and that the dependent case algorithm tracks the higher argument.

Recall that Legate (2008) also takes ergative case to be assigned in Spec, vP, but, in contrast to Nash’s (2017) analysis, she treats ergative as inherent case. While I am not adjudicating between the two accounts to ergative assignment here, note that in both of them the ergative-marked constituent is housed in Spec, vP. Accordingly, an illustration of a transitive clause in the aorist series (with an ergative subject) is provided in (44), based on the example in (43):

(44)

```
TP
  T
    AspP
      Asp
        vP
          NP
            Giorgi-m
              v
                VP
                  NP
                    lobiani
                      ‘lobiani’
                  V
                    Šećama
                      ‘ate’
```

Finally, consider case licensing of verbal arguments in the perfect series, where the subject is marked dative and the object carries nominative. As for subjects carrying dative case in the perfect series, the evidence that they are true subjects comes from binding: dative subjects can serve as antecedents for tav-reflexivization, which in other series is a property unambiguously characteristic of subjects (Harris 1981: 117; McGinnis 1995; 1997a; Thivierge 2019), though it is worth noting that verbal agreement cross-referencing subjects in other series refers to the nominative argument, not the dative one in the perfect series. Thivierge (2019) take such clauses to be (dyadic) unaccusatives; accordingly, they lack VoiceP
(Kratzer 1994). Following Thivierge’s (2019) analysis of dative subjects in Georgian, which is based on the distributional properties of verbal agreement and the formation of causatives, I take dative subjects to be generated in Spec, ApplP, as shown in (45) and (46) below. Being case-licensed by ApplP, dative subjects do not enter the dependent case calculation.

\[(45) \quad \text{Giorgi-s} \quad \text{Nino} \quad \text{u-q’var-s.}\]
\[\text{G.-DAT} \quad \text{N.NOM} \quad \text{VER-love-PRS.3SG}\]
\[\quad \text{‘Giorgi loves Nino.’}\]

\[(46)\]
\[\begin{array}{c}
\text{TP} \\
\text{T} \\
\text{AspP} \\
\text{Asp} \\
\text{vP} \\
\text{v} \\
\text{ApplP} \\
\text{NP} \\
\text{Giorgis} \\
\text{Appl} \\
\text{VP} \\
\text{NP} \\
\text{Nino} \\
\text{uq’vars} \\
\end{array}\]
\[\quad \text{‘Giorgi loves Nino.’}\]

Being case-licensed by ApplP, dative subjects are found in the same position as dative indirect objects in transitive clauses (cf. Lomashvili 2011), as shown in (47) and (48):

\[(47) \quad \text{Giorgi-m bavšv-s} \quad \text{naq’i-n-i} \quad \text{mi-a-c’od-a.}\]
\[\text{G.-ERG} \quad \text{child-DAT} \quad \text{ice-cream-NOM} \quad \text{PRV-VER-hand-AOR.3SG}\]
\[\quad \text{‘Giorgi handed the ice-cream to the child.’}\]
To recap, we have seen that subjects and objects in Georgian may vary in their case-marking properties and structural position, based on the series of the verb, but they do not leave the vP/VoiceP domain of the clause for the reasons of case assignment – instead, they are case-licensed in situ.

5. The position of the verb

The current section is dedicated to determining the structural position(s) that the verb may occupy in a Georgian clause. The tests that are usually used for this purpose are based on the relative scope of verbal negation and elements that are sensitive to the scope of negation, such as NPIs and quantifiers associated with verbal arguments; cf. Han et al. (2007) for Korean and Simpson and Syed (2014) for Bangla, among others. The crucial assumption that these tests rely on is that verbal negation and the verb combine into a single constituent and undergo movement as a unit, either after negation cliticizing to the verb or after the two elements combine by head movement.

Not all of these tests can be used in Georgian. A negative concord language, Georgian lacks NPIs; more on this in Chapter 4. The other tests, relying on the interaction between verbal negation and quantificational verbal arguments, as well as verbal negation and disjunction, are discussed in Section 5.2. Before delving
into that, however, it is important to show how verbal negation works in Georgian, since it is a crucial ingredient of the tests for the height of the verb.

5.1 Verbal negation

There is considerable cross-linguistic variation in the expression and properties of verbal negation, and several syntactic approaches to it. According to one, verbal negation has a status of a syntactic head, Neg0, and the projection that it heads is merged just above the position of the verb, typically between the CP and TP (in languages where verbs undergo raising), which accounts for the adjacency between verbal negation and the verb (Laka 1990; Holmberg 2000, and much subsequent work). According to another approach, which has been used mainly for Germanic languages, including English, verbal negation is an adverb that is adjoined to vP and, as such, is a phrasal category and not a head (Holmberg 2000; Hiraia 2000, among others; Matushansky 2006: 92; Zeijstra 2004; 2008).

In Georgian, verbal negation is merged and interpreted low in the clause, based on the facts presented in Section 5.2 below. These facts can only be accounted for if we take the base position of negation to be below the base position of the external argument.

The next question is whether verbal negation has a phrasal or head status in Georgian. There is some evidence suggesting that the exponent of negation in Georgian has a clitic status. For instance, it cannot be separated from the verb by any material, even adverbs, as shown in (49). Accordingly, the adverb obligatorily scopes over negation and not vice versa; cf. English, where both scopes of negation and adverb are possible (NEG > ADV, ADV > NEG): I don’t really like this procedure vs. I really don’t like this procedure.

(49) a. * Me ar namdvl-ad mo-m-c’on-s es p’rocedura.
   1SG.DAT NEG really-ADV PRV-1SG-like-3SG this procedure.NOM
   (‘I don’t really like this procedure.’)

   b. Me namdvl-ad ar mo-m-c’on-s es p’rocedura.
   1SG.DAT really-ADV NEG PRV-1SG-like-3SG this procedure.NOM
   ‘I really don’t like this procedure.’

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This serves as evidence that, in Georgian, at some point in the derivation the negative exponent and the verb combine into a single unit that cannot be broken up by other elements. This can be achieved either if negation is a head and combines with the verb (via syntactic head movement, m-merger, or a combination of both), or if negation is phrasal/adverbial and cliticizes to the verb. In order to avoid postulating an unusual architecture with a low Neg projection, I take Georgian negation to be adverbial, and therefore phrasal, in nature, and a clitic in the phonology; cf. also Erschler (2015: 47) on the idea that negative exponents in Georgian are proclitics. With this approach to negation in mind, in the next section negation is used to show that the verb in broad-focus declaratives in Georgian stays in its base position.

5.2 Scopal relations

Subjects, when associated with a quantifier, can be used as a diagnostic for the position of the verb, if the verb is accompanied by negation. Specifically, the interpretation resulting from the relative heights of the quantifier and negation provides evidence that helps determine the relative height of the negation + verb complex and the subject. Similarly, the position of the negation + verb complex can be diagnosed by using a verbal argument that contains disjunction (John or Mary), since a disjoint reading is only predicted to be felicitous if it scopes over negation. Both of these diagnostics and their application to Georgian are discussed in more detail in this section.

Before delving into the diagnostics, it should be noted that Georgian lacks strong distributor universal quantifiers (every, each) and only has a weak/pseudo-distributor quantifier (all). Specifically, the universal quantifier in Georgian, q’vela, has the meaning ‘all’, as shown in (50), although it can be contextually interpreted as ‘every’, as shown in (51). Compatibility of q’vela with the adverbial ertad ‘together’, as illustrated in (b) in (50) is indicative of the basic meaning of q’vela as ‘all’, since quantifiers such as ‘every’ are incompatible with collective readings.

(50) a. Q’vela st’udent’-i tamasc’ori-a.
    all student-NOM equal-be.PRS.3SG
    ‘All students are equal.’
b. *Dghes čven q’vela ertad v-dg-a-v-ar-t.
today 1PL all together 1-stand-SM-1-be-PL
‘Today we all stand together.’
(Cf. *‘Today each of us stand together.’)

(51) Q’vela žurnalist’-i  i-txov-d-a  om-ši  c’a-shia-s.
all journalist-NOM VER-ask-SM-IPFV.3SG war-in PRV-go.NMLZ-DAT
‘All journalists asked to go to war.’
‘Every journalist asked to go to war.’

Such semantic nature of the universal quantifier, however, does not allow for it to be used in tests aimed at determining the position of the verb. The reason for that is that weak/pseudo-distributors are known to strongly favor surface scope (Beghelli & Stowell 1997: 94). With its distributional properties in mind, q’vela cannot be used in scope-based tests. However, other quantificational elements, notably DPs modified by weak/cardinal quantifiers such as [numeral] DP or fewer/more than [numeral] DP, can. As Csirmaz & Szabolcsi (2012) show for Hungarian, weak/cardinal quantifiers interact with other quantificational elements and negation, like other quantifiers do, and typically have surface scope with respect to other quantificational elements – in other words, they do not exhibit a preference for broad or narrow scope that is independent of their structural position. As such, they are good candidates for scope testing.

In particular, consider a subject modified by a cardinal quantifier. If such a structure also contains a negated verb, there are, hypothetically, two possible readings, depending on the relative scope of the two elements: NUM > NEG, NEG > NUM. The availability of the NEG > NUM reading would be indicative of the negation+verb complex (covertly) raising past the subject to a higher position, while the availability NUM > NEG would indicate lack of such movement. This test has been used by Simpson & Syed (2014) to show that negation scopes over the subject in Bangla.29

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29 Cf. also Han et al. (2007) for the use of a similar test, relying on the relative scope of verbal negation and a quantificational direct object, to show that both are possible in Korean.
In contrast with Bangla, in Georgian a quantified expression in the subject position scopes over verbal negation, which suggests that negation is generated and interpreted below the position of the subject and, consequently, that the negation+verb complex does not raise from its low position past it. In particular, (52) can be used to describe a very bright group of students in which everyone knows the answer, save for one or two (fewer than three) students \((\text{NUM} > \text{NEG})\); on the other hand, it cannot be used to describe a situation in which no fewer than three students know the answer \((^{*}\text{NEG} > \text{NUM})\). With subjects in Georgian, depending on case-marking, residing in the VoiceP/vP/AppIP, as was shown in Section 4, this result is indicative of low interpretation of negation, and low position of the verb.

\[
\text{(52)} \quad \text{Sam-ze nak’leb st’udent’-s ar e-codin-eb-a es p’asuxi.}
\]

\begin{align*}
\text{three-on less student-DAT NEG ver-know-SF-FUT.3SG DEM answer} \\
\text{‘Fewer than three students will not know the answer.’} \\
\text{NOT: ‘It won’t be the case that fewer than three students will know the answer.’} \\
\text{(NUM > NEG; ^*NEG > NUM)}
\end{align*}

Next, interaction between disjunction and negation can be used as a similar test for the structural position of the verb, as was shown in Shibata (2015). To start with an example in English, in a clause that contains negation and a disjunction, the relative scope of the two elements determines the meaning. In particular, a disjoint reading is available if the disjunction scopes over negation \((\text{or} > \text{NEG})\), and a conjoint reading is available if the disjunction scopes below negation \((\text{NEG} > \text{or})\). This is shown for negation and a direct object that contains a disjunction in (53):

\[
\text{(53)} \quad \text{Mary doesn’t like wine or beer.} \quad (\ldots\text{so, we will have to get something else to drink;} \text{ NEG} > \text{or})
\]

\[
\quad \ldots\text{but I can’t remember which one; or} > \text{NEG})
\]

Shibata (2015: 61) shows that in Japanese, in contrast with English, when a direct object contains a disjunction, it scopes over verbal negation, which is manifested by the availability of the disjoint reading, and unavailability of the conjoint reading, as shown in (54). Based on such examples, Shibata concludes that verbal negation scopes below disjunction in Japanese.
The same test, when applied to Georgian, produces results in line with the Japanese data:

(55) Dato-s (an) gvino an lud-i ar u-q’var-s.
    D.-DAT or wine.NOM or beer-NOM NEG VER-love-PRS.3SG
    ‘Dato doesn’t like wine or beer.’ (or > NEG, * NEG > or)

The fact that (55) only allows for a reading in which the disjunction scopes over negation is indicative of the verb being generated and interpreted below the position of the disjunction, like in Japanese.

This evidence indicates that the verb does not raise from its base position in all-new, broad focus declarative verb-final clauses in Georgian. The picture is different in VO orders found in all-new contexts and yes/no-questions (YNQs), of which the latter may have a verb-initial word order. These constructions are addressed in the next two sections.

30 Note that other approaches to the structural position of the verb in Georgian are available in the literature. For instance, Lomashvili (2011) proposes that Georgian verbs undergo raising through a series of head positions on the right in order to allow for the assembly of verbal morphology; her analysis, however, does not take into account scope tests such as those used here.

31 Another verb-initial construction, not addressed here, is verb-initial declaratives, which receive a thetic interpretation and are common in narratives:

(i) a. Ga-vid-a sami c’elic’ad-i.
    PRV-go-IPFV.3SG three year-NOM
    ‘Three years passed.’

b. Šemo-vid-a Sandro.
    PRV-go-IPFV.3SG Sandro
    ‘Sandro came.’

The discourse context that licenses verb-initial declaratives, as well as their structural status, require further investigation. A possible analysis might rely on such verbs being unaccusative and accompanied by a silent expletive, with the internal argument found in situ. Alternatively, such constructions may rely on movement of the verb to $C^0$ in such contexts (cf. Axel 2007: 113 for the analysis of Old High German verb-initial declaratives).
5.3 Deriving broad-focus VO

As discussed in Section 2 and Section 3, I take the underlying word order in Georgian to be OV. VO, however, is also commonly attested in Georgian, including in all-new contexts, which raises interesting questions about its syntactic underpinnings, which are taken up in this section. Crucially, the discussion in this section concerns the derivation of broad-focus VO – i.e., those cases in which the postverbal object does not carry narrow focus. Constructions with postverbal focus have a different derivation and are addressed in Chapter 5.

As already stated in Section 3 of this chapter, the analytical option not pursued here is that Georgian OV and VO are both possible as underlying structures; cf. Harris (1981: 22) and Anderson (1984: 186) for this view. To reiterate the reason for rejecting this analysis: it would not account for an asymmetry between OV and VO that is found in small clauses and idioms, as was shown in (23) and (24). That is, if OV and VO were truly interchangeable, such asymmetries, with a requirement or a strong preference for some structures to have OV word order, would need an additional explanation.

Instead, with these asymmetries in mind, a better analytical option is to take the OV order to be underlying, and VO to be derived. However, the important property of the OV/VO alternation in Georgian is that both orders are neutral from the point of view of information structure. Furthermore, the preverbal and postverbal positions for the direct object (DO) do not differ in their definiteness or specificity, as shown (for specificity) in (56). In this regard, Georgian is more flexible than rigid verb-final languages like Japanese or Korean, which do not allow DOs to surface postverbally, or even other less rigid verb-final languages, like Early New High German, in which only newly mentioned DOs could appear to the right of the verb.

(56) a.  
Nino c'itel k'aba-s e-dz-eb-d-a, magram (is) ver  
N.NOM red dress-DAT VER-look.for-SF-SM-IPFV.3SG but 3SG NEG  
i-p’ov-a (is).  
VER-find-AOR.3SG 3SG  
‘Nino was looking for a red dress but didn’t find one.’
b. Nino  e-dz-eb-d-a  c’itel  k’aba-s,  magram (is)  ver
 N.NOM  VER-look.for-SF-SM-IPFV.3SG  red  dress-DAT  but  3SG  NEG

 i-p’ov-a  (is).
 VER-find-AOR.3SG  3SG
 ‘Nino was looking for a red dress but didn’t find one.’

c. Nino  tavi-s  saq’varel  c’itel  k’aba-s  e-dz-eb-d-a,
 N.NOM  self.POSS-DAT  favorite  red  dress-DAT  VER-look.for-SF-SM-IPFV.3SG

 magram (is)  ver  i-p’ov-a  (is).
 but  3SG  NEG  VER-find-AOR.3SG  3SG
 ‘Nino was looking for her favorite red dress but didn’t find it.’

d. Nino  e-dz-eb-d-a  tavi-s  saq’varel  c’itel  k’aba-s,
 N.NOM  VER-look.for-SF-SM-IPFV.3SG  self.POSS-DAT  favorite  red  dress-DAT

 magram (is)  ver  i-p’ov-a  (is).
 but  3SG  NEG  VER-find-AOR.3SG  3SG
 ‘Nino was looking for her favorite red dress but didn’t find it.’

This fact, that VO orders are possible as neutral words orders, points to the syntactic organization of such structures: as argued in Neeleman (2015), neutral word orders are derived by X⁰-movement (which is always leftward), as opposed to phrasal movement to the right. Following this reasoning, I propose that Georgian VO is derived by short movement of the verb from V to v, as opposed to extraposition of the DO to the right, either by movement or base-generation and co-indexing with a null pronominal in the base preverbal position. Cf. also Skopeteas & Fanselow (2010), who also derive neutral Georgian VO by verb raising, and emphasize that this head-movement is semantically vacuous. Accordingly, an example of broad-focus OV is provided in (57) and illustrated in (58), and an example of broad-focus VO is provided in (59) and illustrated in (60):

(57) Gogo  vašl-s  č’am-s.
girl.NOM  apple-DAT  eat-PRS.3SG
 ‘A/the girl is eating an apple.’
The availability of such movement means that there is a suitable head position for the verb to move to in such constructions, and this head position is on the left side of the clausal spine. This aligns well with the analysis of the clausal spine in Georgian as head-initial, as discussed in Section 2 above.

Furthermore, the analysis advanced here means that the two object positions in OV and VO orders are one and the same syntactic position. This hypothesis is further supported by the fact that the two positions have the same scope properties – that is, both exhibit a strong preference for narrow/surface scope of the DO. This is illustrated in (61), where both a preverbal object in (a) and a postverbal object in (b) scope below the adverb იშვიათ დ  ‘seldom’:

(61) a. მასკ’ავლებლი იშვიათ სამ-ზე ნაკ’ლებ სტ’უდენტ’-ს მო-უ-კ’ოდ-ებ-ს.
    teacher-NOM seldom three-on less student-DAT PRV-VER-call-SF-PRS.3SG
    ‘The teacher seldom calls on fewer than three students.’
    (ADV > NUM; ?NUM > ADV)

b. მასკ’ავლებლი იშვიათ მო-უ-კ’ოდ-ებ-ს სამ-ზე ნაკ’ლებ სტ’უდენტ’-ს.
    teacher-NOM seldom PRV-VER-call-SF-PRS.3SG three-on less student-DAT
    ‘The teacher seldom calls on fewer than three students.’
    (ADV > NUM; ?NUM > ADV)
5.4 Yes-no questions

In addition to broad-focus VO declaratives, in which the verb undergoes short raising, as shown in Section 5.3, there is another context in which the verb leaves its base position in Georgian: namely, yes/no-questions (YNQs). Georgian YNQs can have different word orders, including a verb-initial one:

(62) a. **Cur-av-da olimp’iel-i čemp’ion-i gasul k’vira-s?**
    swim-SF-SM-IPFV.3SG Olympic-NOM champion-NOM last week-DAT
    ‘Did the Olympic champion swim last week?’

    b. **Olimp’iel-i čemp’ioni curavda gasul k’viras?**

    c. **Olimp’iel-i čemp’ioni gasul k’viras curavda?**

    d. **Gasul k’viras olimp’iel-i čemp’ioni curavda?**

    e. **Gasul k’viras curavda olimp’iel-i čemp’ioni?**

Here, different word orders come with some interpretative differences, which contrast with the interchangeability between broad-focus OV and VO that we have seen in Section 5.3. Specifically, verb-initial YNQs are often interpreted as information-seeking, while YNQs that are not verb-initial tend to be interpreted as confirmation-seeking. In terms of their interpretation, information-seeking YNQs merely ask about whether a certain event took place, while confirmation-seeking YNQs are aimed at finding out whether the event in question involved or applied to a particular entity – a person, a time, a place, etc. In Georgian, the constituent referring to such entity must surface immediately preverbally in the YNQ – in other words, in the immediately preverbal position (IPrP), which houses focal material in other contexts, as was established in Chapter 1. Furthermore, it is not difficult to show that the IPrP in YNQs, if filled, is occupied by focal material. This can be demonstrated with the so-called correction test for YNQs: the material for which confirmation is sought (i.e, focal material) can be contradicted by the interlocutor, while background/topical material cannot be, since it is taken to be something already established in the
discourse. Applied to Georgian YNQs, the test shows that only the constituent in the IPrP can be contradicted, while attempting to contradict other material leads to ungrammaticality.

(63) A: *Olimp’iel-i čemp’ion-i gasul k’vira-s cur-av-d-a?
Olympic-NOM champion-NOM last week-DAT swim-SF-SM-IPFV.3SG
‘Did the Olympic champion swim last week?’

B: Ara, gušin.
no yesterday
‘No, yesterday.’

B’: *Ara, čem-i t’rener-i.
no 1SG.POSS-NOM trainer
‘No, my trainer.’

I propose that the structure of such confirmation-seeking YNQs is the following: already established material, if present, is found in the CP-domain, while the material immediately preceding the verb is interpreted as focal (hence it can be negated). As will be shown in Chapter 5 and Chapter 6, certain types of focal material, such as wh-phrases (in all clause types) and narrow foci (in clauses with the modal *unda ‘have to, must’), undergo movement to Spec, PredP, accompanied by movement of the verb to Pred\(^0\). I suggest that this is also what happens in confirmation-seeking YNQs: the focal material (the constituent that can be contradicted) undergoes movement to Spec, PredP, while the verb moves to Pred\(^0\). Such an analysis also underscores the inherent similarity between wh-elements, also found in Spec,PredP, and the preverbal constituent in confirmation-seeking YNQ, which represents the information that the speaker wants to confirm.

32 I thank Veneeta Dayal (p.c.) for bringing this test to my attention.

33 In the discussion of non-focal material in Chapter 4, I show that contrastive topics in narrow focus contexts can be contradicted. In the current example, however, the preverbal constituent cannot be a contrastive topic. This is because contrastive topics typically precede all other constituents, whereas in YNQs it is the preverbal and not the initial constituent that may be contradicted.
Finally, such an analysis also explains why verb-initial YNQs cannot have a confirmation-seeking reading on any of the constituents: since Spec,PredP is empty, no constituent can be interpreted as the target of confirmation. Consequently, verb-initial YNQs have only a non-confirmation-seeking interpretation.34

6. Summary

In this Chapter, I introduced the key properties of Georgian morphology and established the basic facts about Georgian clause structure, which the argument developed in the next chapters relies on. Specifically, I presented the basics of Georgian morphosyntax, including verbal agreement and split case marking of nominals, based on the series of the verb (which itself is based on aspectual properties of the predicate). Next, we have seen that Georgian has mixed headedness, with the VP, NP and PP being head-final, but higher clausal projections being head-initial. In line with that, I provided evidence that the major clausal constituents have an underlying S (IO) DO V order, and discussed the reasoning behind adopting the view that, in a neutral declarative, the arguments of the verb do not leave the VoiceP/vP domain of the clause and receive case in their base position. After that, I considered broad-focus VO clauses, and argued for a derivation of such clauses in which the verb undergoes short movement to v0 and switches places with the DO in hierarchical and linear order. Finally, I addressed yes-no questions and showed that the verb in them undergoes movement to a higher position in the clause than in neutral declaratives, which I called Pred0.

34 In embedded YNQs, the information-structural picture is different, with the second-position interrogative complementizer tu following a constituent with similar interpretative properties as the preverbal constituent in root YNQs, as was shown in (30). The verb in embedded YNQs is most often found in the clause-final position.
Chapter 4. Analytical preliminaries: non-focal material and neg-words

As described in Chapter 1, narrow foci and wh-phrases have a particular distribution with respect to verbs in Georgian. Namely, wh-phrases can only be found in the immediately preverbal position (which I call the IPrP), while narrow foci can be found in the IPrP or in the immediately postverbal position (called here the IPoP). The detailed facts of the distribution, interpretation, and structural properties of wh-phrases and narrow foci are addressed in Chapter 5 and Chapter 6, respectively. The key question that is pursued here with respect to narrow foci and wh-phrases is the following: are they interpreted in situ or in a derived position? For the purposes of structural analysis, I am assuming, following Kidwai (1999), Şener (2010) and others, and breaking with the tradition of Saito (1989 et seq.), that no change in the linear order of arguments or adjuncts should be interpretationally vacuous. This means, most generally, that the operations that change the base order of arguments and adjuncts have information-structural consequences.

In order to account for the syntactic behavior of narrow foci and wh-phrases, I first need to introduce two other classes of constituents, which are going to play a crucial role in the analysis presented in Chapter 5 and Chapter 6: namely, non-focal/non-wh material and neg-words, or negative pronouns. The connection between these two classes of constituents is as follows. Understanding the behavior of non-focal/non-wh material is crucial for our understanding of the behavior of neg-words; the distribution of neg-words, in turn, provides decisive evidence for the structural properties of narrow foci and wh-phrases, provided in Chapter 5 and Chapter 6, respectively.
To start with, non-focal/non-wh material is found to the left of the narrowly focused constituent or wh-phrase, or in the postverbal domain in narrow focus contexts and wh-questions. Non-focal/non-wh material in such contexts receives topical interpretation. Following much work on the topic vs. comment/focus distinction (Gundel 1988; Vallduvi 1993; Vallduví & Engdahl 1996; Büring 1997; Den Dikken 2005; Neeleman et al. 2009, a.o.), I am taking this partition to be binary (although it should be kept in mind that most approaches distinguish between several types of topics) and adopting such a binary approach with respect to Georgian. Specifically, I show that in the preverbal domain, two types of topics are found: contrastive topics, which either establish or explicitly switch the main topic of the utterance, and familiarity topics, which refer to given material already present in the discourse. Contrastive topics precede familiarity topics, which, in turn, precede the elements in the IPrP. Similarly, when the IPrP is filled by a narrow focus or wh-phrase, the material in the postverbal domain receives a familiarity topic interpretation (recall that when the IPoP is filled by narrow focus, there is a strong preference for no other elements to occur postverbally, which means that postverbal narrow foci typically do not co-occur with postverbal familiarity topics). Section 1 in the current chapter is dedicated to the syntactic behavior of these types of topics, with left-periphery topics (of both contrastive and familiarity subtypes) addressed in Section 1.1, and postverbal familiarity topics in Section 1.2. The evidence provided in Section 1 shows that both contrastive topics and familiarity topics (preverbal and postverbal) undergo displacement in order to reach their surface positions, driven by their information-structural (topical) properties.

Next, Section 2 introduces the properties of neg-words in Georgian. Like wh-phrases and narrow foci, when found in the preverbal domain, neg-words in Georgian must occupy the IPrP (postverbal placement of neg-words is subject to considerable inter-speaker variation). Another important property of neg-words is that, due to their non-referential semantic nature, neg-words cannot act as either contrastive or familiarity topics. Assuming, as stated above, that changes in the order of arguments and adjuncts have an information structural import, this means that (non-narrowly focused) neg-words in Georgian are uniformly found in their base-generated position. Next, neg-words can co-occur with narrow foci and wh-phrases, in which
case they are no longer found in the IPrP. The observed patterns of relative distribution of neg-words and narrow foci/wh-phrases provide key evidence for the structural properties of the latter, addressed in Chapter 5 and Chapter 6. Before that can be done, though, Section 2.1 introduces the distributional properties of neg-words and Section 2.2 outlines their use as a syntactic diagnostic.

1. Non-focal material

The main claim illustrated and defended in this section is that, in the context of an utterance containing narrow focus or a wh-phrase, other material is interpreted as either a contrastive or a familiarity topic. Syntactically, this is manifested as displacement of non-focal material into the left periphery (CP-area) or into the right periphery, where non-focal material becomes a postverbal adjunct. Note that, as this section shows, such displacement may rely on syntactic movement (A and A-bar) or base-generation; going forward, I also use the term ‘topicalization’ to refer to such displacement.

Before turning to their structural properties, let us introduce the distributional distinction between contrastive topics and familiarity topics in the left periphery. Contrastive topics either introduce or change the main topic of the utterance. In adopting this use of the term, I am lumping together two types of topics otherwise used in the literature: that of an aboutness topic, which, as the name suggests, is the main topic that the sentences is about (Strawson 1964; Reinhart 1981; Givón 1983; Lambrecht 1994; Frascarelli & Hinterhölzl 2007, a.o.), and that of a contrastive topic, which “creates oppositional pairs with respect to other topics” (Frascarelli & Hinterhölzl 2007: 87), cf. also Kuno (1976) and Büring (1999). In doing so, I intend to highlight the fundamental interpretational similarity between these two types of topics: they introduce the main topic of the utterance, whether it is specified as contrasting with other possible referents or not. Familiarity topics, in turn, refer to the material that has already been part of the discourse but cannot introduce new material or change the already given material (Givón (1983), Frascarelli & Hinterhölzl (2007); cf. also Şener’s (2010) notion of discourse anaphoric elements, a.o.).
The theoretical approach adopted here is a non-cartographic one; that is to say, most generally, that I do not start off with an assumption that the elements that surface in the immediately preverbal position (IPrP) in Georgian (narrow focus, wh-expressions, and neg-words) should each be housed in a dedicated syntactic projection (e.g., FocP, NegP, etc.). On the contrary, my null hypothesis is that the elements in the IPrP surface in situ, unless there is evidence that they occupy a derived position, since such an approach allows for a cleaner separation between syntax proper and interpretation/lexical identity. Similarly, I am not assuming dedicated positions for topical constituents, in line with the work that shows that different types of topics do not occupy syntactic positions available only for a given type of topic (Zwart 2007; Neeleman et al. 2009).

In terms of linearization, contrastive topics precede familiarity topics, and the difference between the two is easy to show in the following way: a contrastive topic can be replaced by another element from the contrast set, whereas familiarity topics are not part of a contrast set, hence such replacement is impossible. To illustrate, in the reply (B) in (64), the contrastive topic Giorgi is substituted by another one, Mariamma, but the same cannot be done with the familiarity topic dghesasc’aulze ‘at the party’, as shown in the reply (B’). Note also that the contrastive topic Mariamma obligatorily precedes the familiarity topic dghesasc’aulze ‘at the party’, as manifested by the ungrammaticality of reply (B’’) (based on Neeleman & Van de Koot 2008; Şener 2010):

(64) A: Da Giorg-i? Man ra č’am-a dghesasc’aul-ze?
And G.-NOM 3SG.ERG what eat-AOR.3SG party-at?
‘And Giorgi? What did he eat at the party?’

B: Giorg-i ar v-i-c-i, magram Mariam-ma dghesasc’aul-ze
G.-NOM NEG 1SG-VER-know-PRS.1SG but M.-ERG party-at
xač’ap’ur-i č’am-a.
khapuri-NOM eat-AOR.3SG
‘I don’t know about Giorgi, but Mariami ate khapuri at the party.’
Another distinction between contrastive and familiarity topics lies in that only familiarity topics, but not contrastive topics, may be found in the postverbal domain; more on this in Section 1.3:

(65) A: Da Giorg-i? Man ra č’am-a dghesasc’aul-ze?
And G.-NOM 3SG.ERG what eat-AOR.3SG party-at?
‘And Giorgi? What did he eat at the party?’

B: Giorg-i ar v-i-c-i, magram Mariam-ma xač’ap’ur-i
G.-NOM NEG 1SG-VER-know-PRS.1SG but M.-ERG khachapuri-NOM
č’am-a dghesasc’aul-ze.
eat-AOR.3SG party-at
‘I don’t know about Giorgi, but Mariami ate khachapuri at the party.’

B’: *Giorg-i ar v-i-c-i, magram dghesasc’aul-ze xač’ap’ur-i
G.-NOM NEG 1SG-VER-know-PRS.1SG but party-at khachapuri-NOM
č’am-a Mariam-ma.
eat-AOR.3SG M.-ERG
(‘I don’t know about Giorgi, but Mariami ate khachapuri at the party.’)

Finally, yet another property of contrastive topics but not familiarity topics is that they may combine with the emphatic/contrastive marker k’i (B-Violette 2016). Being a marker of contrast, k’i can attach to both contrastive foci and contrastive topics, (thus manifesting that contrast is orthogonal to the topic/focus distinction; cf. Lambrecht (1994)). Crucially for our purposes, k’i cannot mark familiarity topics: since familiarity topics refer to given material and cannot introduce new referents, they are inherently non-contrastive.
As the introduction to Section 1 above showed, two types of topics are found in the part of the clause that precedes the constituent in the IPrP in narrow focus contexts and wh-questions: contrastive topics and familiarity topics. As already mentioned, I do not assume that there are two separate projections that host these types of topics; instead, I am adopting the view that both are housed in the CP projection, while the preference for contrastive topics to precede familiarity topics is an information-structural property that is not directly rooted in syntax. Given that the two types of topics do not differ in their syntactic properties, they are addressed together in the current section. Structurally, I show that topics that are arguments of the verb come to occupy their position in the left periphery by either A or A-bar movement, while adjunct topics are base-generated in the left periphery.

To start with, Georgian contrastive topics exhibit a strong preference for wide scope interpretation, which is typical of topics in general (cf. Gundel 1988; Molnár 1993; Erteschik-Shir 2007 on topics taking wide scope). In particular, the (B) reply in (68) is more naturally interpreted as meaning that all students in
the class are learning the same two languages (say, Georgian and English), as opposed to each learning two different languages (say, Givi is learning Georgian and English, Marika is learning Spanish and Russian, etc.).

(68)  
A:  
*Or* ena-s vin sc’avl-ob-s am k’las-ši?  
two language-DAT who study-SF-PRS.3SG this class-in  
‘Who studies two languages in this class?’

B:  
*Or* ena-s q’ovel-i st’udent’-i am k’las-ši sc’avl-ob-s.  
two language-DAT all-NOM student-NOM this class-in study-SF-PRS.3SG  
‘Every student in this class studies two languages.’

(Lit.: ‘Two languages, every student in this class studies.’)  
(NUM > EVERY; ??EVERY > NUM)

As already mentioned, given their clause-initial placement and the preference for wide scope, the most plausible locus for contrastive topics is the CP projection. Accordingly, the relevant portion of the tree corresponding to (B) in (68) is provided in (69):

(69)  
\[
\text{CP} \\
\text{NP} \quad \text{or enas} \\
\text{‘two languages’} \\
\text{C} \\
\text{TP} \\
\text{T} \\
\text{PredP} \\
\text{PredP} \\
\text{Asp} \\
\text{PredP} \\
\text{Asp} \\
\text{VoiceP} \\
\text{NP} \\
\text{q’ovel-i st’udent’i} \\
\text{‘each student’} \\
\text{Voice} \\
\text{…}
\]

Like contrastive topics, familiarity topics exhibit a preference for a wide scope reading:

(70)  
A:  
*Kartul* ena-s *orjer k’vira-ši* vin sc’avl-ob-s?  
Georgian language-DAT twice week-in who study-SF-PRS.3SG  
‘Who studies Georgian language twice a week?’
Given that there is a strong preference for contrastive topics to precede familiarity topics, the most parsimonious structural representation of the two types of topics is for them to be housed in iterated CPs, with the contrastive topic dominating the familiarity one. In the absence of dedicated projections, such ordering results from the communicative preference to present the main topic or contrastive material first, followed by backgrounded/familiar material (cf. Zwart 2007; Neeleman & Van de Koot 2008; Neeleman et al. 2009). The relevant portion of the reply (B) in (70), then, is provided below:

How do contrastive topics come to occupy their position in the CP? The properties of topicalization/displacement into the left periphery in Georgian exhibit some contradictory properties. First,
speaker diverge in their judgements about the felicity of long-distance (contrastive) topicalization, as illustrated in (72) and (73).\(^{35}\) The discrepancy in judgements, therefore, does not allow for these facts to be used as a diagnostic for whether A- or A-bar movement underlies displacement into the left periphery in Georgian.\(^{36}\)

(72)  A: Da abazana-s? Vinme a-lag-eb-d-a?
and bathroom-DAT someone PRV-clean-SF-SM-IPFV.3SG
‘And [how about] the bathroom? Did anyone cleaned [it]?’

B:% Abazana-s ar v-i-c-i, magram samzareulo-si, Nino-m
bathroom-DAT NEG 1-VER-know-PRS.1SG but kitchen-DAT N.-ERG
tkv-a [\(\text{cp (rom)}\) bebia ___i a-lag-eb-d-a].
say-AOR.3SG COMP grandma,NOM PRV-clean-SF-SM-IPFV.3SG
‘I don’t know about the bathroom, but the kitchen, Nino said that grandma cleaned.’

(73)  A: Da abazana-s? Vinme a-lag-eb-d-a?
and bathroom-DAT someone PRV-clean-SF-SM-IPFV.3SG
‘And [how about] the bathroom? What did Nino exclaim, who cleaned [it]?’

B:% Abazana-s ar v-i-c-i, magram samzareulo-si, Nino-m
bathroom-DAT NEG 1-VER-know-PRS.1SG but kitchen-DAT N.-ERG
c’amo-i-dzax-a [\(\text{cp (rom)}\) bebia ___i a-lag-eb-d-a].
PRV-VER-exclaim-AOR.3SG COMP grandma,NOM PRV-clean-SF-SM-IPFV.3SG
‘I don’t know about the bathroom, but the kitchen, Nino exclaimed that grandma cleaned.’

Next, consider the structural processes that may underlie displacement of arguments into the left periphery. To start with, left-periphery topics in Georgian variably exhibit properties indicative of A-scrambling (cf. Amiridze 2006; McGinnis 1999a; McGinnis 1999b on A-scrambling in Georgian), A-bar

\(^{35}\) As shown in Chapter 5, the verb ‘to exclaim’ behaves like a bridge verb in Georgian in that it allows extraction of wh-phrases from the embedded clause. This is not the case for topics though.

\(^{36}\) Furthermore, even if the judgements were uniform, (un)availability of long distance topicalization does not by itself provide definitive evidence as to whether the movement that underlies it has A or A-bar properties. Specifically, while A-movement is typically clause-bound, cross-clausal A-movement has been shown to exist in a number of languages, including Brazilian Portuguese, Turkish, and Nez Perce (Wurmbrand, to appear); at the same time, while A-bar movement is known to cross clausal boundaries, some languages, such as Tsez, only allow clause-bounded A-bar movement (Polinsky 2015).
movement or base-generation. Some caution is required when interpreting these results, since there is some interspeaker variation, and the A-scrambling diagnostics only apply to a subset of binding contexts, as shown below.

First, consider A-scrambling. As the name suggests, A-scrambling is a subtype of A-movement, given that it can create new antecedents for binding; it is also often held to be clause-bounded (Mahajan 1990; Miyagawa 1997; 2003; 2005). The availability of A-scrambling in Georgian with the possessive anaphor *tavisi ‘3SG.POSS.REFL’ has been discussed by McGinnis (1999a; 1999b) and Amiridze (2006). In particular, a subject that contains *tavisi ‘3SG.POSS.REFL’ can be bound by a scrambled direct object, as shown in (74), which manifests the A-movement nature of such scrambling.

(74)  a. * **Tavis-i**   deida   **Nino-si**   xat’-av-s.
    3REFL.GEN.SG-NOM   aunt.NOM   N.-DAT   draw-SF-PRS.3SG
    (‘Her aunt is drawing Nino.’)

    b. **Nino-s**  **tavisi**   deida   xat’-av-s.
    N.-DAT   3REFL.GEN.SG-NOM   aunt.NOM   draw-SF-PRS.3SG
    (McGinnis 1999a: 283)

Note that in allowing for such a binding scenario, nominals that contain the possessive anaphor *tavisi differ from those that contain the nominal anaphor **tavisi tavi ‘3SG.REFL’**: **tavisi tavi ‘3SG.REFL’**, if contained in an indirect object, cannot be bound by the direct object, as was shown in (35) and (36) in Chapter 3; see Amiridze (2006) for a detailed analysis of both types of anaphors.

McGinnis (1999a) does not comment on the information-structural properties of the felicitous utterance in (74), but the most natural interpretation of an OSV word order in Georgian is narrow focus on the subject constituent. That is to say, the most natural communicative context for (74) is provided in (75). This has been observed for scrambling in other languages as well: cf. Kidwai (2000) on Hindi, Şener (2010) on Turkish for the observation that scrambling has a robust information structural effect in these languages:
namely, when a constituent other than the direct object occupies the IPrP, that constituent is in the IPrP in order to be focused, while the displaced constituent is interpreted as a topic.37

(75)  
A:  
\[
\text{Nino-s } \text{vin } \text{xat'-av-s?} \\
\text{N.-DAT } \text{who } \text{draw-SF-PRS.3SG}
\]
‘Who is drawing Nino,?’

B:  
\[
\text{Nino-s } \text{tavis-i } \text{deida } \text{xat'-av-s.} \\
\text{N.-DAT } \text{3REFL.GEN.SG-NOM } \text{aunt.NOM } \text{draw-SF-PRS.3SG}
\]
‘Her aunt is drawing Nino.’

The above means that A-scrambling of the intervening material may be involved in ensuring placement of the narrowly focused constituent in the IPrP.

However, there is also evidence that suggests that A-scrambling cannot be the only process that underlies displacement into the left periphery in Georgian, which comes from Condition C violations (or lack thereof; there is interspeaker variation with respect to the constructions in question). To start with, Condition C is independently attested in Georgian, as shown in (76): placing a referential expression into the scope of a co-indexed personal pronoun leads to ungrammaticality.

(76)  
\[
\text{Is}_{\text{i/-k}} \text{ Manana-s}_{\text{k}} \text{ bavšv-s } \text{mdinare-ši } \text{ban-s.}
\]
\[\text{3SG.NOM M.-GEN } \text{child-DAT } \text{river-in wash-PRS.3SG}\]
(‘She\text{\textsubscript{i/-k}} is washing Manana\textsubscript{k}’s child in the river.)

When it comes to the material displaced into the left periphery, speakers are not unanimous as to whether Condition C violations incur. This is shown in (77), which is derived from (76) by displacement of the object into the left periphery:

37 Information-structural factors are also known to affect binding relations. In addition to anaphor binding, it has also been shown that topical interpretation, for instance, allows quantifiers to bind pronouns in their scope (following QR) (Zubizarreta 1998; Godjevac 2003):

(i)  
A:  
\[\text{Who will accompany each/every boy on the first day of school?}\]

B:  
\[\text{His\textsubscript{i} mother will accompany each/every boy on the first day of school} \quad (\text{Zubizarreta 1998: 11})\]

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In structural terms, the presence of the Condition C violation, which is found in some speakers, and the resulting impossibility of coreference may be indicative of A-bar movement, since A-bar movement of an R-expression antecedent over a co-indexed pronoun is known to lead to Condition C violations (van Riemsdijk & Williams 1981; Fox & Nissenbaum 1999); however, note that A-scrambling would be expected not to ameliorate a Condition C effect either. On the other hand, lack of a Condition C violation, which is found in other speakers, suggests that the syntactic process that such displacement relies on, for them, is not A-bar movement; instead, such speakers may rely on high base-generation of the dislocated material. These facts, taken together, mean that displacement of arguments into the left periphery relies on A-scrambling in some structures, while in others it results from A-bar movement or may be due to base-generation. While further research into the nature of constituents with topical interpretation in Georgian is needed, nothing in the account of focus interpretation and wh-question formation proposed in Chapters 5 and 6 hinges on the actual mechanism of topic displacement.

Turning to adjunct topics, as (70) above shows, adjunct constituents, when they receive a topical interpretation, typically act as familiarity topics that provide temporal and locational details about the narrowly focused event that takes place with reference to the contrastive topic (Chafe 1976; cf. Asher, Prévot & Vieu 2007). Based on their adjunct nature, I take such left periphery familiarity topics to be base-generated in their positions, as is expected of scene-setting expressions (Benincà & Poletto 2004; Rizzi 2016).

To recap the current section, with respect to argument topics in the left periphery, we have seen that some of the facts presented here are indicative of A-scrambling while others signal base-generation or A-bar movement. This issue requires further study which goes beyond the scope of this dissertation, but nothing in the current account hinges on the mechanism that underlies displacement into the left periphery described here. In the tree diagrams in the remainder of this dissertation, for the sake of consistency, I mark
topicalized argument constituents as moved, but the reader should keep in mind that the nature of the displacement process (or processes) that applies to topicalized arguments (i.e., movement or base-generation) requires further research.

1.2 Postverbal familiarity topics

Recall from the introduction to the current section that only one type of topic – familiarity topics – can be found in the postverbal domain. As for determining their structural properties, some of the tests for the moved vs. base-generated status of postverbal familiarity topics are not useable in Georgian. For instance, testing whether the postverbal constituent allows extraction (predicted to be the case if base-generated; if moved to/adjoined in the postverbal domain, the constituent would become an island) is impossible because Georgian does not allow subextraction (Fuchs 2016). Therefore, the main kind of reliable evidence comes from scope facts.

In contrast with their counterparts found in the left periphery, postverbal familiarity topics are preferably interpreted as having narrow scope with respect to constituents in the IPrP (as well as constituents in the left periphery). This suggests that they are found low in the structure; for present purposes, I am taking left-peripheral topics to be low (VP-level) adjuncts on the right side of the clausal spine, as shown in (78):

(78) A: *Kartul ena-s vin sc’avl-ob-s orjer k’vira-ši?*
    Georgian language-DAT who study-SF-PRS.3SG twice week-in
    ‘Who studies Georgian language twice a week?’

    B: *Kartul ena-s xut-ze nak’leb st’udent’-i sc’avl-ob-s*
    Georgian language-DAT five-on less student-NOM study-SF-PRS.3SG
    *orjer k’vira-ši.*
    twice week-in
    ‘Less than five students study Georgian language twice a week.’
    (??ADV > NUM; NUM > ADV)

The tree structure for the reply (B) in (78) is provided in (79):
The second argument for the right-adjunction of postverbal familiarity topics in Georgian is based on relative scope facts between two postverbal elements. The test used here goes back to Pesetsky (1989) and Johnson (1991) (and as later taken up by Cinque (1999)) but produces results opposite to those found in English.

In English, Andrews (1983) and Pesetsky (1989) argue that the relative scope of postverbal adverbs in (80) is intentionality>twice>on the door, which provides evidence against right-adjunction/rightward movement of the adverbs, and instead signals that the verb has undergone leftward movement.\(^{38}\)

(80)  *John knocked intentionally twice on the door.*

In Georgian, however, the corresponding context allows for both scope readings, regardless of the word order (81). This is expected if the verb does not raise from the VP in broad focus OV clauses, as was argued for in Chapter 3, and the postverbal adverbs are adjoined on the right; the adjunct status also allows for the

\(^{38}\) Though see Phillips (2003), Larson (2004) and Bobaljik (2016) on the evidence that, even in English, focus structure determines the relative scope of postverbal modifiers, as opposed to their surface constituency.
variable word order. The resulting interpretational differences, then, do not stem directly from syntax and may instead rely on context.

(81) a. Guram-ma k’ar-ze da-a-k’ak’un-a mizanmimartulad orjer.
G.-ERG door-on PRV-VER-knock-AOR.3SG intentionally twice
‘Guram knocked on the door intentionally twice.’ (intentionally>twice, twice=intentionally)

b. Guram-ma k’ar-ze da-a-k’ak’un-a orjer mizanmimartulad.
G.-ERG door-on PRV-VER-knock-AOR.3SG twice intentionally
‘Guram knocked on the door twice intentionally.’ (intentionally>twice, twice=intentionally)

The tree representations of both word orders are offered in (82):

(82) a. 
```
(AdvP orjer 'twice')
```

```
(AdvP mizanmimartulad 'intentionally')
```

```
(k’arze daak’ak’una)
```

b. 
```
(AdvP orjer 'twice')
```

```
(AdvP mizanmimartulad 'intentionally')
```

```
(k’arze daak’ak’una)
```

Based on this evidence, I conclude that postverbal familiarity topics in Georgian have (low) adjunct status. This is in line with other verb-final languages that allow background information to appear postverbally and use the adjunction mechanism to achieve that, such as Hindi (Srivastav 1991), German (Büring & Hartmann 1994), and Turkish (Butt & King 1996).
Postverbal familiarity topics are most often represented by constituents that do not act as arguments of the verb, such as temporal and locational adverbs. However, verbal arguments also may act as familiarity topics, if they constitute given material and are found in the postverbal domain. If a postverbal topic is an argument of a clause it is found in, it is coindexed with a null pronominal in the clause structure. As a language with extensive pro-drop, it is not unexpected that Georgian use this strategy of co-indexation. This is illustrated in (83) and (84) below:

(83) A: Da naq’in-i? Vinme mi-a-c’od-a bavšv-s?
And ice-cream-NOM someone PRV-VER-hand-AOR.3SG child-DAT?
‘And [how about] ice-cream? Did anyone hand it to the child?’

B: Naq’in-i ar v-i-c-i, magram orcxobila Natia-m
ice-cream-NOM NEG 1-VER-know-PRS.1SG but cookie-NOM N.-ERG
mi-a-c’od-a bavšv-s.
PRV-VER-hand-AOR.3SG child-DAT
‘I don’t know about ice-cream, but Natia gave the child a cookie’. 

(84) 
\[
\text{Orcxobila}_i
\]

‘cookie’ 

C ... 

vP 

NP Natiam 

v ApplP

\text{pro}_i 

Appl

VP NP bavšvs

ti V ‘to the child’ 

miač’oda ‘handed’
To sum up the current section, the left-peripheral and postverbal non-focal material found in narrow focus contexts (i.e., clauses that contain a narrowly focused constituent) has the following properties. Left-peripheral material is divided into contrastive topics and familiarity topics (though, importantly, I take this distinction to be interpretative and not syntactic in nature). Contrastive topics have the widest scope and establish or switch the main topic of the utterance; familiarity topics are found in the scope of contrastive topics and provide other given material but cannot have a contrastive reading. Both of the left-peripheral topics are housed in the CP-layer of the clause. In contrast, postverbal familiarity topics have narrow scope, and are adjoined to the clausal spine on the right, with the adjunction site being low; verbal arguments that are adjoined as right hand topics are coindexed with a null pronominal in their thematic position.

2. Neg-words

2.1 Distributional properties

In Section 1, I showed that non-focal material has distinct syntactic and discourse properties. In syntactic terms, non-focal material in narrow focus contexts is displaced to the left or right periphery. In terms of its discourse properties, it is interpreted as either a contrastive or a familiarity topic. The current section is dedicated to (i) establishing the distribution of neg-words and (ii) demonstrating that neg-words cannot act as non-focal material in narrow focus contexts – i.e., they cannot be dislocated into the left or right periphery and cannot receive a topical interpretation. This means that, when a constituent other than the neg-word is narrowly focused in the IPrP, a neg-word also found in the same clause is necessarily found in situ. This fact is later used in Chapter 5 and Chapter 6 for determining the structural status of wh-phrases and narrow foci.

Before getting into the details of the distribution of neg-words, it should be noted, for expository purposes, that neg-words vary by modality in Georgian, as do the corresponding forms of verbal negation (Aronson 1990: 145; González 2015: 9). In particular, there are three exponents of verbal negation in Georgian: ar, used in the indicative mood; nu, used in prohibitive mood; and ver, which indicates that an
attempt at an action was not successful. The negative morphemes that mark neg-words are specified for mood in the same way as the exponents of verbal negation, as shown in (85) below:39

\[(85) \quad \text{a. (Me) } ara-vin \quad ar \quad m-i-nax-av-s.\]

\[\text{1SG NEG-who NEG 1SG-VER-see-SF-3} \]

\[\text{‘I haven’t seen anyone.’} \]

\[\text{b. (Me) } vera-vin \quad ver \quad v-nax-e.\]

\[\text{1SG NEG.MOD-who NEG.MOD 1SG-see-AOR.1SG} \]

\[\text{‘I couldn’t see anyone.’} \]

\[\text{c. Nura-vi-s nu nax-av}!\]

\[\text{PROH-who-DAT PROH see-SF} \]

\[\text{‘Don’t see anyone!’} \quad \text{(González 2015: 9)} \]

It also should be emphasized at the outset that the distributional facts discussed here apply to neg-words in broad focus contexts. Narrowly focused neg-words, which are not discussed here, have the distribution of narrow foci, which means that they can appear postverbally, regardless of their thematic role. With this in mind, the main generalization about the distribution of neg-words is as follows: there is a strong preference for neg-words in Georgian to appear in the IPrP; cf. Aronson (1990: 47) in his grammar of Georgian: “Negatives and interrogative words and phrases \textit{must} immediately precede the verb.” Accordingly, placing neg-words further to the left of the verb results in ungrammaticality, regardless of the thematic role of the neg-word, as shown in (86) and (87):40

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40 As an aside, note that neg-words, when placed preverbally, do not require the presence of overt verbal negation – i.e., when a preverbal neg-word is present, verbal negation is optional (according to a prescriptive rule, verbal negation should be omitted in the presence of a preverbal neg-word). These facts indicate that Georgian instantiates the type of a non-strict negative concord language, but one in which the preverbal exponent of negation is optional, like it is in Catalan (Zanuttini 1991). According to Giannakidou’s (2000) classification of negative concord languages, such a combination of properties in a single language is typologically rare, given that non-strict negative concord languages typically ban exponents of verbal negation in the preverbal domain and require them in the postverbal domain.
Some speakers also allow for neg-words to appear in the postverbal domain (again, in broad focus contexts). In particular, those speakers that allow postverbal neg-word placement, most easily allow postverbal direct objects expressed by a neg-word such as araperi/veraperi/nuraperi ‘nothing’, as shown in (88) below. A search in the Georgian National Corpus renders similar results: specifically, while subject narrow foci, such as aravin/veravin/nuravin ‘no-one’ or adverbial neg-words such as arsad/versad/nursad ‘nowhere’ are hardly ever found postverbally, the object neg-word araperi/veraperi/nuraperi, compared to them, is found in the postverbal domain with considerably higher frequency.

(86)  a.  *Ara-vin  (ar)  č`am-a  xač’ap’uri  dghesasc’aul-ze.
     NEG-who  NEG  eat-AOR.3SG  khachapuri  party-at
     ‘No-one ate khachapuri at the party.’

     b.  *Ara-vin  xač’ap’uri  (ar)  č`am-a  dghesasc’aul-ze.
        NEG-who  khachapuri  NEG  eat-AOR.3SG  party-at
        (‘No-one ate khachapuri at the party.’)

(87)  a.  Mariam-ma  dghesasc’aul-ze  ara-per-i  (ar)  č`am-a.
       M.-ERG  party-at  NEG-thing-NOM  NEG  eat-AOR.3SG
       ‘Mariami didn’t eat anything at the party.’

     b.  *Mariam-ma  ara-per-i  dghesasc’aul-ze  (ar)  č`am-a.
        M.-ERG  NEG-thing-NOM  party-at  NEG  eat-AOR.3SG
        ‘Mariami didn’t eat anything at the party.’

(88)  a.  %Mariam-ma  *(ar)  č`am-a  ara-per-i.
       M.-ERG  NEG  eat-AOR.3SG  NEG-thing-NOM
       ‘Mariami didn’t eat anything at the party.’

     b.  ???Levani  ar  c’a-vid-a  ar-sad.
        L.-NOM  NEG  PRV-go-AOR.3SG  NEG-where
        ‘Levani didn’t go anywhere.’

     c.  ???Mariam-ma  naq’in-i  ar  i-q’id-a  ara-vi-s-tvis.
        M.-ERG  ice-cream-NOM  NEG  VER-buy-AOR.3SG  NEG-who-GEN-for
        ‘Mariami didn’t buy ice-cream for anyone.’
When there is more than one neg-word in a single (broad focus) utterance, there is a strong preference for all neg-words to appear preverbally, although, again, some speakers allow for the direct object neg-word to appear postverbally, as shown in (89).

(89) a. *Vera-vin* *vera-per-i* *(ver) nax-a.*
    
    NEG.MOD-who NEG.MOD-thing-NOM NEG.MOD see-AOR.3SG
    ‘No-one could see anything.’

    b. %*Vera-vin* *(ver) nax-a* *vera-per-i.*
    
    NEG.MOD-who NEG.MOD see-AOR.3SG NEG.MOD-thing-NOM
    ‘No-one could see anything.’

The precise distribution of neg-words (IPrP-placement requirement)⁴¹ in Georgian has some cross-linguistics parallels; in particular, some other verb-final languages with a preverbal focus position exhibit the same behavior. Specifically, in Ossetic, an Iranian language spoken in the Caucasus that has been influenced by Kartvelian, neg-words are also obligatorily immediately preverbal. In contrast with Georgian, none of the Ossetic neg-words can be placed postverbally, and they cannot be accompanied by the verbal negation clitic (Erschler 2010; 2012; 2013). Neg-words in Pamiri, another Iranian language, which has not been in contact with Kartvelian, are reported to have the same distribution as their counterparts in Ossetic (Erschler & Volk 2010). In Hittite, an extinct Anatolian language, neg-words together with relative pronouns, wh-phrases & indefinites formed a cluster that had to be adjacent to the verb, either by preceding or following it (Sideltsev 2014; 2016; 2017; Huggard 2015).

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⁴¹ The IPrP-placement requirement that applies to neg-words in Georgian (except direct object neg-words that some speakers allow postverbally) makes their distribution similar to that of narrow foci and wh-phrases. Even though it might seem that these categories of constituents are strange bedfellows, and them sharing distributional properties is surprising, there is a robust semantic connection between wh-phrases/narrow focus and negation/neg-words. In particular, narrowly focused constituents assert/highlight that a predicate applies to a certain constituent, while (possibly) eliminating some/all alternatives. Neg-words, in turn, “eliminate entire sets of contextual alternatives” (Drubig 2003: 15). On the other hand, cf. Creissels (2010) on the similarity between narrowly focused items and negation in Basque, Hungarian and Eastern Armenian, and his conclusion that, while there are notable similarities, consistent common rules can hardly be formalized.
Now that the syntactic properties of non-focal material in Georgian have been established, and we are familiar with the distributional properties of neg-words, the next section demonstrates that neg-words in Georgian do not leave their base position – the fact that can be used in determining the structural positions of other constituents.

### 2.2 Non-topical status of neg-words

Now that we have established the syntactic properties of non-focal material in Georgian and are familiar with the distributional properties of neg-words, this section shows that neg-words cannot act as either kind of topics (though, as mentioned above, some speakers allow for object neg-words in the postverbal domain). This means that neg-words are necessarily found in situ, and, as such, can be used as a tool for determining the syntactic status and positions of other elements in the preverbal domain in narrow focus contexts.

Why is it that neg-words cannot be interpreted as topics? I propose that the reason for that is their non-referential status. Because neg-words refer to empty sets, they cannot be used as the main topic that the utterance refers to (i.e. a contrastive topic), or as material already established in the discourse (i.e. a familiarity topic). In this, they act similarly to indefinite constituents, another class of non-referential elements which are known to avoid topical interpretation (Reinhart 1991; Lambrecht 1994; Şener 2010, a.o.).

This behavior of indefinite nominals is illustrated for Georgian in (90): an indefinite NP *nebismier matarebel* ‘any train’ cannot precede a wh-phrase (A’) or a narrowly focused constituent (B’) (though it can be found in the postverbal domain, as in A or B):

(90) A: * Vin ga-h-q’v-eb-a nebismier matarebel-s?*  
who PRV-3-follow-SF-3SG any train-DAT  
‘Who would take any train?’

A’: * Nebismier matarebel-s vin ga-h-q’v-eb-a?*  
any train-DAT who PRV-3-follow-SF-3SG  
‘Who would take any train?’

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⁴² Though see Cresti (1995) on the notion of indefinite topics.
Consider now the behavior of neg-words. The fact that they cannot act as contrastive topics is shown in (91) below:

(91) A: *Da lobian-i? Vinme č’am-a?
   and lobiani-NOM someone eat-AOR.3SG
   ‘And lobiani? Did anyone eat [any]?’

B. *Lobian-ze ar v-ic-i, magram ara-per-i (ar) č’am-a
   lobiani-about NEG 1SG-know-SM but NEG-thing-NOM NEG eat-AOR.3SG
   Mariam-ma.
   M.-ERG
   (‘I don’t know about lobiani, but Mariami ate nothing.’)

The fact that neg-words cannot act as familiarity topics is exemplified in (92):43

43 It has been observed in the literature that there are specific restrictions on the occurrence of neg-words (as well as negation more generally) in wh-questions. One of them is intervention effects, found in German and Korean (Beck & Kim 1997; Beck 2006), where neg-words/NPIs can block the interpretation of a wh-element when they are found in the path between the operator binding the wh-element and the wh-element itself, leading to the so-called intervention effect.

   anyone what-ACC read-NMLZ NEG.do-PST-Q
   (‘What did no-one read?’)

b. Muôs-úl, amuto t, ilk-chi anh-ass-ni?
   what-ACC anyone read-NMLZ NEG.do-PST-Q
   (‘What did no-one read?’) (Beck 2006: 4)

Another one is the existence of negative islands: an observation by Ross (1984) that negation interferes with the extraction of adjunct wh-phrases but not argument wh-phrases, as shown in (i).

(ii) a. [What house], can’t you photograph t?

b. *How, can’t you photograph the house t?
(92)  A: Dghes vin ar i-q’id-a ara-per-i?
today who NEG VER-buy-AOR.3SG NEG-thing-NOM
       ‘Who bought nothing today?’

       A’:* Dghes ara-per-i vin ar i-q’id-a?
today NEG-thing-NOM who NEG VER-buy-AOR.3SG
       (‘Who bought nothing today?’)

       B: Dghes Mariam-ma ar i-q’id-a ara-per-i.
today M.-ERG NEG VER-buy-AOR.3SG NEG-thing-NOM
       ‘Mariami bought nothing today.’

       B’:* Dghes ara-per-i Mariam-ma ar i-q’id-a.
today NEG-thing-NOM M.-ERG NEG VER-buy-AOR.3SG
       (‘Mariami bought nothing today.’)

An apparent exception to the rule exemplified in (92) above, according to which neg-words cannot act
as familiarity topics, is found in case when a neg-word acts as a subject, and can be found to the left of a
narrowly focused constituent, as in the reply B in (93):

(93)  A: Dghes ra ar i-q’id-a ara-vin?
today what NEG VER-buy-AOR.3SG NEG-who
       ‘What did no-one buy today?’

       A’:* Dghes ara-vin ra ar i-q’id-a?
today NEG-who what NEG VER-buy-AOR.3SG
       (‘What did no-one buy today?’)

       B: Dghes ara-vin p’amidor-eb-i ar i-q’id-a.
today NEG-who tomato-PL-NOM NEG VER-buy-AOR.3SG
       ‘No-one bought tomatoes today.’

       B’:??Dghes p’amidor-eb-i ar i-q’id-a ara-vin.
today tomato-PL-NOM NEG VER-buy-AOR.3SG NEG-who
       ‘No-one bought tomatoes today.’

The restriction on the relative positioning of wh-phrases and neg-words found in Georgian, then, is another
manifestation of the interaction between these two categories of elements.
I propose that, in such cases, the subject neg-word actually stays in its base position (instead of being found in the lower of the two topic positions in the CP-layer), but this is obscured by the fact that the two structures have the same linearization. This construction is discussed in more detail in Chapter 6.

The overall conclusion, based on (91)-(93) above, is the following. Recall that I adopt the view that changes in the base order of arguments and adjuncts cannot be information-structurally vacuous; accordingly, there are only two types of such word order changes: topicalization and focalization. In the current section, we have seen that, given their non-referential nature, neg-words cannot receive a topical interpretation and displace into the left or right periphery. Bringing these considerations together means that, setting aside a scenario where a neg-word carries narrow focus, neg-words are always found in situ.

Since preverbal neg-words cannot act as either type of topic, due to their non-referential semantic nature, they cannot be positioned in the CP layer of the clause, and, instead, can only be found in situ. As such, they can provide useful evidence about the position of other elements in a clause, which is also going to be used to determine the placement of wh-phrases and narrow foci in Chapter 5 and Chapter 6.

Turning to postverbal neg-words, for speakers that allow them, recall from Section 2.1 that only the direct object neg-word can be found in the postverbal domain (in broad focus conditions):

(94) %Mariam-ma *(ar) č’am-a ara-peri.

\[\begin{array}{llll}
\text{M-ERG} & \text{NEG} & \text{eat-AOR.3SG} & \text{NEG-thing} \\
\text{`Mariamma didn’t eat anything.'} \\
\end{array}\]

The distribution of postverbal neg-words, therefore, is also consistent with the hypothesis argued for above, that neg-words are always found in situ. Specifically, we have seen that VO is possible as a neutral word order found in broad-focus contexts, and that it is derived by short movement of the verb, which means that the direct object in VO orders, like in OV ones, is found in situ. Accordingly, it is not surprising that of all neg-words, direct object neg-words may be found in the postverbal domain: such placement corresponds to the in-situ position of the direct object neg-word, after the verb undergoes short movement.
to v⁰. Postverbal object neg-words, then, behave like any other postverbal objects. The derivation of the relevant portion of the utterance in (94) is provided in (95):

(95)

\[
\begin{array}{c}
\text{vP} \\
\text{v} \\
\text{č'ama} \\
\text{‘ate’} \\
\text{NP} \\
\text{araperi} \\
\text{‘nothing’} \\
\text{V}
\end{array}
\]

Finally, as exemplified in (B) in (92), the postverbal domain can accommodate an object neg-word in narrow focus contexts. This is parallel to what we see in broad focus contexts, and is discussed further in Chapter 6. In wh-questions, neg-words have a different distribution: specifically, they are only allowed postverbally, as exemplified in (92) and (96). The distribution of neg-words in wh-questions is addressed in Chapter 5.

3. Summary

This chapter introduced the distribution of two classes of constituents that are used for determining the structural positions of wh-phrases and narrow foci in the subsequent chapters of the dissertation. The first one of the two is non-focal material in narrow focus contexts. I showed that, in narrow focus contexts, non-focal material is displaced to the left and right peripheries. The left periphery houses topical material with two types of interpretation: contrastive topics, which introduce or change the main topic of the utterance, and familiarity topics, which refer to given material already established in the discourse. In terms of linearization, there is a strong preference for contrastive topics to precede familiarity topics, though it is not rooted in a syntactic difference between the two types of topics. In terms of their structural status, there is evidence that topicalized arguments of the verb may appear in the left periphery via either A-scrambling or a process that does not have the properties of A-scrambling (A-bar movement or base-generation).
Topicalized adjuncts, in turn, are base-generated in their surface positions. Finally, right-peripheral familiarity topics result from right-adjunction.

Next, I showed that neg-words are required to occur in the IPrP (postverbal placement of neg-words is subject to inter-speaker variation, with direct object neg-words occurring postverbally more easily than others). Most importantly for our purposes, I showed that neg-words cannot receive a topical interpretation and undergo displacement to the left periphery, which means that they are necessarily found in situ. At the same time, neg-words can co-occur with narrow foci and wh-phrases, in which case they no longer occupy the IPrP. This means that, because neg-words do not leave their in-situ position, they can be used as a tool determining the structural position of wh-phrases and narrow foci.
Chapter 5. Wh-phrases

This Chapter establishes the distribution of wh-phrases and provides an analysis of their structural properties. In Georgian, all wh-phrases must be placed in the immediately preverbal position (henceforth IPrP) and not further to the left in the clause. This applies to both d-linked and non-d-linked wh-expressions; the only wh-expressions that are felicitous in the postverbal domain are the ones that receive an echo-interpretation. In this, wh-phrases contrast with narrowly focused constituents, which can occur in the postverbal domain.

Wh/questions of more complex clause types are also addressed in this chapter. I show that in clauses with the verbs akvs/h’qavs ‘have’ embedding a participial small clause, as was the case in simple clauses, wh-phrases surface in the IPrP of the verbs akvs/h’qavs ‘have’. In constructions with a non-inflecting modal unda ‘have to, must’ and a lexical verb, wh-phrases are placed into the IPrP of the modal. When embedded in a nominalization, which itself is embedded under a lexical verb, the wh-phrase is placed in the IPrP of the lexical verb; furthermore, if the wh-phrase is an argument of the nominalization, it pied-pipes the nominalized clause with it. Finally, it should be noted that, ordinarily, a wh-phrase can only be found in the IPrP of the clause-mate verb – as opposed to, e.g., a linearly closest verb. If a wh-phrase in an embedded clause needs to take scope in the matrix clause, a wh-scope marking strategy is used, in which a second wh-phrase is introduced in the matrix clause. However, with certain matrix verbs, the wh-phrase may leave the embedded clause and occur in the IPrP of the non-clause-mate matrix verb.
Analytically, I propose that wh-words in Georgian undergo short A-bar movement to the specifier of the PredP projection, accompanied by movement of the verb/modal to Pred\(^0\). In the sense used here, PredP is akin to FocusP (proposed for a number of languages) and different in its properties from the PredP introduced by Bowers (1993). Recall that the name PredP used here stems from the hypothesis that the constituents housed in this projection form the logical predicate of the clause; cf. Den Dikken (2005; 2006; 2013) on the relevant notion of predication.

This chapter is structured in the following way. Section 1 addresses the distributional properties of wh-phrases in simple clauses (Section 1.1), participial small clauses (Section 1.2), clauses with a non-finite modal (1.3), wh-scope marking and long-distance wh-movement constructions (Section 1.4), and wh-phrases embedded in nominalizations (Section 1.5). Next, Section 2 proposes an analysis of the structural properties of the same categories of wh-phrases, in the same order: simple clauses (Section 2.1), participial small clauses (Section 2.2), clauses with a non-finite modal (2.3), wh-scope marking and long-distance wh-movement (Section 2.4), and wh-phrases in nominalizations (Section 2.5). The prosodic realization of wh-questions is further addressed in Chapter 7.

1. Distributional properties

1.1 Simple clauses

Wh-expressions in Georgian are obligatorily found in the immediately preverbal position (IPrP). In this regard, they have the most restricted distribution among the items for which the IPrP requirement holds, which also includes narrow foci and neg-words, since they cannot be found in any other position in a clause. The requirement for a wh-phrase to appear in the IPrP means that no material can intervene between the wh-expression and the verb, except for verbal negation, as shown in (97):

(97) a. \textit{Bebia} \textit{ra-s} \textit{a-lag-eb-d-a?}  
\text{grandma.NOM} \text{what-DAT} \text{VER-clean-SF-SM-IPFV.3SG}  
‘What did grandma clean?’
Postverbal placement of wh-phrases in Georgian is infelicitous unless they receive an echo interpretation, as shown in (98):

(98)  a. * Bebia a-lag-eb-d-a ra-s?  
      grandma.NOM VER-clean-SF-SM-IPFV.3SG what-DAT  
      (‘What did grandma clean?’)

   b. Bebia a-lag-eb-d-a RA-S?44  
      grandma.NOM VER-clean-SF-SM-IPFV.3SG what-DAT  
      ‘Grandma cleaned WHAT??’
      NOT: ‘What did grandma clean?’

Immediately preverbal placement is an absolute requirement that holds for both single and multiple wh-questions (other than echo questions). That is, if there is more than one wh-expression, all of them must be left-adjacent to the verb, as shown in (99); the exponent of verbal negation cannot break up the cluster of wh-phrases either, as shown in (100):

(99) * V-is-tvis i-mgher-a sad Levan-ma simgher-a?  
      who-GEN-for VER-sing.AOR.3SG where L.-ERG song-NOM  
      (‘Where did Levani sing a song for whom?’)

(100) * Vin ar ra i-q'id-a?  
      who NEG what VER-buy-AOR.3SG  
      (‘Who not bought what?’)

44 Erschler (2015: 43) mentions postverbal placement of d-linked wh-expressions as marginally possible though marked, but the Georgian speakers I consulted did not accept that.
Furthermore, the requirement for preverbal placement of all wh-words holds both on the single-pair and pair-list readings, as shown in (101):

(101) A: \textit{V-is-tvis sad i-mgher-a Levan-ma simgher-a?}  
who-GEN-for where VER-sing.AOR.3SG L.-ERG song-NOM  
‘Where did Levani sing a song for whom?’

B: \textit{Levan-ma Lena-s-tvis pilarmonia-ů} i-mgher-a simgher-a.  
L.-ERG L.-GEN-for philharmonic_hall-in VER-sing.AOR.3SG song-NOM  
‘Levani sang a song for Lena in the philharmonic hall.’

B’: \textit{Levan-ma Lena-s-tvis pilarmonia-ů} i-mgher-a simgher-a, da  
L.-ERG L.-GEN-for philharmonic_hall-in VER-sing.AOR.3SG song-NOM AND  
\textit{Maša-s-tvis sak’ontc’orto darbaz-ů}.  
M.-GEN-for concert hall-in  
‘Levani sang a song for Lena in the philharmonic hall, and for Masha in the concert hall.’

In requiring all wh-phrases to appear in the IPrP as a single cluster, Georgian contrasts with other typologically similar languages, such as Hungarian, which allows more variability in this respect. Specifically, in Hungarian multiple wh-questions, all wh-phrases must be preverbal on a pair-list reading, while only one is preverbal on a single-pair reading (É. Kiss 2004: 99; Surányi 2006):\textsuperscript{46}

\textsuperscript{45} Georgian allows for multiple wh-questions to have a single-pair reading; i.e, the question in (i) can be felicitously asked in the following situation (cf. Bošković 2003 and references therein): John is in a store and he sees that someone is buying a piece of clothing in the distance but he cannot see who it is and what the piece of clothing is, so John asks the clerk:

(i) \textit{Vin ra i-q’id-a?}  
who what VER-buy-AOR.3SG  
‘Who bought what?’

\textsuperscript{46} I thank Tamás Halm for pointing this out to me. Some earlier literature does not recognize this distinction in Hungarian. See Brody (1990: 209) for the view that only one of the wh-expressions must be preverbal in Hungarian, and Cheng (1991: 77) for the view that all wh-expressions are required to.
With respect to superiority effects, Georgian exhibits the following pattern: wh-subjects obligatorily precede/c-command wh-objects, regardless of animacy of the referents, as shown in (102) and (103); cf. Featherston (2005) for similar results in German.47

(102) a. Vin ra i-q’id-a?
   Who what VER-buy-AOR.3SG
   ‘Who bought what?’

   b. * Ra vin i-q’id-a?
      what who VER-buy-AOR.3SG
      (‘Who bought what?’)

(103) a. Vin vi-s e-dz-eb-s?
   who who-DAT VER-look_for-SF-PRS.3SG
   ‘Who is looking for whom?’

   b. * Vi s vin e-dz-eb-s?
      who who-DAT VER-look_for-SF-PRS.3SG
      (‘Who is looking for whom?’)

Similarly, in a multiple wh-question, an indirect object must c-command a direct object, in both of the applicative constructions that Georgian has: with a dative-marked indirect object, as in (104), and with an indirect object marked by a postposition -tviš ‘for’, as in (105); see also Amiridze (2006: 64):

(104) a. (Šen) vi-s ra ga-u-gzavn-e?
   2SG who-DAT what PRV-VER-send-AOR.2SG
   ‘What did you send to who?’

   b. * (Šen) ra vi-s ga-u-gzavn-e?
      2SG what who-DAT PRV-VER-send-AOR.2SG
      (‘What did you send to who?’)

47 According to Erschler (2015: 43), superiority effects are not present in Georgian. However, based on the judgements from the Georgian speakers that I have consulted, the asymmetry between subjects and DOs is robust.
In contrast, non-argument wh-phrases allow for a greater degree of variability in placement with respect to the argument wh-phrases, as shown in (106); other possible considerations, such as phonological weight, do not seem to play a role in the mutual positioning of such wh-phrases.

(106) a. Ra-s rogor xarš-av-d-a bebia gušin?
what-DAT how cook-SF-SM-PRF.3SG grandma.NOM yesterday
‘How did grandma cook what yesterday?’

b. Rogor ra-s xarš-av-d-a bebia gušin?
how what-DAT cook-SF-SM-PRF.3SG grandma.NOM yesterday
‘How did grandma cook what yesterday?’

However, two adjunct wh-phrases, such as sad ‘where’ and rodis ‘when’ are not allowed in a wh-question, unless coordinated with da ‘and’ and receiving a single-pair interpretation, as in (107):

(107) a. * Sad rodis i-zeim-a dabadeb-is dghe Mariam-ma?
where when VER-celebrate-AOR.3SG birth-GEN day.NOM M.-ERG
(‘Where did Mariami celebrate her birthday when?’)

b. * Rodis sad i-zeim-a dabadeb-is dghe Mariam-ma?
when where VER-celebrate-AOR.3SG birth-GEN day.NOM M.-ERG
(‘Where did Mariami celebrate her birthday when?’)

c. Rodis da sad i-zeim-a dabadeb-is dghe Mariam-ma?
when and where VER-celebrate-AOR.3SG birth-GEN day.NOM M.-ERG
‘Where and when did Mariami celebrate her birthday?’
When multiple d-linked wh-expressions (cf. Pesetsky 1987; Enç 1991) are present in the same clause, they allow for variable order with respect to each other, regardless of their argument or adjunct status. In this, they contrast with non-d-linked argument wh-expressions, as shown in (104) above:

(108) a. ́Romel-ı/ra satamašo romel švil-s misc-a deda-m?
    which-NOM/what toy.NOM which child-DAT give-AOR.3SG mother-ERG
    ‘Which/what toy did the mother give to which child?’

    b. ́Romel švil-s romel-ı/ra satamašo misc-a deda-m?
    which child-DAT which-NOM/what toy.NOM give-AOR.3SG mother-ERG
    ‘Which/what toy did the mother give to which child?’

Finally, Georgian allows certain combinations of more than two wh-expressions, but such combinations are highly restricted. The nature of the restriction is not immediately clear, though some generalizations can be made. Namely, there is a preference for a direct object wh-phrase to precede wh-adjuncts, as shown in (109), and for an indirect object wh-phrase formed with a postposition -tvis (vistvis ‘for who’) to precede all other wh-elements, as shown in (110). All other relative orderings of wh-phrases in (109) and (110) lead to ungrammaticality.

(109) Ra rodis sad da-a-zian-a dzlier-ma grigal-ma?
    what when where PRV-VER-ruin-AOR.3SG strong-ERG storm-ERG
    ‘When did the strong storm ruin what where?’

(110) Vi-s-tvis ra sad da-xat’-a mxat’var-ma?
    who-GEN-for what where PRV-paint-AOR.3SG artist-ERG
    ‘What did the artist paint for whom where?’

The emerging generalization is that all wh-phrases in a simple clause (i.e., a clause with a single verb) must be placed into the IPrP and cannot be separated from the verb by any material other than the exponent of verbal negation. Multiple wh-questions (with two argument wh-phrases, or an argument and an adjunct wh-phrase) allow for both single-pair and pair-list readings. In terms of ordering restrictions and superiority

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48 D-linked status of wh-phrases was established here by providing context for them, such, as in this case, that there are two children that the mother has, and two toys.
effects, subject wh-phrases must precede object wh-phrases, and indirect object wh-phrases must precede direct object ones; an argument and an adjunct wh-phrases are freely ordered with respect to each other, while two adjunct wh-phrases resist being placed in a wh-question, unless coordinated. Finally, d-linked argument wh-phrases are freely ordered with respect to each other, in contrast with their non-d-linked counterparts.

The remainder of this section is dedicated to a more in-depth discussion of the status of other, non-wh material that is present in a wh-question (recall that the general properties of such material were discussed in Chapter 4). Specifically, while the wh-phrase may be (and often is) initial in a wh-question, other material may precede it. This preceding material is interpreted as a contrastive or familiarity topic, as was shown in Chapter 4; cf. also Skopeteas & Féry (2016). The availability of topical interpretation can be demonstrated for contrastive topics in replies to questions, which switch the topic of the clause from that of the preceding question to a new one (Neeleman & Van de Koot 2008; Şener 2010). Specifically, felicity of the reply (B) in (111), where the pronoun man, referring to Giorgi, is substituted by Mariamma, signals that man in (A) has a topical interpretation (since focal or given constituents/familiarity topics would not allow for such a switch – it is only a prerogative of contrastive topics). The topical status of Mariamma in (B) is further supported by the infelicity of example (B'): switching the order of the focal and topical constituents results in strongly degraded judgements.

(111) A:  
\[
\begin{align*}
\text{Da Giorg-i? } & \text{Man ra } \varepsilon'\text{am-a } d\text{ghesase'aul-ze?} \\
\text{And } & \text{G.-NOM 3SG.ERG what eat-AOR.3SG party-at} \\
\text{‘And Giorgi? What did he eat at the party?’}
\end{align*}
\]

B:  
\[
\begin{align*}
\text{Giorg-i ar } & \text{v-i-ë-i, magram Mariam-ma } xač'ap'ur-i \\
\text{G.-NOM NEG 1SG-VER-know-PRS.1SG but M.-ERG khachapuri-NOM} \\
\text{\varepsilon'am-a.} & \text{eat-AOR.3SG} \\
\text{‘I don’t know about Giorgi, but Mariami ate khachapuri.’}
\end{align*}
\]
B':* Giorgi- Gi- ar v-i-c-i. magram xač’ap’ur-i Mariam-ma
G.-NOM NEG 1SG-VER-know-PRS.1SG but khachapuri-NOM M.-ERG
c’/am-a.
eat-AOR.3SG
‘I don’t know about Giorgi, but Mariami ate khachapuri.’

The material preceding the wh-phrase can also receive a strongly contrastive reading, which also points to its status of a contrastive topic, given that only foci and topics that can have a contrastive reading. With the wh-phrase receiving a focal interpretation, the contrastive material preceding it can only be topical:

(112) (Looking at a picture of her former classmates together, Marika asks Nino about one of them. She doesn’t remember the classmate’s name, but she wants to know who the person in question married. She asks her question while pointing at the picture):

M: Es vi-s ga-q ’v-a col-ad?
3SG who-DAT PRV-follow-AOR.3SG wife-ADV
‘Who did she marry?’

(Nino misunderstands the question to be about another person in the picture, and says):

N: Manana Giorgi-s ga-q ’v-a col-ad.
M.NOM G-DAT PRV-follow-AOR.3SG wife-ADV
‘Manana married Giorgi.’

(Marika corrects her):

M: Ara, ES vi-s ga-q ’v-a col-ad?
no 3sg who-DAT PRV-follow-AOR.3SG wife-ADV
‘No, who did SHE marry?’

In addition to (contrastive) topics, the material preceding the wh-phrase in a wh-question can contain given material familiar from the preceding discourse, which I call a familiarity topic, following Frascarelli & Hinterhölzl (2007). Such given material, if present, follows the contrastive topic and precedes the wh-
phrase in the IPrP, as in (b) in (113), or is placed into the postverbal domain, as in (b’) in (113):
As the wh-questions in (113) also show, more than one element can precede the wh-constituent in Georgian. This sets Georgian apart from some other head-final languages with the requirement for the wh-phrase to appear in the IPrP, which only allow for a single element to surface to the left of the wh-expression, such as Basque (Hualde, Elordieta & Elordieta 1994: 167), Kashmiri (Bhatt 1999: 60) and Malayalam (Jayaseelan 1996: 65). The nature of this restriction is not immediately clear but may be related to V2-like properties of these languages, which have been highlighted in the literature; cf. Ortiz de Urbina (1994) for Basque, Bhatt (1999) for Kashmiri, and Brandner (2004) for Malayalam.

1.2 Participial small clauses

Having established the distribution of wh-phrases in simple clauses (i.e., in clause types with a single verb), the current section introduces the distribution of wh-phrases in utterances with a participial small clause embedded under the verbs akvs/h’qavs ‘have’. Recall that in broad focus contexts, the participial small clause in such constructions can either precede or follow the verb, as shown in (114).

(114) a. Nino-s [naq’in-i na-q’id-i] a-kv-s.
   N.-DAT ice-cream-NOM PRV-buy-PTCP VER-have-3SG
   ‘Nino has bought ice-cream.’
b. Nino-s a-kv-s [naq’in-na-q’id-i].
   N.-DAT VER-have-3SG ice-cream-NOM PRV-buy-PTCP
   ‘Nino has bought ice-cream.’

These facts are in line with what was shown in Chapter 3 for simple nominal direct objects, which, in broad focus conditions, can be found either in an OV or VO configuration. This is illustrated in (115), where the same verb, akvs ‘have’, combines with a nominal object that can either precede or follow it:

(115) a. Nino-s mankana a-kv-s.
    N.-DAT car.NOM VER-have-3SG
    ‘Nino has a car.’

   b. Nino-s a-kv-s mankana.
      N.-DAT VER-have-3SG car.NOM
      ‘Nino has a car.’

In turn, when a wh-question is formed on the basis of the embedded participial construction, the wh-phrase appears in the IPrP of the verb akvs ‘have’, as shown in (116) – again, as it would if it were found in a simple clause with akvs ‘have’ as the lexical verb:

(116) a. Gušin dila-s, ra a-kv-s Nino na-q’id-i?
    yesterday morning-DAT what VER-have-3SG N.NOM PTCP-buy-PTCP
    ‘What did Nino buy yesterday morning?’

   b. * Gušin dila-s, Nino na-q’id-i ra a-kv-s?
      yesterday morning-DAT N.NOM PTCP-buy-PTCP what VER-have-3SG
      (‘What did Nino buy yesterday morning?’)

   c. * Gušin dila-s, Nino ra na-q’id-i a-kv-s?
      yesterday morning-DAT N.NOM what PTCP-buy-PTCP VER-have-3SG
      (‘What did Nino buy yesterday morning?’)

Note the structural similarity between embedded participial small clauses and nominal direct objects of the verbs akvs/h’qavs ‘have’, which is elaborated further in Section 2.2 in the current chapter.
### 1.3 Clauses with a (non-finite) modal

Next, consider clauses based on a non-inflecting modal *unda* ‘have to, must’ (not be confused with *unda* ‘want’, which is a fully inflecting verb and has different syntactic properties; more on *unda* ‘want’ in Section 1.5) and a finite lexical verb. Here, the modal *unda* ‘have to, must’ can only appear clause-medially, as shown in (117), which suggests that its structural status differs from those of finite verbs we have seen before, including the verbs *akvs/h’qavs* ‘have’ that embeds a participle small clause. The fact that *unda* ‘have to, must’ behaves differently from the other verbs that have been considered so far is supported by the fact that it is an invariant form that does not carry any agreement or TAM morphology.

(117) a.  \( Xval \) *P’ragha-ši K’arl-is xid-i* \( unda \) v-nax-o-t. \( =\) (34)
    tomorrow Prague-in Charles-GEN bridge-NOM MOD 1-see-OPT.1-PL
    ‘We have to see Charles Bridge in Prague tomorrow.’

    b.  *Xval *P’ragha-ši K’arl-is xid-i v-nax-o-t *unda*.
        tomorrow Prague-in Charles-GEN bridge-NOM 1-see-OPT.1-PL MOD
        (‘We have to see Charles Bridge in Prague tomorrow.’)

When a wh-question is formed on the basis of a modal + finite lexical verb construction, the wh-phrase obligatorily occupies the IPrP of the modal, as shown in (118). Note that, in this respect, wh-questions formed on the basis of such constructions differ from the other constructions we have seen so far, in that the wh-phrase is found in the IPrP of an element other than the finite/lexical verb.

(118) a.  \( Ra \) *unda v-nax-o-t* \( P’ragha-ši? \)
    what MOD 1-see-OPT.1-PL Prague-in
    ‘What do we have to see in Prague?’

    b.  *P’ragha-ši unda ra v-nax-o-t?*
        Prague-in MOD what 1-see-OPT.1-PL
        (‘What do we have to see in Prague?’)

The structural properties of such wh-questions are addressed in Section 2.3 in the current chapter.

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49 *unda* ‘have to, must’ can have both a deontic and an epistemic reading (van Dooren 2017).
1.4 Wh-scope marking and exceptions to clause-boundedness

1.4.1 Wh-scope marking

In Georgian, a wh-expression is confined to the clause that it was merged into – that is to say, wh-phrases typically can only be found in the IPrP of their clause-mate verb (some exceptions to this pattern are addressed later in this section). If a wh-expression needs to take scope in a higher clause, a strategy known as wh-scope marking (Dayal 1993 et seq., Fanselow 2006, a.o.) is used. In such a construction, the true wh-phrase is found in the embedded clause, while another wh-phrase, one that does not change by interpretation and co-occurs with all wh-expressions, signals its scope in the matrix clause, as shown in (b) in(119) below. As is common in such constructions cross-linguistically, the invariable wh-scope marking wh-word used in Georgian is ra/ras ‘what Nom/what Dat’. The wh-scope marking strategy is the unmarked way of forming a wh-question in a complex clause where the wh-phrase originates in the embedded one. The fact that the complementizer rom is possible in such structures shows that these are true bi-clausal structures with a matrix and an embedded clause, as opposed to two juxtaposed clauses:

50 I am grateful to Annemarie van Dooren for sharing her Georgian data with me, some of which is used in this section.

51 In addition to classic wh-scope marking, Georgian allows for a construction in which an adjunct visze ‘about who’ wh-expression is coindexed with a null pronominal in the embedded clause:

(i) Vi-s-ze, e-č ‘vob-s Manana, rom e, a-k ‘ots-a Giorgi-s?
wh-DAT-in VER-suspect-PRS.3SG M.-NOM COMP PRV-kiss-AOR.3SG G.-DAT
‘About who does Manana suspect that (they) kissed Giorgi?’

Similarly, with the verb hgonia ‘seem’, the wh-expression is generated in the matrix clause and co-indexed with a null-pronominal in the embedded clause:

(ii) Vin h-goni-a Levani-s rom e, i-q’id-a ts’ign-eb-i?
‘Who seems to Levani that (they) bought books?’

These constructions do not constitute true wh-scope marking and are not discussed further here.
(119) a. *Vi-s/visi tkv-a Nino-m [CP (rom) t, unda v-u-q 'ur-o-t]? who-DAT/who say-AOR.3SG N.-ERG COMP MOD 1-VER-watch-OPT.1-PL
  (‘Whom did Nino say (that) we must watch?’)

b. Ratakvi-Nino-m, [CP (rom) vi-s unda v-u-q 'ur-o-t]?
  1-VER-watch-OPT.1-PL
  ‘Whom did Nino say that we must watch?’

Some languages, such as German, allow for wh-scope marking alongside long-distance wh-movement:

(120) a. Wen hat Peter ge-mein-t, dass sein Sohn ge-biss-en hat?
  who have.3SG P. PRV-reckon-PRF COMP 3SG.POSS son PREV-bite-PRF have.3SG
  ‘Who did Peter reckon that his son bit?’

b. Was hat Peter ge-mein-t, wen sein Sohn ge-biss-en hat?
  what have.3SG P. PRV-reckon-PRF who 3SG.POSS son PREV-bite-PRF have.3SG
  ‘Who did Peter reckon that his son bit?’
  (Doliana 2018)

Georgian, however, aligns with languages like Bangla that do not allow cross-clausal wh-movement and rely on wh-scope marking only (except with certain predicates; see Section 1.4.2 in the current chapter for the distributional data and Section 2.4.2 below for a preliminary analysis).

More than one wh-phrase can appear in the embedded clause in a wh-scope marking construction, as shown in (121), and more than one level of embedding is allowed, as shown in (122):

(121) Ratakvi-Nino-m, [CP (rom) vin ra i-q’id-a
  what.NOM say-AOR.3SG N.-ERG COMP who what VER-buy-AOR.3SG
  maghazia-ši]?
  store-in
  ‘Who did Nino say bought what at the store?’
(122) Ra tkv-a Marik’a-m (rom) ra h-gon-i-a Nino-s (rom)

vin i-q’id-a c’ign-eb-i?
who  VER-buy-AOR.3SG  book-PL-NOM
‘Who did Marika say Nino thought bought books?’

The structural properties of wh-scope marking are addressed in Section 2.4.1 in the current chapter.

1.4.2 Exceptions to clause-boundedness

The generalization discussed in the preceding section, that wh-expressions in Georgian are confined to the clause that they were merged in is not exceptionless. Specifically, there are certain environments in Georgian that do allow what looks like cross-clausal wh-movement. The first one, well-attested and described in the literature, is complex clauses with a finite verb embedded under verbs unda ‘want’ (not to be confused with unda ‘have to, must’, described in Section 1.2 above), šeudzlia ‘can, be able to’ and sč’irdeba ‘need’ (Harris 1981); note that these three verbs have modal meaning. The second one, that, to the best of my knowledge, has not been discussed in the literature before, is the availability of cross-clausal wh-movement with other lexical verbs (without the modal meaning). In the remainder of this section, each of these contexts is discussed in more detail. This section addresses both types of structures.

Let us start with complex clauses where the matrix verb is unda ‘want’, šeudzlia ‘can, be able to’, or sč’irdeba ‘need’. In such complex clauses, wh-elements generated in the embedded clause obligatorily appear in the IPrP of the verb with modal meaning, not the embedded verb (Harris 1981: 18). The bi-clausal nature of such structures is signalled by the presence of the complementizer rom. Note also that these verbs are specified for tense and bear person and number agreement, and, as such, act as fully inflected finite verbs. However, the finiteness of the verbs unda ‘want’, šeudzlia ‘can, be able to’, or sč’irdeba ‘need’ cannot be the driving force behind wh-extraction, since the embedded (lexical) verb in such contexts in Georgian is also finite and belongs to the optative series. To illustrate this pattern, (123) below shows a

52 With multiple layers of embedding, there is a preference for only one of the complementizers to be overt.
declarative sentence with *unda* ‘want’ and the way it can be turned into a wh-question. (124) and (125) provide further examples with *unda* ‘want’ and *šeudžlia* ‘can, be able to’:

(123) a. Es m-inda, rom Nino-m mo-i-g-o-s.
    DEM 1SG-want COMP N.-ERG PREV-VER-win-OPT-3SG
    ‘I want Nino to win.’

    b. Vin g-inda rom mo-i-g-o-s?
       who 2-want COMP PREV-VER-win-OPT-3SG
       ‘Who do you want to win?’

    c. * Es g-inda, rom vin mo-i-g-o-s?
       DEM 2-want COMP who PREV-VER-win-OPT-3SG
       ‘Who do you want to win?’

(124) *Sad g-inda-t rom c'a-x-vid-e-t?*
    where 2-want-PL COMP PRV-2-go-OPT.2-PL
    'Where do you (pl.) want to go?'

(125) *Sad še-gv-i-dzl-i-a (rom) c'a-vid-e-t?*
    where PRV-1PL-VER-can-SM-3SG COMP PRV-go-OPT.2-PL
    'Where can we go?'

Furthermore, wh-scope marking instead of wh-extraction is impossible in such constructions:

(126) *Ra še-gv-i-dzl-i-a rom sad c'a-vid-e-t?*
    what PRV-1PL-VER-can-SM-3SG COMP where PRV-go-OPT.1.PL
    ('Where can we go?')

The exceptionality of the three verbs with modal meaning with respect to wh-question formation, discussed above, has been noted in the literature before. However, in addition to the contexts with these verbs, certain other lexical matrix verbs allow for a wh-phrase to be extracted out of an embedded clause and placed in the IPrP of the matrix verb. Some of these are the so-called ‘bridge verbs’ such as ‘say’ and ‘think’, which are cross-linguistically known to facilitate extraction from an embedded clause (Erteschik-Shir 1973; 2006). Yet, some other verbs that apparently allow for wh-extraction, such as ‘exclaim’, do not fit the profile of
bridge verbs. The true bi-clausal nature of such constructions is, again, signaled by the obligatory presence of the complementizer \textit{rom}.

(127) \textit{Rodis pikr-ob *(rom) da-brun-d-eb-i?}  
when think-SF COMP PRV-return-CONJ-SM-2SG  
'When do you think that you come back?'

(128) \textit{Romel login-ze u-txr-a ekim-ma Nino-s *(rom) da-c’ol-il-iq’o?}  
which bed-in VER-tell-3SG.PST doctor-ERG N-DAT COMP PRV-lie-PTCP-be.AOR.3SG  
'On which bed did the doctor tell Nino to lie down?'

Such constructions, as expected, can also be cast as wh-scope marking ones, with no difference in meaning:

(129) \textit{Ra-s pikr-ob, rodis da-brun-d-eb-i?}  
what-DAT think-SF when PRV-return-CONJ-SM-2SG  
'What do you think, when will you be back?'

(130) \textit{Ra u-txr-a ekim-ma, romel login-ze da-c’ol-il-iq’o Nino?}  
what VER-tell-3SG.PST doctor-ERG which bed-in PRV-lie-PTCP-be.AOR.3SG N.NOM  
'What did the doctor say, which bed should Nino lie down on?'

With other verbs that allow cross-clausal wh-extraction, both matrix and embedded readings of the wh-phrase are available:

(131) a. \textit{Rodis u-tzar-i, rom c’a-sul-iq’o?}  
when VER-tell-AOR.2SG COMP PRV-go-be.AOR.3SG  
‘When did you tell him to go?’ (asking about the time of telling OR the time of going)

b. \textit{Rat’om u-tzar-i, rom c’a-sul-iq’o?}  
why VER-tell-AOR.2SG COMP PRV-go-be.AOR.3SG  
‘Why did you tell him to go?’ (asking about the reason for telling OR the reason for going)

(132) \textit{Vi-s-tan ertad ts’amoi-dzax-a Nino-m rom c’a-vid-od-a?}  
who-DAT-with together PRV-VER-exclaim-AOR.3SG N.-ERG COMP PRV-go-SM-IPFV.3SG  
'With whom did Nino exclaim that she would go?’ (asking about with whom the exclaiming took place OR with whom the going took place)
Furthermore, with some wh-expressions, it is even possible to exclude the matrix reading of the wh-
phrase, due to the pragmatics and/or grammatical form of the wh-phrase:

(134) *Ra dro-is-tvis u-txar-i, rom c’a-sul-iq’o?
what time-gen-for VER-tell-AOR.2SG COMP PRV-go-be.AOR.3SG
‘At what time did you tell him to go?’ (asking about the time of going, NOT the time of
telling)

In contrast with the examples in (123)-(134), this type of cross-clausal extraction is unavailable with
other matrix verbs that I have tested, with the resulting construction either being ungrammatical (135), or
only allowing matrix interpretation of the wh-phrase (136):

(135) *Rodis v-imedovn-eb rom da-brun-d-eb-i?
when 1/2-hope-SM COMP PRV-return-CONJ-SM-2SG
(‘When do you hope to come back?’)

(136) Sad ga-i-g-o Nino-m, rom mis-i švil-i
where PRV-VER-find_out-AOR.3SG N.-ERG COMP 3SG.POSS-NOM son
sc’avl-ob-s k’oledž-ši?
study-SF-PRS.3SG college-in?
‘Where did Nino find out that her son goes to college?’ (asking about the place of the finding out,
NOT the place of studying)

It is unclear at present why these but not other matrix verbs allow for wh-extraction from the embedded
clause. While the issue requires extensive further research, I discuss some of the factors that might be
contributing to the availability of wh-extraction in such conditions below.

For instance, one of the differences between (131), which allows for the embedded reading of the wh-
phrase and (136), which only allows for the matrix reading of the wh-phrase, is the lack of an overt matrix
or embedded subject in (131). Specifically, the lack of an overt embedded or matrix subject improves extraction for some speakers, as shown in detail in (137):53

   ‘Who did you say that they invited?’

   (‘Who did Nino say that they invited?’)

   (‘Who did Nino say that the neighbors invited?’)

In contrast, the presence of arguments other than the subject does not seem to have the same blocking effect on extraction: as shown in (138), the presence of an indirect object does not affect the grammaticality of long-distance wh-extraction with the matrix verb ‘tell’.

(138) Sad u-txar-i mas rom da-c’ol-il-iq’o?
 where VER-tell-AOR.2SG 3SG.DAT COMP PRV-lie-PTCP-be.AOR.3SG
   ‘Where did you tell him to lie down?’

The hypothesis that overt embedded subjects might contribute to blocking cross-clausal movement (in addition to or instead of non-finiteness of the embedded clause, which is known to facilitate extraction (Postal 1974)) was mentioned by Grano & Lasnik (2018: 466, fn.2), though the judgements are reported as inconclusive, and the authors do not take a stance on the issue.

53 I thank Léa Nash for sharing her observations about these constructions with me.
It is also worth pointing out that even the small selection of examples used here provides both types of counterexamples to this generalization. Specifically, (133) above, with an overt embedded subject, allows for the embedded reading of the wh-phrase, while (135), with no overt or embedded subject, does not.

The apparent grammaticality of wh-extraction with certain types of verbs, including both bridge and non-bridge ones, might at least in part be attributable to ongoing language change. Notably, younger speakers allow for more cross-clausal wh-movement than older speakers, and informal contexts allow cross-clausal wh-movement more freely than formal ones. Also, the influence of Russian, which many Georgian speakers have some command of, might contribute to this process. Russian allows wh-extraction out of subjunctive complement clauses, headed by the complementizer čtoby ‘so that, in order to’ (Bailyn 2012: 101), though wh-extraction out of indicative complement clauses, headed by the complementizer čto ‘that’ is subject to interspeaker variation. The fact that Russian is less restrictive with respect to cross-clausal wh-movement might contribute to the change that Georgian is undergoing in this respect.

1.5 Wh-phrases in nominalizations

The last type of wh-question formation pattern that this section considers is wh-questions built on the basis of nominalizations (called masdars in the Georgian philological tradition), embedded under the already familiar verbs unda ‘want’, šeudzlia ‘can, be able to’ and sč’irdeba ‘need’, as well as certain other lexical verbs.

Before delving into the properties of wh-questions formed on the basis of nominalizations, let me briefly introduce these structures. A masdar nominalization does not have its own subject,54 but it can have a direct object, which surfaces in the genitive case (cf. of-PPs in English nominalizations), and an indirect

54 Unaccusative subjects may be found in nominalizations and carry genitive case, like direct objects:

(i) [aš Tamad-is da-mtknar-eb-a supra-ze] uzrdeloba-a.
    tamada-GEN PRV-yawn-SF-NOM table-on rudeness-be.PRS.3SG
    ‘It is rude for the tamada to yawn at the table.’ (Legate 2008: 66)
object, (for the speakers that allow it – there is some interspeaker variation with respect to this), which is marked by the postposition -tvis ‘for’.

(139) a. c’a-svl-a
    PRV-go-NMLZ
    ‘going’

    b. mankan-is q’id-v-a
    car-GEN buy-TS-NMLZ
    ‘buying of a car’

    c. %Mer-is-tvis tav-is-i c’ign-is mi-c-em-a
    Mary-GEN-for own-GEN-NOM book-GEN PRV-give-TS-NMLZ
    ‘giving of his book to Mary.’ (Skopeteas & Asatiani 2016)

    d. * Levan-s/Levan-is/Levani-m mankan-is q’id-v-a
       L.-DAT/L.-GEN/L-ERG car-GEN buy-TS-NMLZ
       (‘Levani’s buying of a car’)

Nominalizations embedded under verbs with modal meaning, like non-derived nouns, bear nominative case (in present series screeves), which is demonstrated in (140). Use of the complementizer rom is not allowed in embedded nominalizations.

(140) a. Me lud-i m-inda da xink’al-i.
    1SG beer-NOM 1-want and khinkali-NOM
    ‘I want [some] beer and khinkali.’

    b. Rest’oran-ši [s] xink’al-is č’am-a] m-inda-t.
       restaurant-in khinkali -GEN eat-NMLZ 1-want-PL
       ‘At the restaurant, we want to have khinkali.’

    c. Rest’oran-ši m-inda-t (rom) [s] xink’al-is č’am-a].
       restaurant-in 1-want-PL COMP khinkali-GEN eat-NMLZ
       ‘At the restaurant, we want to have khinkali.’

In turn, nominalizations embedded under lexical verbs, such as nanobs ‘regrets’ and cdilobs ‘tries’, bear dative case (in present series screeves), as would be expected for direct objects (note that non-derived nouns do not occur as direct objects with such verbs). As was the case for nominalizations embedded under
verbs with modal meaning, the complementizer *rom* is not allowed in such constructions, which attests to their small structural size. This is illustrated in (141):

(141) a.  
\[\text{Levan-i \ [}\_\text{ap mankan-is \ } q'\text{id-v-a-s]} \text{ \ cdil-ob-d-a} \]
\[\text{L.NOM \ car-GEN \ buy-TS-NMLZ-DAT \ try-SF-SM-IPFV.3SG} \]
\[\text{‘Levani tried buying a car’} \]

b.  
\[\text{Levan-i \ cdil-ob-d-a \ (*}\text{rom}) \ [\_\text{ap mankan-is \ } q'\text{id-v-a-s]} \]
\[\text{L.NOM \ try-SF-SM-IPFV.3SG \ COMP \ car-GEN \ buy-TS-NMLZ-DAT} \]
\[\text{‘Levani tried buying a car’} \]

The generalizations that apply to wh-questions formed on the basis of nominalizations, regardless of the identity of the matrix verb, are the following. First, adjunct wh-phrases that apply to the nominalization obligatorily surface in the IPrP of the embedding verb (this applies to verbs of both types). This is shown for nominalizations embedded under verbs with modal meaning in (142) and (143), and for nominalizations embedded under other lexical verbs in (144):

(142) a.  
\[\text{Sad \ g-inda-t \ [}\_\text{ap c'a-svl-a]}? \]
\[\text{where \ 2-want-PL \ PRV-go-NMLZ} \]
\[\text{‘Where do you (pl) want to go?’} \]

b.  
\[\text{* G-inda-t \ sad \ [}\_\text{ap c’a-svl-a]}? \]
\[\text{2-want-PL \ where \ PRV-go-NMLZ} \]
\[\text{‘(Where do you (pl) want to go?)’} \]

(143) a.  
\[\text{Sad \ še-gv-i-dzl-i-a \ [}\_\text{ap c’a-svl-a]}? \]
\[\text{where \ PRV-1PL-VER-can-SM-3SG \ PRV-go-NMLZ?} \]
\[\text{‘Where can we go?’} \]

b.  
\[\text{* Še-gv-i-dzl-i-a \ sad \ [}\_\text{ap c’a-svl-a]}? \]
\[\text{PRV-1PL-VER-can-SM-3SG \ where \ PRV-go-NMLZ?} \]
\[\text{‘(Where can we go?)’} \]

c.  
\[\text{Nino \ sad \ sc’ir-d-eb-a \ (*}\text{rom}) \ [\_\text{ap c’a-svl-a}]? \]
\[\text{N.NOM \ where \ need-CONJ-SF-3SG \ COMP \ PRV-go-NMLZ} \]
\[\text{Where does Nino need to go?} \]

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(144) a. Rodis cdil-ob-d-a Levan-i |sup mankan-is q'id-v-a-s|?
    when try-SF-SM-IPFV.3SG L.NOM car-GEN buy-TS-NMLZ-DAT
    ‘When did Levani try to buy a car?’

    b. * Levan-i cdil-ob-d-a |sup mankan-is rodis q'id-v-a-s|?
    L.NOM try-SF-SM-IPFV.3SG car-GEN when buy-TS-NMLZ-DAT
    (‘When did Levani try to buy a car?’)

The second generalization is the following: argument wh-phrases that originate in the nominalization also surface in the IPrP of the matrix verb, but, in contrast with the adjunct wh-phrases, they also pied-pipe the nominalization with them.55 This is illustrated for nominalizations embedded under verbs with modal meaning in (145) and (146), and for nominalizations embedded under other verbs in (147):56

55 Some speakers accept placing the nominalization into the IPoP of the matrix verb, but due to variation in the grammaticality judgements, such constructions are not discussed here:

(i) % Levan-i cdil-ob-s |sup r-is q'id-v-a-s|?
    L.NOM try-SF-PRS.3SG what-GEN buy-TS-NMLZ-DAT
    ‘What is Levani trying to buy?’

56 Skopeteas & Asatiani (2016) also note that the following structure is possible, in which the masdar is a PP-adjunct and not an argument of the matrix verb. According to them, in such a construction the wh-phrase is placed in the IPrP of the masdar, but there are no restrictions on where the wh+masdar unit can occur in the clause (in a non-echo wh-question reading):

(i) a. [sup R-is q'id-v-a-ze] muša-ob-s Kote?
    what-GEN buy-TS-NMLZ-on work-PRS.3 SG K.NOM
    ‘What is Kote working in order to buy?’ (Lit.: ‘What is Kote working for buying?’)

    b. Kote muša-ob-s [sup r-is q'id-v-a-ze]?
    K.NOM work-PRS.3 SG what-GEN buy-TS-NMLZ-on
    ‘What is Kote working in order to buy?’ (Lit.: ‘What is Kote working for buying?’)

My Georgian consultants, however, rejected such constructions as ungrammatical. Accordingly, they are not discussed here.
(145) a. [ap R-is(i) č’am-a] g-inda-t rest’oran-ši?\(^{57}\)
    what-GEN  eat-NMLZ  2-want-PL  restaurant-in
    ‘What do you want to eat at the restaurant?’

    b. * R-is(i) g-inda t č’am-a rest’oran-ši?
    what-GEN  2-want-PL  eat-NMLZ  restaurant-in
    (‘What do you want to eat at the restaurant?’)

(146) a. [ap R-is(i) da-lev-a] še-gv-i-dzl-i-a saghamo-s?
    what-GEN  PRV-drink-NMLZ  PRV-1PL-VER-can-SM-3SG  evening-DAT
    ‘What can we drink tonight?’

    b. * R-is(i) še-gv-i-dzl-i-a da-lev-a saghamo-s?
    what-GEN  PRV-1PL-VER-can-SM-3SG  PRV-drink-NMLZ  evening-DAT
    (‘What can we drink tonight?’)

(147) a. [ap R-is q’id-v-a-s] cdil-ob-s Levan-i?
    what-GEN  buy-TS-NMLZ-DAT  try-SF-PRS.3SG  L.NOM
    ‘What is Levani trying to buy?’

    b. * [ap R-is q’id-v-a-s] Levan-i cdil-ob-s?
    what-GEN  buy-TS-NMLZ-DAT  L.NOM  try-SF-PRS.3SG
    (‘What is Levani trying to buy?’)

    c. * R-is cdil-ob-s q’id-v-a-s Levan-i?
    what-GEN  try-SF-PRS.3SG  buy-TS-NMLZ-DAT  L.NOM
    (‘What is Levani trying to buy?’)

Finally, as was the case with full clauses embedded under verbs with modal meaning, neither scope marking nor wh-in-situ are possible with nominalizations:

\(^{57}\) The wh-word \textit{rishi} that is used in such nominalizations is a different form compared to the expected genitive form of \textit{ra} ‘what’, \textit{ris}. Some speakers allow for the use of \textit{ris} instead of \textit{rishi} in such contexts, which is indicated by the parentheses in the examples, but that may be attributable to a phonological process that elides the final vowel and not to the interchangeability of the two morphological forms. Other wh-phrases in the same context are unambiguously marked for genitive (note \textit{romel}- ‘which’ is not marked for genitive in the presence of the genitive-marked head noun):

(i) [ap Romel-i tevz-is č’ama] g-inda-t?
    which-NOM  fish-GEN  eat-NMLZ  2-want-PL
    ‘Which fish do you want to eat?’

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To sum up the data that has been presented in the current section, wh-phrases in Georgian have a well-defined distribution: they must surface in the IPrP of their clause-mate verb, though there are certain matrix verbs that require or at least allow the wh-phrase to raise from the embedded clause to the IPrP of the matrix verb instead. This requirement to appear in the IPrP holds for all wh-phrases: both d-linked and non-d-linked, and both in single and multiple WHQs. Furthermore, in wh-questions formed on the basis of embedded nominalizations, the behavior of the wh-phrase depends on its identity: adjunct wh-phrases surface in the IPrP of the matrix verb, while argument wh-phrases also pied-pipe the rest of the nominalization to the IPrP of the matrix verb.

2. Structural properties

2.1 Simple clauses

As was shown in Section 1 of the current chapter, wh-phrases have the simplest distribution, as compared to narrow foci and neg-words: they can only occur in IPrP, illustrated by (149) and (150) below. In other words, the requirement for wh-phrases to surface in the IPrP is more stringent than that for narrow foci and neg-words, at least some of which can also occur in the IPoP. This is the reason why wh-words are often picked as examples of the set of elements that have a requirement to surface in the IPrP, since their distribution is thought to be the most consistent, and, by extension, preverbal occurrences of narrow foci and neg-words are assumed to have the same underlying syntax, but with more flexibility. However, the remainder of this chapter shows that this way of thinking is misleading, since wh-expressions in Georgian differ in their syntactic properties from both narrow foci and neg-words.
Specifically, I show in this section that wh-expressions in Georgian come to occupy their surface position by way of A-bar movement to the specifier of a projection located between the vP/VoiceP and TP, accompanied by raising of the verb to the head position of the same projection. The projection in question, I propose, is PredP, which was already discussed as the landing site for the verb in other contexts. Specifically, in Chapter 3 I proposed that PredP is the landing site for verbs in yes/no-questions. In the context of a wh-question, Pred⁰ carries a [+Q] feature, which attracts the highest verbal head to Pred⁰, and a [+wh] feature, which attracts the wh-expression to Spec, PredP. The way that the wh-phrase and the verb come to occupy their positions in PredP is, therefore, similar to the way immediately preverbal narrow foci and verbs achieve adjacency under the approaches that postulate a dedicated projection that houses the two elements, such as FocP.

The schematic representation of the structure underlying wh-questions is provided in (151), based on the example (a) in (149):\textsuperscript{58}

\textsuperscript{58} In this and other tree representations of syntactic structure, where head movement is marked with an arrow, the arrow only serves to indicate the initial and final positions of the head; intermediate stops at other head positions, such as, in this case, v⁰, Voice⁰, and Asp⁰ are omitted, in order to avoid cluttering the diagram. Note though that, following the standard definition of head movement, I assume that it proceeds step by step, through other head positions, as opposed to it one fell swoop.
The A-bar movement analysis for wh-expressions, pursued here, is a type of a Spec-Head configuration, in which the syntax ensures that the wh-expression and the verb are adjacent, as was discussed in Chapter 1. Recall that the main analytical alternative would be to interpret the wh-expression in situ, accompanied by displacement/topicalization of any material that would otherwise intervene between the wh-expression and the verb. In the remainder of this section, a variety of evidence supporting the position that the Spec-Head configuration underlies wh-question (WHQ) formation in Georgian is discussed, in opposition to the in-situ interpretation of a wh-expression. These include island effects, weak crossover (WCO) effects, interaction of wh-expressions with neg-words, and evidence from WHQs formed on the basis of nominalizations. More specifically, island and WCO facts show that wh-question formation in Georgian involves movement of the wh-expression (as opposed to in-situ interpretation), though it does not allow us
to tell whether the movement is overt or covert. Next, the interaction of wh-expressions with neg-words shows that this movement is overt but does not allow us to identify its precise landing site. Finally, evidence from wh-questions formed on the basis of nominalizations, as well as the interaction of wh-expressions and interrogative complementizers, shows that the landing site for moved wh-constituents is below the CP-area.

To start with, let us consider island effects in wh-question formation. Island effects in wh-questions are robustly present in Georgian, which can be demonstrated with relative clause (RC) islands, with both externally- and internally-headed RCs (152), and complex NP islands (153). What these examples show is that Georgian wh-expressions behave as expected, since wh-expressions, cross-linguistically, are known to resist being embedded in RCs and other complex NPs. This means that the derivation of wh-questions in Georgian involves movement of the wh-constituent to the left periphery of its clause, which is blocked when such a constituent is embedded in RC or complex NP. Note that island effects do not differentiate between overt and covert movement for the purposes of interpretation – they only signal the presence of either kind of movement (as opposed to in-situ interpretation of a wh-variable, without any connection to the left periphery of the clause).

(152) a. *Marik’a-m i-q’id-a c’ind-eb-i [RC romeli-c vin mo-ksov-a]?
M.-ERG VER-buy-AOR.3SG socks-PL-NOM which-COMP who PRV-knit-AOR.3SG
(Lit.: ‘Marika bought the socks that who knitted?’)

59 This generalization departs from the claim made in Borise & Polinsky (2018), that Georgian does not have island effects with RCs and complex NPs. The current analysis is based on more types of island data obtained from more speakers.

60 In addition to this, there is a wh-construction which does not exhibit island effects, shown in (i); cf. also Borise & Polinsky (2018). However, it is possible that it might involve a resumption-like dependency between the two wh-expressions. Such constructions, therefore, require further investigation.

(i) Vis-zei ga-i-g-o [NP c’ori rom vin u-q’var-s
Who-about PRV-VER-hear-AOR.3SG rumor-NOM COMP who.NOM VER-love-PRS.3SG
Marik’a-s]?
M.-DAT
lit.: ‘Who did you hear the rumor about, that Marika loves whoi?’
b. * Marka’-m i-q’id-a [RC vin rom mo-ksov-a c’ind-eb-i]?
   M.-ERG VER-buy-AOR.3SG who COMP PRV-knit-AOR.3SG socks-PL-NOM
   (Lit.: ‘Marika bought the socks that who knitted?’)

(153) *[NP Č’ori, rom Lali vin a-k’oc-a c’ina kvira-s] martali ar
   rumor.NOM COMP L.NOM who PRV-kiss-AOR.3SG last week-DAT true NEG
   aris?
   be.PRS.3SG
   (‘The rumor that who kissed Lali last week is not true?’)

Next, let us consider weak crossover (WCO) facts. WCO configurations can help disentangle in-situ interpretation from A-bar movement that would be involved in a Spec-Head configuration (or LF movement). WCO effects in a language like English, where wh-expressions undergo overt A-bar movement to Spec-CP, are thought to result from the wh-expression on its way to Spec-CP crossing a variable that it is coindexed with:61

(154) ??Who did her husband describe to Giorgi?

In languages with wh-in-situ, such as Mandarin Chinese, there is no overt ‘crossing’, since the wh-expression does not leave its base position, but WCO effects may still be present – arguably, due to LF movement of the wh-expression over the variable to the CP domain of the clause (cf. Huang 1982):

(155) *Xihuan e de ren kandao shei?
   like DE man saw who
   ‘Who did the person that likes (him) see?’
   Mandarin Chinese
   (Aoun & Li 1993: 201)

Assuming that such A-bar movement, at any height in the clause, would target a projection that dominates the vP, WCO effects should be present; on the in-situ interpretation account, there should be no WCO effects.

With this in mind, consider WCO effects in wh-questions, which can arise between a pronominal subject and a wh-phrase object, as shown for English in (154). The same context in Georgian, shown in (156), is subject to inter-speaker variation. The discomfort that some Georgian speakers feel about (156) points to the fact that, at least for them, the WCO effect is quite salient. As such, like in English, it indicates that the wh-phrase crosses a coindexed pronominal on the way to its landing site. It is possible that the discrepancy in judgements with respect to WCO effects in wh-questions may arise from the fact that the movement that wh-phrases undergo is rather short, as argued here.

(156)% Vin;  a-u-gh-’er-a  tavis-ma;  kmar-ma  Giorgi-s?
who  PRV-VER-PRV-write-AOR.3SG  3SG.REFL.POSS-ERG  husband-ERG  G.-DAT
‘Who, did her, husband describe to Giorgi?’

To recap, based on the evidence from island effects and WCO, wh-question formation in Georgian involves movement of the wh-constituent, which manifests itself in the presence of other variables, such as possessive anaphors in WCO contexts or relative operators in RCs. In fact, the picture is more complex than that: the movement that is detected by WCO effects is short (overt) A-bar movement, which, I argue, wh-phrases undergo. In contrast, island effects signal the presence of further (covert) movement of the wh-expression/its subpart to the CP-domain, which is required for the correct interpretation of the wh-phrase; this covert movement is addressed in more detail in Section 2.4.

Now that we have established that wh-expressions in Georgian are not interpreted in situ, the next question is whether the movement that WCO and island effects reveal is overt or covert. Below, I show that this movement is overt, based on the interaction of wh-expressions and neg-words.

Recall that we established in Section 2.2 in Chapter 4 that neg-words in Georgian are found in situ, and, as such, can be used to determine the position of other elements in the clause. This is based on the view that I adopt that changes in the base order of arguments and adjuncts cannot be information-structurally vacuous, and, accordingly, there are only two types of such word order changes: topicalization (with subtypes, yielding contrastive and familiarity topics) and narrow focalization. I showed that, given their non-
referential nature, neg-words cannot receive a topical interpretation and displace into the left or right periphery. This means that, setting aside a scenario where a neg-word carries narrow focus, neg-words are found in situ.

Recall also that we determined in Section 2.2 in Chapter 4 that neg-words, regardless of their argument/adjunct status, must surface postverbally in WHQs. Specifically, a neg-word subject must be placed in the postverbal domain in a WHQ with a direct object wh-phrase, as shown in (157). This contrasts with non-negative subjects, which can either precede the wh-phrase or be found postverbally, as shown in (158). Anticipating the discussion of the interaction between neg-words and narrow foci in Chapter 6, note that this postverbal position for the negative subject, as shown in (a) in (157), is possible only in the context of a wh-question and not with a narrowly focused constituent in the IPrP, as will be discussed in more detail in Section 5.1.1 in Chapter 6.

(157) a. *Dghes ra ar i-q’id-a ara-vin? = (93)
today what NEG VER-buy-AOR.3SG NEG-who
‘What did no-one buy today?’

b. *Dghes ara-vin ra (ar) i-q’id-a?
today NEG-who what NEG VER-buy-AOR.3SG
(‘What did no-one buy today?’)

c. *Ara-vin dghes ra (ar) i-q’id-a?
NEG-who today what NEG VER-buy-AOR.3SG
(‘What did no-one buy today?’)

(158) a. *Dghes ra ar i-q’id-a Giorgi-m?
today what NEG VER-buy-AOR.3SG G.-ERG
‘What did Giorgi not buy today?’

b. Dghes Giorgi-m ra (ar) i-q’id-a?
today G.-ERG what NEG VER-buy-AOR.3SG
‘What did Giorgi not buy today?’

c. Giorgi-m dghes ra (ar) i-q’id-a?
G.-ERG today what NEG VER-buy-AOR.3SG
‘What did Giorgi not buy today?’
In a parallel fashion, a neg-word direct object must surface in the postverbal domain in a WHQ with a wh-subject (159), in contrast with non-negative direct objects, which can be placed either to the left of the wh-constituent or postverbally (160):

(159) a. Dghes vin ar i-q’id-a ara-peri?
today who NEG VER-buy-AOR.3SG NEG-what
‘Who bought nothing today?’

b. * Dghes ara-peri vin (ar) i-q’id-a?
today NEG-what who NEG VER-buy-AOR.3SG
(‘Who bought nothing today?’)

c. * Ara-peri dghes vin (ar) i-q’id-a?
NEG-what today who NEG VER-buy-AOR.3SG
(‘Who bought nothing today?’)

(160) a. Dghes vin ar i-q’id-a banan-eb-i?
today who NEG VER-buy-AOR.3SG banana-PL-NOM
‘Who didn’t buy bananas today?’

b. Dghes banan-eb-i vin (ar) i-q’id-a?
today banana-PL-NOM who NEG VER-buy-AOR.3SG
‘Who didn’t buy bananas today?’

c. Banan-eb-i dghes vin (ar) i-q’id-a?
banana-PL-NOM today who NEG VER-buy-AOR.3SG
‘Who didn’t buy bananas today?’

The fact that the wh+verb complex can only surface to the left of a subject neg-word, combined with the fact that neg-words are found in situ in Georgian, suggests that the wh-expression and the verb surface in derived positions. This is demonstrated in (161):

(161) [XP wh-phrase; [x verb] ... [vP/VoiceP/ApplP neg-subject ... [YP t [Y t ]]]]]

If so, they must occupy these derived positions in a Spec-Head configuration. The next step is to determine the height in the clause at which this configuration is obtained. In order to do that, note that in WHQs with a neg-word subject, such as (157), the wh+verb complex is located higher than the subject
position. In turn, the subject position, as we saw in Section 4 in Chapter 3, depending on the screeve/tense of the verb, is either Spec, vP (for ergative subjects) or Spec, VoiceP (for nominative subjects). Accordingly, in WHQs with a neg-word subject, the movements that the wh-object and the verb undergo take them to a projection above the VoiceP. Let us look further into the height of this projection.

Embedded wh-questions provide some evidence suggesting that, in contrast with languages like English, in which whmovement targets the CP-layer, in Georgian wh-movement targets a lower position. Recall that in embedded wh-questions, the interrogative complementizer tu precedes the wh-phrase. Furthermore, we know that tu is a C0, because in embedded yes/no questions it occupies the second position, following a constituent with a topical reading. As (162) shows, tu cannot follow a wh-phrase, which means that the wh-phrase is located below the CP (cf. also Erschler 2015: 62).

(162) Marik’a-s u-nda i-c-od-es [CP tu ra (*tu) tkv-a
M.DAT VER-want VER-know-SM-SM-3SG COMP.Q what COMP.Q say-AOR.3SG
Manana-m].
M.-ERG
‘Marika wants to know what Manana said.’

Together, this evidence shows that the landing site for wh-phrases, as well as the movement of the verb that accompanies wh-movement is above the vP/VoiceP and below the CP. I propose that this projection is PredP, located on the top of the VoiceP, as was already shown in the tree representation in (151). Accordingly, a wh-question with a subject neg-word, as in (157), has the structural representation as in (163):
2.2 Participial small clauses

Now that the structural properties of wh-questions in simple clauses are established, this section addresses wh-question formation in utterances with embedded participial small clauses. The distributional properties of wh-phrases in these constructions were discussed in Section 1.2 in the current chapter, and the participial constructions themselves were introduced in the discussion of headedness in Section 2 in Chapter 3.

Before delving into the behavior of wh-phrases in utterances with participial complements, I review the general properties of these constructions. In such utterances, a participial small clause acts as a complement of the verbs akvs/h ’qavs ‘have’. In neutral, broad-focus contexts, the verbs akvs/h ’qavs ‘have’ may either precede or follow the participial complement, without a change in the information structure of the utterance, as shown in (164):

(164) a. *Nino*-s [Ptcp naq ’in-i na-q ’id-i] a-kv-s. = (114)
    N.-DAT ice-cream-NOM PTCP-buy-PTCP VER-have-3SG
    ‘Nino has bought ice-cream.’
When a wh-question is formed on the basis of a participial complement, the wh-phrase obligatorily surfaces in the IPrP of the verbs akvs/h’qavs ‘have’. The verb, in turn, is also fronted to a position above the participle. That is the only possible word order in such a structure, as illustrated in (165):

(165) a. Gušin dila-s, ra a-kv-s Nino-s na-q ’id-i? =
(yesterday morning-DAT what VER-have-3SG N.-DAT PTCP-buy-PTCP
‘What did Nino buy yesterday morning?’)

b. * Gušin dila-s, Nino-s na-q ’id-i ra a-kv-s?
(yesterday morning-DAT N.-DAT PTCP-buy-PTCP what VER-have-3SG
‘What did Nino buy yesterday morning?’)

c. * Gušin dila-s, Nino-s ra na-q ’id-i a-kv-s?
(yesterday morning-DAT N.-DAT what PTCP-buy-PTCP VER-have-3SG
‘What did Nino buy yesterday morning?’)

I propose that, like in the simple clauses, these structures are formed by movement of the wh-phrase out of the participial clause to Spec, PredP, accompanied by movement of the verbs akvs/h’qavs ‘have’ from its clause-final position to Pred⁰. The fact that the wh-phrase can be extracted from the participial clause contrasts with the situation with nominalizations, which resist wh-extraction, according to the descriptive facts in Section 1.5 of the current chapter, and a structural account provided in Section 2.5. Accordingly, the material that precedes the wh-phrase, as in simple clauses, consists of topicalized phrases, while the material following the fronted verb is found in its base position. The tree diagram for the grammatical example (a) in (165) is provided in (166):
The placement of neg-words in clauses with participial complements lends support for this analysis: here, like in simple clauses with a single verb, topical constituents can precede the wh-phrase, but neg-words can only follow it, regardless of their theta role, as shown in (167) and (168):

(167) a.  \textit{Vi-s}  \textit{h-q'-av-s}  \textit{ara-vin}  \textit{na-cem-i}?  
who-DAT 3SG-have-SF-3SG NEG-who PtcpP-hit-NOM  
‘Who has hit no-one?’  

b.  * \textit{Ara-vin}  \textit{vi-s}  \textit{h-q'-av-s}  \textit{na-cem-i}?  
NEG-who who-DAT 3SG-have-SF-3SG PtcpP-hit-NOM  
(‘Who has hit no-one?’)

(168) a.  \textit{Vin}  \textit{h-q'-av-s}  \textit{ara-vi-s}  \textit{na-cem-i}?  
who 3SG-have-SF-3SG NEG-who-DAT PtcpP-hit-NOM  
‘Who has no-one hit?’
b. *Ara-vi-s vin h-q’-av-s na-cem-i?
   NEG-who-DAT who 3SG-have-SF-3SG PTCP-hit-NOM
   (‘Who has no-one hit?’)

In other words, as expected, neg-words in such construction are interpreted in situ (and cannot be topicalized).

2.3 Clauses with a (non-finite) modal

Next, let us consider wh-questions formed on the basis of the modal *unda ‘have to, must’, which embeds a lexical verb. Recall that, in contrast with the verb *unda ‘want’, the verb *unda ‘have to, must’ is not a full lexical verb: it does not have tense or agreement morphology and does not allow NP or PP complements; cf. van Dooren (2017). Instead, the invariant form of the verb *unda ‘have to, must’ embeds a finite lexical verb; the fact that complementizers are disallowed in such constructions shows that the projection that *unda embeds is smaller than a full clause. Recall also that, in contrast with finite lexical verbs, discussed above, *unda ‘have to, must’ surfaces clause-medially and is disallowed clause-finally. Wh-phrases in the *unda ‘have to, must’ + lexical verb constructions surface in the IPrP of the modal, as shown in (169) and (170):

(169)  a.  Sad *unda (*rom) c’a-x-vid-e-t?
         where  COMP PRV-2-go-OPT.2-PL
       'Where do you (pl.) have to go?'

       b. *Unda sad c’a-x-vid-e-t?
          MOD  where PRV-2-go-OPT.2-PL
          (‘Where do you (pl.) have to go?’)

(170)  a.  Ra *unda v-nax-o-t P’ragha-ši?
         what  MOD  1-see-OPT.1-PL Prague-in
       ‘What do we have to see in Prague?’

       b. *P’ragha-ši *unda ra v-nax-o-t?
          Prague-in MOD what 1-see-OPT.1-PL
          (‘What do we have to see in Prague?’)
Based on the examples in (169), I conclude that *unda* ‘have to, must’ is a modal verb that is part of the same clause as the lexical verb that it embeds. Building on the analysis developed in van Dooren (2017), I take *unda* ‘have to, must’ to be generated in AuxP, a dedicated projection c-commanded by PredP. Like all clausal projections, Aux⁰ is located to the left of the clausal spine, since the default position for *unda* ‘have to, must’ is clause-medial, as opposed to clause-final. When a WHQ is formed on the basis of such a structure, the wh-phrase, as expected, undergoes movement to Spec, PredP, and *unda*, correspondingly, is raised to Pred⁰. The relevant portion of the derivation of the resulting structure is provided in (171), based on (a) in (170):⁶²

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⁶² Contrary to prediction, preferred placement of neg-words in wh-questions based on the *unda* ‘have to, must’ + finite verb constructions is clause-final, as opposed to sandwiched between the two verbal forms:

(i)  

a. ??*Ra ar unda ara-vin nax-o-s P’ragha-ši?*  
   what NEG MOD NEG-who see-OPT-3SG Prague-in  
   ‘What does no-one have to see in Prague?’

b. *Ra ar unda nax-o-s ara-vin P’ragha-ši?*  
   what NEG MOD see-OPT-3SG NEG-who Prague-in  
   ‘What does no-one have to see in Prague?’

It is possible that there is an independent explanation for this. See Chapter 6, Section 3.2 for evidence that utterances with narrow foci placed between *unda* ‘have to, must’ + finite verb are equally degraded. Note also that material other than neg-words and narrow foci may intervene between *unda* ‘have to, must’ and the verb:

(ii)  

a. *Ra unda me da-v-č’er-o?*  
   What MOD 1SG PRV-1-write-OPT.1SG  
   ‘What do I have to write?’

b. *Šen unda upro čkara c’er-o.*  
   2 SG MOD more fast write-OPT.1SG  
   ‘You have to write faster’
Finally, in such constructions, as would be expected, neg-words cannot be found to the left of wh-phrases, and instead are found in situ, as exemplified in (172):

(172) a. Ra ar unda ara-vin nax-o-s P’ragha-ši?
    what NEG MOD NEG-who see-OPT-3SG Prague-in
    ‘What does no-one have to see in Prague?’

    b. *Ara-vin ra ar unda nax-o-s P’ragha-ši?
       NEG-who what NEG MOD see-OPT-3SG Prague-in
       (‘What does no-one have to see in Prague?’)

2.4 Wh-scope marking and exceptions to clause-boundedness

2.4.1 Wh-scope marking

As was shown in Section 1.4 in the current chapter, in the absolute majority of cases wh-phrases in Georgian resist cross-clausal movement. Instead, as we have seen, when a wh-expression in an embedded clause needs to take matrix scope, a so-called wh-scope marker is used in the matrix clause instead. That is, the
true scope-taking wh-phrase is found in the embedded clause, while another wh-phrase signals its scope in the matrix clause, as was shown in the grammatical example in (119), repeated below as (173).

(173) a. *Vi-si/\textit{vin}_i\ tkv-a\ Nino-m\ [\textit{cp} (rom)\ t_i\ unda\ v-u-q’ur-o-t]?
who-DAT/who say-AOR.3SG N.-ERG COMP MOD 1-VER-watch-OPT.1-PL
(‘Whom did Nino say (that) we must watch?’)

b. Ra\ tkv-a\ Nino-m,\ [\textit{cp} (rom)\ \textit{vi-s}\ unda\ v-u-q’ur-o-t]?
what.NOM\ say-AOR.3SG N.-ERG COMP who-DAT MOD
1-VER-watch-OPT.1-PL
‘Whom did Nino say that we must watch?’

Analytically, there are two main approaches to the syntax and semantics of wh-scope marking: \textit{direct dependency} and \textit{indirect dependency}. In the remainder of this section I show that the direct dependency approach accounts best for the Georgian data and has fewer analytical problems as compared to the indirect dependency approach. Before delving into that, let me briefly introduce both approaches.

The original analysis, first proposed by Riemsdijk (1983) for German and adopted by Davison (1984), McDaniel (1989), Mahajan (1990), and Wahba (1991) for a variety of languages is that of a \textit{direct dependency}. On this account, the wh-word in the matrix clause (the scope marker; wh\textsubscript{1}) is an expletive that is merged in matrix Spec, CP and forms a chain with the embedded wh-word (wh\textsubscript{2}). The two wh-words are coindexed, and wh\textsubscript{1} is simply a particular, overt realization of a wh-operator. The main advantage of such an approach is that it makes the structure of the wh-scope marking question parallel to that of an embedded WHQ with cross-clausal wh-movement, as shown in (174), repeated from (120). In both examples, there is a movement chain formed by wh-expression(s). In the case of long-distance wh-movement, as in (a) in (174), it is a chain formed by movement of the embedded wh-expression to the matrix Spec, CP via the embedded Spec, CP. In the case of wh-scope marking, as in (b) in (174), the embedded wh-expression moves to the Spec of embedded CP, and in that position is bound by a wh-operator (realized overtly as \textit{was} ‘what’) that is merged in the matrix Spec, CP.
As Dayal (1993) points out, there are certain problems with the direct dependency approach. The most relevant one for our purposes is the following one: if there are multiple wh-expressions in the embedded clause, as in (121), then \( w_1 \) is the head of a chain with multiple tails, which is typically disallowed in chain formation. Dayal points out that a wh-absorption approach (Higginbotham & May 1981), which creates a single combined object of two wh-expressions in a multiple WHQ for the purposes of interpretation would not apply here. The reason for that is that such a combined object in the wh-absorption approach is always the head of the chain, whereas here it would be the intermediate link in the chain; more on this below.

An alternative to the direct dependency approach is the indirect dependency approach introduced by Dayal (1993). Its name reflects the idea that there is no direct dependency between the two wh-items under this analysis – instead, the wh-scope marker is coindexed with the whole embedded clause that contains the embedded wh-phrase. This is inspired by Srivastav's (1991) analysis of complement clauses in Hindi, according to which such clauses undergo obligatory dislocation to the right, and are coindexed with a pronominal in the object position, which is optionally overt, thus yielding the structure S pro/\( yeh_i \) V O:

(175) a. \( \text{Jaun yeh}_i \ ji\text{aanta hai } [\text{cp ki Meri kis-se } \text{baatkaregii}]. \)  
  'John knows (this) who Mary will talk to.'
b. *Jaun pro$_i$ jaantaa hai [CP $ki$ Meri kis-se baatkaregii].*

John this knows that Mary who-with will-talk

'John knows who Mary will talk to.'

Following the same logic, the wh-scope marker in Dayal’s (1993) analysis is co-indexed with the embedded clause, and undergoes LF movement to CP, so that it can mark scope of the embedded wh-expression:

(176) *Kyaa Jaun $ti$ socta hai [CP Meri kis-se baat karegii]?

what John thinks Mary who-with will-talk

'Who does John think Mary will talk to?'

The tree representation of such a construction, according to Dayal’s (1993) analysis, is the following (with LF movement indicated):

(177)

(Dayal 1993: 150)

The main advantage of this approach is that it makes the analysis of wh-scope marking constructions in Hindi parallel to the constructions with CP-extraposition. However, the indirect dependency approach has a number of analytical disadvantages, both general ones and Georgian-specific ones. In contrast, the multiple-tail chain problem that was mentioned for the direct dependency approach above is easily solved. Let us look at each of these issues.
First, it is unlikely that the wh-scope marker is indeed an expletive. In the CP extraposition case that Dayal’s account of wh-scope marking is built on, shown in (175), the expletive and the extraposed CP are coindexed, which means that they represent the same thematic category and have the same referent. This cannot be directly transferred to wh-scope marking, where the wh-scope marker and the embedded clause cannot have the same referent because the wh-scope marker takes the embedded clause as a restriction on its semantic composition.

Moving on to Georgian-specific evidence, the approach built on the idea that wh-scope marking is parallel to CP extraposition is harder to maintain in Georgian than in Hindi. While extraposition of complement CPs is obligatory in Georgian, the extraposed clause is never coindexed with an overt pronominal, as shown in (178). While it can be argued that the structure is still the same but the pronominal is never overt, the parallelism between CP extraposition and wh-scope marking is weaker in Georgian than in Hindi.

(178) \( Ivane-m \) (*es) \( i-ts'i-s \) (*es), \( Mariami \) \( vi-s-ats \)
    I.-ERG this VER-know-PRS.3SG this M-NOM who-DAT-COMP
    \( da-e-lap'arak'eb-a. \)
    PRV-VER-talk-SF-3SG

‘Ivane (this) knows (this) who Mariami will talk to.’

Based on the evidence discussed above, the indirect dependency approach does not seem to account for the Georgian data straightforwardly. Therefore, I propose that the direct dependency analysis underlies wh-scope marking in Georgian.

How does one go about the multiple tail problem for the direct dependency approach? To reiterate, the problem, as Dayal (1993) points out, is that in cases where the embedded clause contains more than one wh-phrase, under the direct dependency approach, the chain between the wh-phrase in the matrix clause and the embedded ones would have more than one tail, which is problematic for the composition of meaning. This problem, however, is easily solved if multiple chains are formed, but the Absorption
mechanism applies to the heads of the chains, such that they are realized as a single wh-phrase in the matrix clause (the wh-scope marker).

Therefore, I propose that wh-scope marking constructions in Georgian have the following structure. The embedded wh-phrase undergoes overt movement to Spec, PredP of the embedded clause, and, from that position undergoes further LF movement to the CP-domain of the embedded clause. The wh-scope marker is not an expletive; instead, it is an argument of the matrix verb, or an adjunct in the matrix clause. It also undergoes movement to Spec, PredP of the matrix clause, like any wh-expression, and then further LF movement to the CP-layer of the matrix clause. The two wh-expressions are co-indexed, as per the direct dependency approach. This is illustrated in (179), with LF movement indicated by dashed grey arrows:63

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63 I am adopting an approach à la Felser's (2001) treatment of wh-scope marking in German, according to which the embedded clause in such contexts is attached low, at the VP-level.
Wh-scope marking, however, is not the only way to form multiclausal wh-questions. In the next section, the allowed instances of long-distance wh-movement are addressed.

2.4.2. Cross-clausal wh-movement

As the previous section showed, wh-scope marking is the main mechanism used for forming multiclausal wh-questions in Georgian. This strategy allows for the wh-phrase in the embedded clause to take scope in the matrix clause by means of being co-indexed with a wh-scope taking wh-phrase in the matrix clause. The embedded wh-phrase never leaves the embedded clause in such cases. However, recall from Section
1.4.2 in the current chapter that, in addition to wh-scope marking, true long distance wh-movement is found in two cases in Georgian:

i. Biclausal structures with a full clause (with a finite verb) embedded under verbs unda ‘want’, šeudzlia ‘can, be able to’, se’irdeba ‘need’;

ii. Biclausal structures involving certain other matrix verbs, such as ‘say’, ‘think’ and ‘exclaim’ (but not others, such as ‘hope’).

(180) and (181) below serve as a reminder of what these structures look like:

(180) a.  
\[\text{Es } \text{m-inda, rom } \text{Nino-m mo-i-g-o-s.}\]
\[\text{DEM 1SG-want COMP N.-ERG PREV-VER-win-OPT-3SG}\]
‘I want Nino to win.’

b.  
\[\text{Vin } \text{g-inda rom } \text{mo-i-g-o-s?}\]
\[\text{who 2-want COMP PREV-VER-win-OPT-3SG}\]
‘Who do you want to win?’

c.  
\[\text{* Es } \text{g-inda, rom } \text{vin mo-i-g-o-s?}\]
\[\text{DEM 2-want COMP who PREV-VER-win-OPT-3SG}\]
(‘Who do you want to win?’)  
\[\text{(Harris 1981: 18)}\]

d.  
\[\text{* Vin } \text{mo-i-g-o-s } \text{g-inda?}\]
\[\text{who PREV-VER-win-OPT-3SG 2-want}\]
(‘Who do you want to win?’)

(181) a.  
\[\text{Vin } \text{tkv-i } \text{rom } \text{da-p’at’iž-e-s?}\]
\[\text{who say-AOR.2SG COMP PRV-invite-SM-AOR.3PL}\]
‘Who did you say that they invited?’

b.  
\[\text{Rodis } \text{pikrob rom } \text{da-brun-d-eb-i?}\]
\[\text{when think.2SG COMP PRV-return-CONJ-SM-2SG}\]
‘When do you think that you come back?’
c. Vi-s-tan ertad ts'amo-i-dzax-a Nino-m rom = (132) N._ERG COMP
who-DAT-with together PRV-VER-exclaim-AOR.3SG

c'a-vid-od-a?
PRV-go-SM-IPFV.3SG
'With whom did Nino exclaim that she would go?' (asking about with whom the exclaiming took place OR with whom the going took place)

d. * Rodis v-imedovn-eb rom da-brun-d-eb-i? = (135)
when 1/2-hope-SM COMP PRV-return-CONJ-SM-2SG
('When do you hope to come back?)

While long distance wh-movement in Georgian is an exception rather than the default strategy of multiclausal wh-question formation, some generalizations about its nature can still be made. Note that the main factor differentiating the possible wh-extracting structures from others, the ones that only allow wh-scope marking, is the identity of the matrix verb.

Based on this fact, the following account of the possibility for long-distance wh-movement in Georgian emerges. Certain verbs in Georgian are lexically specified to be able to move to Pred’ in wh-questions and attract a wh-phrase to Spec, PredP, regardless of whether the wh-phrase is clause-mate or found in a clause that such verbs embed. This is illustrated in (182) for the verb ‘want’:

(182) a. [CP … [PredP Ra g-inda]?]
what 2-want
‘What do you want?’

b. [CP … [PredP Vin; g-inda [CP rom … [PredP t; mo-i-g-o-s]]]?]
who 2-want COMP PRV-VER-win-OPT-3SG
‘Who do you want to win?’

In examples such as (b) in (182) above, the wh-phrase in the embedded clause undergoes movement to Spec, PredP of the embedded clause, as it would in a root wh-question. However, because the verb ‘want’ is lexically specified to attract wh-phrases, whether it is found in a root wh-question or embeds one, the wh-phrase is then further attracted to Spec, PredP of the matrix clause. This is illustrated in (183), with the relevant structural fragment of (b) in (182):
A similar movement mechanism is used with embedded nominalizations, the structural properties of which are discussed in detail in Section 2.5. As shown there, nominalizations containing a wh-phrase, when embedded under a lexical verb, are attracted to Spec, PredP of the embedding verb in full. A likely contributing factor to the fact that nominalizations resist wh-extraction is the island-like status of nominalizations, which follows from their nominal (nP/DP) status. In contrast with nominalizations, full embedded clauses are more transparent, which manifests in the fact that a wh-phrase can be extracted from the embedded clause to the Spec, PredP of the matrix clause, as demonstrated in (183) above.
It is not immediately clear at present why some but not other verbs in Georgian have the ability to attract a wh-phrase even if it originates in the embedded clause. Impressionistically, younger speakers allow for more frequent cross-clausal wh-movement than older speakers and allow it with more matrix verbs. This suggests that there is ongoing language change in favor of allowing more matrix verbs to participate in cross-clausal wh-movement.

2.5 Wh-phrases in nominalizations

The current subsection addresses the structural properties of the formation of wh-questions out of embedded nominalizations in Georgian, accounting for the descriptive facts laid out in Section 1.5 of the current chapter. Recall that two types of nominalizations were considered in Section 1.5: those embedded under the verbs unda ‘want’, šeudzlia ‘can, be able to’ and sč’irdeba ‘need’, and those embedded under other lexical verbs. The surface difference between the two, as was pointed out, is that the nominalization bears nominative case when embedded under the former verbs, and dative case when embedded under the latter verbs.

However, the main distinction between wh-questions formed on the basis of these two types of structures has to do with the adjunct vs. argument status of the wh-phrase, and not the identity of the matrix verb. As was demonstrated in Section 1.5, the adjunct vs. argument wh-phrase factor crosscuts the distinction between verbs with modal meaning and other lexical matrix verbs. Specifically, we have seen that adjunct wh-phrases in both types of nominalizations occur in the IPrP of the matrix verb, as shown below in (184), (185) and (186):

(184) a. Sad; _g-inda-t_ c’a-svl-a?
   where 2-want-PL PRV-go-NMLZ
   ‘Where do you (pl) want to go?’

b. * _G-inda-t_ sad c’a-svl-a?
   2-want-PL where PRV-go-NMLZ
   (‘Where do you (pl) want to go?’)
(185) a. *Sad, še-gv-i-dzl-i-a c’a-svl-a?
   where PRV-1PL-VER-can-SMG PRV-go-NMLZ
   (‘Where can we go?’)

   b. *Še-gv-i-dzl-i-a sad c’a-svl-a?
   PRV-1PL-VER-can-SMG where PRV-go-NMLZ?
   (‘Where can we go?’)

(186) a. Rodis cdil-ob-d-a Levan-i [sc mankan-is q’id-v-a-s]?
   when try-SF-SM-IPFV.3SG L.NOM car-GEN buy-TS-NMLZ-DAT
   (‘When did Levani try to buy a car?’)

   b. *Levan-i cdil-ob-d-a [sc mankan-is rodis q’id-v-a-s]?
   L.NOM try-SF-SM-IPFV.3SG car-GEN when buy-TS-NMLZ-DAT
   (‘When did Levani try to buy a car?’)

In contrast, argument wh-phrases also pied-pipe the rest of the nominalization to the IPrP of the matrix verb, as illustrated in (187), (188) and (189):

(187) a. R-is(i) č’am-a g-inda-t rest’oran-ši?
   what-GEN eat-NMLZ 2-want-PL restaurant-in
   ‘What do you want to eat at the restaurant?’

   b. *R-is(i) g-inda-t č’am-a rest’oran-ši?
   what-GEN 2-want-PL eat-NMLZ restaurant-in
   (‘What do you want to eat at the restaurant?’)

(188) a. R-is(i) da-lev-a še-gv-i-dzl-i-a saghamo-s?
   what-GEN PRV-drink-NMLZ PRV-1PL-VER-can-SMG evening-DAT
   ‘What can we drink tonight?’

   b. *R-is(i) še-gv-i-dzl-i-a da-lev-a saghamo-s?
   what-GEN PRV-1PL-VER-can-SMG PRV-drink-NMLZ evening-DAT
   (‘What can we drink tonight?’)

(189) a. R-is q’id-v-a-s cdil-ob-s Levan-i?
   what-GEN buy-TS-NMLZ-DAT try-SF-PRS.3SG L.NOM
   ‘What is Levani trying to buy?’
Before proceeding to the structural properties of the adjunct and argument wh-phrases found in embedded nominalizations, let us review the properties of such nominalizations. As was pointed out in Section 1.5, Georgian nominalizations do not have independent (transitive) subjects, but they can include a direct object, which surfaces in the genitive case. Some speakers also allow for indirect objects in nominalizations, but since judgments vary, indirect objects are not considered here. In structural terms, then, Georgian nominalizations are very small: since they cannot have their own transitive subject, it means that they lack projections other than ApplP and VP (and, for speakers that do not allow indirect objects, they may also lack ApplP). Accordingly, I suggest that Georgian nominalizations are nPs that embed a VP (ApplP), as shown in a (simplified) structural representation in (190). The genitive case on the argument of the nominalization is assigned by n⁰; the impossibility of nominative or ergative case on the argument of the nominalization is due to the absence of higher projections (TP, VoiceP and vP) in nominalizations.

![Structural representation of Georgian nominalization]

(190)

The proposal that Georgian nominalizations are so small is corroborated by the fact that only OV and not VO orders are available in nominalizations, as shown in (191), which is expected under the current proposal, given that v⁰, the landing site for the fronted verb in broad-focus VO orders, is missing from the nominalization structure.
Furthermore, such an analysis of Georgian nominalizations is also supported by the fact that only low adverbs, such as manner adverbs that adjoin at the VP level, are allowed in nominalizations, as shown in (a) in (192), as opposed to evaluative adverbs that adjoin higher on the clausal spine, as in (b) in (192):

(192) a.  
mankan-is se’rap’-ad q’id-v-a  
car-GEN quick-ADV buy-TS-NMLZ  
‘quick buying of a car’

b.  
*mankan-is saocr-ad q’id-v-a  
car-GEN surprising-ADV buy-TS-NMLZ  
(‘surprising buying of a car’)  

Now that the internal structure of nominalizations has been established, let us turn to the structural analysis of wh-questions formed on the basis of embedded nominalizations. To start with adjunct wh-phrases, we have seen that they appear in the IPrP of the matrix verb. I suggest that, with nominalizations embedded under the verbs unda ‘want’, šeudzlia ‘can, be able to’, and sê’irdeba ‘need’, adjunct wh-phrases are, in fact, likely to be generated in the matrix clause, as opposed to the nominalization. There are two reasons for that. First, the semantic nature of these three verbs is such that, unless a special context is introduced, wh-adjuncts cannot modify the two actions, the one described by the verb with modal meaning and the one described by the embedded nominalization, separately from each other – i.e., the two events cannot have two independent timings or locations. In other words, a question such as When do you need to go? is not ambiguous between whether it asks about the time of ‘needing’, or the time of ‘going’, since they are identical. Second, as we have seen, Georgian nominalizations are so small that they might not be able to accommodate wh-adjuncts such as sad ‘where’ or rodis ‘when’, given that they typically adjoin rather high in the structure, at the vP level or above. This contrasts with manner adverbs, which, given their low
height of adjunction, can be accommodated in nominalizations, as was shown in (192). Consequently, I propose that an example such as (a) in (184) has the structure as in (193) (omitting the higher projections):\(^{64}\)

\[
\text{(193)}
\]

\[
\begin{array}{c}
\text{PredP} \\
\text{AdvP} \\
\text{sad}_i \\
\text{‘where’} \\
\text{PredP} \\
\text{AspP} \\
\text{gindat} \\
\text{‘want’} \\
\text{Pred} \\
\text{Asp} \\
\text{vP} \\
\text{VP} \\
\text{vP} \\
\text{VP} \\
\text{nP} \\
\text{V} \\
\text{V} \\
\text{c’asvl-‘going’}
\end{array}
\]

The same approach applies to nominalizations embedded under other lexical verbs: just like nominalizations embedded under verbs with modal meaning, they cannot have timing or location independent of that of the main verb, as shown in (194):

\[
\text{(194)}
\]

\[
\begin{array}{cccccccc}
P’et’re & rodis & nan-ob-s & Mer-is-tvis & tav-is-i & c’ign-is \\
P.\text{nom} & \text{when} & \text{regret-SF-PRS.3SG} & \text{M.-GEN-för} & \text{own-GEN-NOM} & \text{book-GEN} \\
\text{mi-c-em-as?} & \text{PRV-give-TS-NMLZ} & \text{‘When does Peter regret the giving of his book to Mary?’ (can only ask about the time of regretting, NOT the time of giving)}
\end{array}
\]

\(^{64}\) Alternatively, the wh-adjunct may also be base-generated in Spec, PredP.
Consequently, I propose that adjunct wh-questions formed on the basis of nominalizations embedded under lexical verbs work in a parallel fashion to those embedded under verbs with modal meaning, as shown in (193) above.

The situation is different with argument wh-questions formed on the basis of nominalizations embedded under verbs with modal meaning or other lexical verbs. Here, the whole nominalization is pied-piped to the IPrP of the matrix verb. Analytically, I propose that what happens here is that the whole nominalization undergoes movement to Spec, PredP. The reason for that is the fact that, cross-linguistically, nominalizations often resist wh-extraction, and instead pied-pipe together with the wh-phrase, as shown for English in (195):

(195)  [NP  *The buying of which car, did Levani later regret t?]

Accordingly, the structure for (a) in (189) is the one shown in (196):

(196)  \[ NP  \]  \[ VP  \]  \[ AspP  \]  \[ VoiceP  \]  \[ …  \]  \[ C  \]  \[ TP  \]  \[ PredP  \]  \[ nP  \]  \[ V  \]  \[ ‘tries’  \]  \[ ‘what.GEN’  \]  \[ ‘buying’  \]  \[ Levani  \]  \[ …  \]
Finally, the analysis proposed here is also supported by neg-word data: as would be expected, neg-words in wh-questions formed on the basis of embedded nominalizations can only be found to the right of the finite verb, which corresponds to their in-situ placement:

(197)  a.  $R$-$is(i)$  $da$-$lev-a$  $ar$  $še$-$u$-$džl$-$i$-$a$  $ara$-$vi$-$s$
     what$-$GEN  PRV$-$drink-NMLZ  NEG  PRV$-$VER$-$can$-$SM$-$3$-SG  NEG$-$who$-$DAT
     $saghamo$-$s$?
     evening-DAT
     ‘What can no-one drink tonight?’

     b.  $*$  $Ara$-$vi$-$s$  $r$-$is(i)$  $da$-$lev-a$  $ar$  $še$-$u$-$džl$-$i$-$a$
     NEG$-$who$-$DAT  what$-$GEN  PRV$-$drink-NMLZ  NEG  PRV$-$VER$-$can$-$SM$-$3$-SG
     $saghamo$-$s$?
     evening-DAT
     (‘What can no-one drink tonight?’)

To recap, the current section accounted for the behavior of wh-phrases in nominalizations. It showed that adjunct wh-phrases do not originate in the nominalization, and, as such, undergo movement to Spec, PredP by themselves. In turn, the wh-phrases that represent arguments of the nominalization are merged in the nominalization and cannot be extracted from it; instead, in such cases the whole nominalization undergoes movement to Spec, PredP.

3. Summary

The current chapter described the distribution and provided a structural representation of wh-phrases found in a variety of environments: simple clauses with a single verb, clauses with a participial complement, clauses with the modal unda ‘must, have to’, complex clauses (with wh-scope marking and cross-clausal wh-movement), and nominalizations. Let us recap the main findings. I showed that in simple clauses, wh-phrases are obligatorily found in the IPrP of the verb, which is achieved by movement of the wh-phrase to Spec, PredP, accompanied by raising of the verb to Pred$^0$. Similarly, in wh-questions formed on the basis of clauses with a participial complement, the wh-phrase is extracted from the participial phrase and moves to Spec, PredP, accompanied by head movement of the verbs akvs/h‘qav ‘have’ to Pred$^0$. In clauses with
the modal unda ‘must, have to’, the wh-phrase undergoes movement to Spec, PredP, and the modal unda ‘must, have to’ is attracted from its base position to Pred⁰. Next, wh-questions formed on the basis of an embedded clause rely on the wh-scope marking mechanism, which introduces a wh-scope marking wh-phrase in the matrix clause, while the true wh-phrase is found in Spec, PredP of the embedded clause, accompanied by the verb in Pred⁰. Additionally, finite verbs with modal meaning and some other lexical verbs require or allow for cross-clausal wh-movement and attract the wh-phrase to their IPrP. Finally, in argument wh-questions formed on the basis of embedded nominalizations the whole nominalization is pied-piped to Spec, PredP, accompanied by movement of the finite verb to Pred⁰. Wh-adjuncts in such cases are merged outside of the nominalization and, accordingly, are found in Spec, PredP without pied-piping the rest of the small clause with them. A summary of the findings is provided in Table 19.

Table 19. Summary of the wh-structures addressed in Chapter 5

<table>
<thead>
<tr>
<th>Structure</th>
<th>Structural representation</th>
</tr>
</thead>
<tbody>
<tr>
<td>simple clause</td>
<td>[PredP wh [Pred verb ]]</td>
</tr>
<tr>
<td>clause with a participial complement and the verbs akvs/h’qavs ‘have’</td>
<td>[PredP wh [Pred akvs/h’qavs ...[PcP participle ]]]</td>
</tr>
<tr>
<td>modal unda ‘must, have to’ + finite lexical verb</td>
<td>[PredP wh [Pred unda ...[VP verb ]]]</td>
</tr>
<tr>
<td>embedded wh-question (wh-scope marking)</td>
<td>[PredP wh [Pred verb ...[CP ... [PredP wh [Pred verb ]]]]]</td>
</tr>
<tr>
<td>embedded wh-question (cross-clausal wh-movement)</td>
<td>[PredP wh [Pred verb ...[CP ... [PredP [Pred verb ]]]]]</td>
</tr>
<tr>
<td>nominalization: wh-adjunct</td>
<td>[PredP wh [Pred verb ...[nP nominalization ]]]</td>
</tr>
<tr>
<td>nominalization: wh-argument</td>
<td>[PredP [nP wh nominalization ] [Pred Verb]]</td>
</tr>
</tbody>
</table>

More generally, the data considered here provides strong evidence for a Spec-Head configuration, as opposed to in-situ interpretation, as underlying the adjacency between wh-phrases and verbs in Georgian.
Chapter 6. Narrow foci

In Georgian, narrowly focused constituents, when found in the part of the clause that precedes the verb, must be placed in the immediately preverbal position (henceforth IPrP) and not further to the left in the clause. In this sense, they behave similarly to neg-words and wh-phrases, discussed in the previous chapters. However, out of the three classes of constituents with the IPrP requirement – neg-words, wh-phrases, narrow foci – narrow foci have the least restrictive distribution, since they can also occur in the immediately postverbal position (henceforth IPoP); recall that wh-phrases do not allow postverbal placement, and only object neg-words can occur postverbally (in broad focus contexts). In allowing postverbal placement of narrowly focused constituents, Georgian contrasts with many other verb-final languages, which typically disallow postverbal placement of foci. This chapter establishes the distribution of narrow foci in Georgian and provides an analysis of their syntactic properties.

The classification of narrow foci adopted here is based on a simple principle: I take only those types of foci to be distinct from each other that can be distinguished based on their syntactic or prosodic properties. Therefore, the focus types that are discussed here are those that are systematically reflected in the syntax and prosody of Georgian. There are three such types: (i) narrow foci found in replies to wh-questions (henceforth WHQs), (ii) contrastive/corrective foci, and (iii) constituents modified by focus-inducing particles, such as only and even. The prosodic realization of contrastive and non-contrastive foci is further addressed in Chapter 7.
Considering the analytical options for such binary distribution of foci, numerous approaches to analyzing focus types have been proposed in the literature. For example, É. Kiss (1998) in her seminal work on Hungarian draws a distinction between informational and identificational foci, and makes a correlation between focus type and its syntactic position. In Georgian, there is a sense among speakers that the two positions for focal placement, preverbal and postverbal, have certain pragmatic/discourse differences, but the distinction in question is not easily captured in terms of notions such as contrastiveness, exhaustivity, or givenness/discourse anaphoricity. Specifically, according to my consultants, postverbal focus placement signals greater confidence on the behalf of the speaker; furthermore, placement of constituents modified by focus-inducing particles into the IPoP is avoided, at least in simple clauses.

Analytically, I show in this chapter that, in simple clauses, preverbal narrow foci are interpreted in situ, accompanied by topicalization/displacement of the material that would otherwise intervene between the focused constituent and the verb, which ensures their adjacency. Postverbal narrow foci, in turn, result from low adjunction in the postverbal domain, on the right side of the clausal spine. That is not the whole story, though: in certain more complex structures, narrow foci have more complex representations. Specifically, I show that in the construction formed by the modal *unda* ‘have to, must’ and a finite verb, narrow foci undergo movement to Spec, PredP, like wh-phrases, or adjoin on the right. Finally, when narrow focus is found in an embedded nominalization, the whole nominalization behaves like a focused constituent, and may either be interpreted in situ or adjoin on the right of the clausal spine.

This chapter is structured in the following way. Section 1 introduces the analytical approach adopted here and provides some typological background for the Georgian facts. Section 2 addresses the question of exhaustivity and shows that both preverbal and postverbal narrow foci in Georgian can be interpreted as exhaustive. Section 3 is dedicated to the distributional properties of narrow foci, both preverbal and postverbal, and discusses the syntactic patterns that they are found in simple clauses (Section 3.1), clauses with a participial complement (Section 3.2), clauses with a non-finite modal *unda* ‘have to, must’ (Section 3.3) and nominalizations (Section 3.4). Section 4 discusses the co-occurrence restrictions on preverbal and
postverbal foci. Finally, Section 5 puts forward an analysis of the structural status of narrow foci, in a parallel fashion to the facts described in Section 3: first in simple clauses (Section 5.1), then in clauses with participial complements (Section 5.2), clauses with the modal *unda* ‘have to, must’ (Section 5.3) and nominalizations (Section 5.4). In order to allow for a detailed discussion, Section 5.1 is further subdivided into Section 5.1.1, which addresses preverbal narrow foci, and Section 5.1.2, which deals with their postverbal counterparts.

1. Analytical approach and typological landscape

When it comes to analyzing information structure, there is a dazzling variety of analytical approaches available, especially in terms of categorizing focus types. One of the most well-known ones was introduced in É. Kiss’s (1998) seminal work on Hungarian, where she draws a distinction between informational foci, which only provide new information, do not necessarily rule out other alternatives and are interpreted in situ, and identificational foci, which are interpreted as exhaustive, do introduce alternatives, and are found in the IPrP. To name just a few more, Lambrecht’s (1994), Dik’s (1997) and Erteschik-Shir’s (2007) classifications are more extensive, considering the typology of focus from numerous angles, such as the communicative point, scope, and relationship with other constituents. In more recent work, Bazalgette (2015) classifies foci according to their semantic and pragmatic properties and distinguishes between simple, implicational, presuppositional, and truth-conditional foci. Finally, Van der Wal (2016) brings these and other foci classifications together and provides techniques for diagnosing them in elicitations and experimental settings.

The main aim of the current chapter is to establish the interpretational and structural properties of preverbal and postverbal foci in Georgian. To this end, many of the fine-grained distinctions between focus types that have been proposed in the literature based on the semantic and pragmatic properties of various focus types are not going to be immediately relevant for the current discussion. One such distinction, for instance, is that between exhaustive and exclusive foci, where exclusive foci signal that there is at least some other referent that the predicate does not apply to, and exhaustive foci indicate that the predicate
applies to no other referent (Molnár 2002; van der Wal 2016). While this distinction is important for the correct interpretation of focus, and may be marked by grammatical means in some languages, these two focus types in Georgian may occur both preverbally and postverbally, and cannot be distinguished from one another based on either their syntactic or prosodic realizations. At the same time, the study of focus carried out in this dissertation is aimed at investigating both the syntactic and prosodic properties of foci. With this in mind, the foci types that are discussed here are those that are systematically reflected in the syntax and prosody of Georgian. These include three types of a constituents: (i) a constituent in a reply to a WHQ that corresponds to the wh-phrase in the WHQ, (ii) a constituent in a corrective statement/reply that corresponds to a constituent in the original statement/question, and (iii) a constituent modified by a focus-inducing particle, such as only or even.

At first glance, it might seem that Georgian patterns together with other languages which are known to have two focus positions, one in the IPrP, and the other one postverbal/in-situ, such as Hungarian, Basque, or earlier varieties of German. This is not the case though. As will be shown below, Georgian differs from languages like Hungarian, in which the two focal positions, preverbal and in-situ/postverbal, have been argued to have different semantic properties. In Hungarian, preverbal (identificational) focus is (semantically or pragmatically) exhaustive and may receive a contrastive interpretation, while in-situ/postverbal (informational) focus contributes new information and does not convey exhaustivity or contrastiveness (É. Kiss 1998 et seq.). In contrast with Hungarian, preverbal and postverbal focus placement in Georgian do not differ in systematically detectable semantic properties, such as contrastiveness, exhaustivity or discourse-givenness. Instead, in most cases, Georgian speakers are comfortable placing focal expressions (contrastive and non-contrastive, exhaustive and non-exhaustive, discourse-new and

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65 The in-situ/postverbal dichotomy in informational focus is pointed out here since subjects carrying informational focus can, in fact, be found preverbally. However, Hungarian provides a morphological way to distinguish between informational and identificational foci: identificational focus, when present, leads to the dislocation of the preverb, with the resulting word order *Foc V preverb*. Informational focus does not, leading to word orders *preverb V Foc, Foc preverb V*. These patterns are illustrated in (201) and (202) below.
discourse-given) either preverbally or postverbally. There is, however, a pragmatic difference between the two positions: in particular, postverbal focus placement may be associated with greater speaker confidence.

Postverbal focus placement that looks Georgian-like on the surface is also found in Basque, but there is a strong sense of contrastiveness that distinguishes postverbal foci from preverbal ones in Basque (Ortiz de Urbina 2002). Similarly, postverbal foci in Old High German and Early New High German can be identified as contributing new information, as opposed to preverbal foci, which may be given (Bies 1996; Fuß 2018; Hinterhölzl & Petrova 2018). In contrast, in Georgian, no such easily identifiable semantic or information-structural notion differentiates preverbal foci from postverbal.

It is also worth pointing out a syntactic dissimilarity between Georgian postverbal focus and Hungarian informational/in-situ focus. In Hungarian, it is easy to show that informational focus is found in situ since the word orders in broad focus utterances and those in which one of the constituents carries narrow informational focus are identical. That is, informational focus contrasts with strictly preverbal identificational focus not because it has an equally strict postverbal placement, but because informationally focused constituents have the distribution corresponding to their non-narrowly focused placement.

On the other hand, Georgian postverbal focus is syntactically (but not interpretationally) similar to the corresponding ones in Basque and earlier varieties of German (Old High German & New Early High German), all of which surface in the postverbal domain, as opposed to in situ. Furthermore, in Georgian, like in Basque and German, there is a strong preference to have postverbal focus as the only postverbal element – that is, simultaneously in the IPoP and clause-final. However, as will be shown in Section 5, the analytical approaches to postverbal foci differ between these languages.

2. Exhaustivity

Before delving into the distributional properties of preverbal and postverbal foci, let us explore the question of how the two focus positions in Georgian behave in terms of exhaustivity – i.e., whether the focused items found in either of them necessarily receive an exhaustive interpretation. Recall that exhaustive
interpretation of focus means that the focused constituent contributes new information and simultaneously rejects other alternatives as untrue. Furthermore, exhaustivity can come in two flavors: stronger, semantic exhaustivity cannot be cancelled, while weaker, pragmatic exhaustivity, can be. Semantic exhaustivity, consequently, has been analyzed as truth-conditional, while pragmatic exhaustivity has been analyzed as relying on an implicature or presupposition (cf. Bazalgette 2015). However, as experimental evidence has shown, the distinction between the two in natural language is not nearly as clear cut. Therefore, before delving into the matter in Georgian, let us first consider the example of Hungarian, a language for which the availability of exhaustive interpretation of focus has been studied in depth.

In Hungarian, the distinction between exhaustive identificational focus and non-exhaustive informational/new information focus was first proposed by É. Kiss (1998). Her observation was that identificational focus is placed in the IPrP in Hungarian (198) – in contrast with informational focus, which is realized in situ (199). Accordingly, the two focus positions have different interpretations – an exhaustive and a non-exhaustive one, respectively:

(198) A: Hol jártál a nyáron? Hungarian
where go.PST.2SG the summer.in
‘Where did you go in the summer?’

B: Olaszországban jártam.
Italy.to go.PST.1SG
‘It was Italy that I went to.’ (É. Kiss 1998: 250)

(199) A: Hol jártál a nyáron? Hungarian
where go.PST.2SG the summer.in
‘Where did you go in the summer?’

B: Jártam Olaszországban.
go.PST.1SG Italy.to
‘I went to Italy [among other places].’

(É. Kiss 1998: 250)

According to É. Kiss (1998: 249), Kriszta Szendrői (p.c), the informational focus construction is rarely used in replies to WHQs, with preverbal identificational focus, as in (198), strongly preferred in such constructions.
In much work on Hungarian focus, the exhaustivity of identificational focus has been taken to be semantic – i.e., truth-conditional and not cancellable (Szabolcsi 1981; É. Kiss 1998; Horvath 2007, among others). To illustrate the exhaustivity of identificational focus, examples like (200) are used. In (200), a superset *Peter and Paul* is used to correct the statement about Peter, which means that *Peter* is interpreted exhaustively in the first part of the clause:

(200) **Nem Péter aludt a padlón, hanem Péter és Pál.** Hungarian
Not Peter slept the floor.on but Peter and Paul
‘It wasn’t Peter who slept on the floor, but Peter and Paul.’ (Szabolcsi 1981: 149)

In turn, Onea & Beaver (2009), provide experimental results that that disprove the conclusion that Hungarian identificational focus is semantically exhaustive. Instead, they argue that the exhaustivity of preverbal focus in Hungarian is pragmatic in nature. Drawing on their experimental results, they show that Hungarian speakers do not necessarily interpret a partial answer carrying identificational focus as exhaustive, contrary to an example like (200) above. For instance, when shown a picture in Figure 61 and presented with the context in (201), in which *Marci* carries identificational focus, Hungarian speakers, according to Onea & Beaver’s (2009) results, accept the replies such as B’ and B”, which do not take *Marci* in A to be exhaustive, as felicitous. Moreover, according to the percentages of speakers who selected those replies as appropriate, the reply B” was selected by more participants than B, which does take *Marci* to be exhaustive.
Figure 61. A sample stimulus from Onea & Beaver (2009)

(201) A: *Marci fogott meg egy lepkét.*

Marci caught PRV a butterfly
‘Marci caught a butterfly.’

B: No, Peter caught a butterfly too. (ca.30%)

B': Yes, and Peter caught a butterfly too. (ca.25%)

B'': Yes, but Peter caught a butterfly too. (ca. 45%) (Onea & Beaver 2009)

Similar experimental results were achieved for Hungarian by Hoot (2016). These findings question the idea that Hungarian identificational focus is semantically exhaustive and suggest that semantic exhaustivity cannot be achieved in the absence of an overt exhaustive operator such as *only*.

In the same experiment, Onea & Beaver (2009) show that informational focus in Hungarian, as expected, does not have nearly as strong of an association with exhaustivity, with the majority of speakers preferring B’ in (202) and with B strongly dispreferred. Note that (202) is an example of informational as opposed to identificational focus on the subject, since the preverb *meg-* intervenes between the focused constituent and the verb; cf. (201), where the preverb surfaces after the lexical verb.

Marci PRV-caught a butterfly

‘Marci caught a butterfly.’

B: No, Peter caught a butterfly too. (ca.10%)

B’: Yes, and Peter caught a butterfly too. (ca.55%)

B’’: Yes, but Peter caught a butterfly too. (ca. 35%) (Onea & Beaver 2009)

To conclude the excursus into Hungarian focus, we have seen that identificational focus, found in the IPrP, receives an exhaustive interpretation – though the question remains open whether it is semantically or pragmatically exhaustive – while informational (in-situ) focus is non-exhaustive.

Turning back to Georgian, one sees that the asymmetry between the two focal positions is not nearly as strong here. To start with focus in the IPrP, preverbal focus in Georgian may carry an implicature of exhaustivity. When shown a picture as in Figure 62 and faced with the exchange in (203), Georgian speakers in an informal experiment selected the reply C as the most appropriate one. This means that, like Hungarian identificational focus in (201), preverbal focus in Georgian tends to be (pragmatically) exhaustive:

![Figure 62. Picture prompt for testing the exhaustivity of preverbal and postverbal focus in Georgian](image)

(203) A: *Ra a-kv-s Marik’a-s?*

what VER-have-PRS.3SG M.-DAT

‘What does Marika have?’

B: *Marik’a-s banani a-kv-s.*

M.-DAT banana.NOM VER-have-PRS.3SG

‘Marika has a banana.’
 Unlike what was shown for Hungarian in (202), however, postverbal focus in Georgian behaves just like preverbal focus, also exhibiting a pragmatic exhaustivity effect, as shown in (204):

(204) A: *Marik’a-s a-kv-s *banan-i.  
M.-DAT VER-have-PRS.3SG banana-NOM  
‘Marika has a banana.’

B: *Ara, Marik’a-s a-kv-s *banan-i da vašli(-c).  
no M.-DAT VER-have-PRS.3SG banana-NOM and apple-NOM(-EMPH)  
‘No, Marika has a banana and an apple.’

Skopeteas & Fanselow (2010: 1388), in their investigation of exhaustivity in Georgian focus, also conclude that neither of the focus positions in the language is semantically exhaustive. They show that a sentence-initial modifier *agretve* ‘among others’ typically takes scope over the immediately preverbal constituent, but can scope over a postverbal constituent too, if the postverbal constituent bears prosodic prominence, as shown in (205). Skopeteas & Fanselow (2010: 1388) take these facts to signal that there is no feature [+exhaustive] associated with either the preverbal or postverbal position.

(205) a. *Agretve Maria-m K’ot’e-s s-cem-a.*  
among.others M.-ERG K.-DAT 3SG-hit-AOR.3SG  
‘Among others, Maria hit Kote.’ (*among others scopes over Kote*)
b. *Agretve Maria-m s-cem-a K'OT'E-S.*

among.others M.-ERG 3SG-hit-AOR.3SG K.-DAT

‘Among others, Maria hit Kote.’ (*among others* scopes over Kote)

(Skopeteas & Fanselow 2010: 1389)

To sum up, while both Georgian and Hungarian have preverbal and postverbal focus positions, the two languages contrast in the properties that are associated with the two positions. Notably, Hungarian has a strong asymmetry between the two positions, with the preverbal position associated with (semantic or pragmatic) exhaustivity, and the postverbal/in-situ position resisting exhaustive interpretation. In contrast, in Georgian both preverbal and postverbal foci may or may not have an exhaustive interpretation, which suggests that exhaustivity, if present, is pragmatic in nature, and does not stem from the presence of an exhaustivity operator (cf. also Skopeteas & Fanselow 2010).

3. Distributional properties

To recap from the introduction to the current chapter, three types of foci are considered here: (i) a constituent in a reply to a WHQ that corresponds to the wh-phrase in the WHQ, (ii) a constituent in a corrective statement/reply that corresponds to a constituent un the original statement/question, and (iii) a constituent modified by a focus-inducing particle, such as *only* or *even*. The remainder of the current section shows that the distribution of narrow foci exhibits many similarities to that of wh-phrases: in particular, narrow foci allow for IPrP placement, just as wh-phrases do, but, unlike wh-phrases, narrow foci can also occur postverbally.

3.1 Simple clauses

As was the case for wh-phrases, the default place for narrowly focused constituents in Georgian is the immediately preverbal position (IPrP). Placing the focused constituent further to the left in the clause and separating it from the verb results in infelicity, as shown in (206):

(206) a. *Gušin dila-s bebia ra-s a-lag-eb-d-a?* = (1)
yesterday morning-DAT grandma.NOM what-DAT VER-clean-SF-SM-IPFV.3SG

‘What did grandma clean yesterday morning?’
b. * Gušin dila-s bebia samzareulo-s a-lag-eb-d-a.
yesterday morning-DAT grandma.NOM kitchen-DAT VER-clean-SF-SM-IPFV.3SG
  (‘Grandma cleaned the kitchen yesterday morning.’)

c. * Gušin dila-s samzareulo-s bebi-a a-lag-eb-d-a.
yesterday morning-DAT kitchen-DAT grandma.NOM VER-clean-SF-SM-IPFV.3SG
  (‘Grandma cleaned the kitchen yesterday morning.’)

On the other hand, in contrast with wh-phrases, narrow foci can also be found in the immediately postverbal position (IPoP). As if it were the mirror image of the IPrP, placing the focused constituent further to the right and separating it from the verb would also result in strongly degraded judgements, as (207) below shows. Note that the thematic role of the narrowly focused constituent does not play a role here: narrowly focused subjects and indirect objects also can appear in the IPoP; the same is true of narrowly focused adjuncts.

(207) a. Gušin dila-s bebia ra-s a-lag-eb-d-a? (=2)
yesterday morning-DAT grandma.NOM what-DAT VER-clean-SF-SM-IPFV.3SG
  (‘What did grandma clean yesterday morning?’)

b. Gušin dila-s bebi-a a-lag-eb-d-a samzareulo-s.
yesterday morning-DAT grandma.NOM VER-clean-SF-SM-IPFV.3SG kitchen-DAT
  (‘Yesterday morning grandma cleaned the kitchen.’)

c. * Gušin dila-s a-lag-eb-d-a bebi-a samzareulo-s.
yesterday morning-DAT VER-clean-SF-SM-IPFV.3SG grandma.NOM kitchen-DAT
  (‘Yesterday morning grandma cleaned the kitchen.’)

In fact, constraints on postverbal focus in Georgian are even stricter than that: if a focal element is placed postverbally, there is a strong preference for that element to be the only one in the postverbal domain (other than the lexical verb in clauses with composite verb forms; more on this in Section 3.2 and Section 3.3 below). Accordingly, the utterance in (208) is infelicitous as a reply to the WHQ in (207):

(208) * Gušin dila-s a-lag-eb-d-a samzareulo-s bebi-a.
yesterday morning-DAT VER-clean-SF-SM-IPFV.3SG kitchen-DAT grandma.NOM
  (‘Yesterday morning grandma cleaned the kitchen.’)
Taken together, (207) and (208) show that there is a strong preference for Georgian postverbal focus to be both immediately postverbal and clause-final. In this, postverbal focus in Georgian behaves like postverbal foci that have been described for a handful of other verb-final languages, such as corrective foci in Basque (Ortiz de Urbina 2002) and new information foci in earlier varieties of German (Bies 1996; Fuß 2018; Hinterhölzl & Petrova 2018), as well as in Ossetic (Borise & Erschler, in prep). Since postverbal focus placement is rare among verb-final languages, it is a good idea to provide some typological background for Georgian.

To start with, in Basque, earlier varieties of German, and Ossetic, like in Georgian, there is a strong preference for a focused postverbal element to occupy the absolutely final position in a clause, with no other elements appearing in the postverbal domain, as shown in (209)–(212) below.

(209) Ez da etorri horregatik. Basque
   NEG is come because.of.that
   ‘He has not come because of that.’
   (=That, and not (the) other, is the reason why he has not arrived) (Ortiz de Urbina 2002)

(210) fon theru burgi thiu hiez nazareth Old High German
   from the town which was called Nazareth
   ‘from the town which was called Nazareth’ (Hinterhölzl & Petrova 2018: 283)

(211) sunder daz sie auch sehen Lazarum Early New High German
   but that 3PL also see Lazarus
   ‘but that they see Lazarus also’ (Bies 1996: 14)

(212) A: Alan-ǝl či vwwǝnd-ǝ?
    A.-SUP who trust-PRS.3SG
   ‘Who trusts Alan?’

    B: Alan-ǝl vwwǝnd-ǝ Medine.
    A.-SUP trust-PRS.3SG M.NOM
   ‘Madina trusts Alan.’ (Borise & Erschler, in prep)

While some other verb-final languages, such as Udmurt and Estonian, also allow for postverbal placement of focus, in these languages postverbal focus is placed clause-finally – i.e., other elements are
allowed to intervene between the verb and the postverbal focal constituent (Schmidt 2017), as shown in (93). This strongly suggests that more than one syntactic derivation may underlie postverbal foci in verb-final languages; see more on the syntax of postverbal focus in Georgian, as compared to other verb-final languages, in Section 5.1.2.

(213)  *Ema on vōtnud lapselt [mānguasja]Foc āra.* Estonian
mother.NOM AUX.PRS.3SG take.PTCP child.ABL toy.ACC PRV
‘Mother has taken the toy away from the child.’ (Schmidt 2017: 3)

Next, let us consider contrastive foci. Contrastiveness is commonly taken to be a property that can be associated with focus, while being independent from it (cf., e.g., Lambrecht 1994), since non-focal constituents, such as topics, can be contrastive as well. Contrastive readings most often arise in corrective contexts; cf. van der Wal (2016) on different types of corrective focus, such as focus correcting an incorrect, incomplete or overcomplete statement. In this chapter, contrastiveness is discussed in the context of responses to incorrect statements, though the same principles, by extension, should apply to other types of corrective focus in Georgian too. Contrastive/corrective readings can be expressed both preverbally and postverbally in Georgian:

M.-NOM PRV-grow_poor-SM-AOR.3SG last_year
‘Mariami grew poor last year.’

B: *Ara, Levan-i ga-gharib-d-a šaršan.*
no L.-NOM PRV-grow_poor-SM-AOR.3SG last_year
‘No, Levani grew poor last year.’

B’: *Ara, šaršan ga-gharib-d-a Levan-i.*
no last_year PRV-grow_poor-SM-AOR.3SG L.-NOM
‘No, Levani grew poor last year.’

Similar results were obtained by Skopeteas & Fanselow (2010), who also found that contrastive foci can be placed both preverbally and postverbally. In an experimental study, they also uncovered a preference (but not a requirement) for placing contrastively focused constituents into the immediately preverbal
domain. According to their results, ca. 76% of contrastive object foci are realized preverbally (and the rest postverbally), as compared with ca. 60% of non-contrastive object foci, and ca. 94% of contrastive subject foci, as opposed to ca. 78% of non-contrastive subject foci. In line with these earlier results, a semi-controlled study presented in Chapter 7 shows that contrastively focused subjects are more commonly found in the IPrP, while contrastively focused objects are more often found in the IPoP.

So far, save for some contextual preferences, it looks like the two positions for focus realization in Georgian, the preverbal and the postverbal one, do not differ from each other. Specifically, we have seen that foci found in replies to WHQs and contrastive/corrective foci can be found both preverbally and postverbally. Similarly, both positions may or may not be associated with an exhaustive reading. Furthermore, as you may have noticed in the examples provided so far, there is no morphological marking of focus in Georgian (unlike in, e.g., Japanese or Sinhala), and no morphological process (such as, e.g., optional case marking) that would distinguish preverbal and postverbal foci. Furthermore, as will be discussed in more detail below, there is no easily detectable semantic difference between the two positions.

Nevertheless, a more careful look reveals there are a number of subtle differences between the two positions. First, there is some evidence for interspeaker variation, with individual speakers exhibiting a strong preference for preverbal or postverbal focus placement, regardless of context, as will be shown with experimental evidence in Chapter 7. Second, as already mentioned, some Georgian speakers have an intuition that there is a pragmatic/discourse-related distinction between preverbal and postverbal foci. Specifically, in addition to the new information, and a notion of contrastiveness/exhaustivity (more on this below) that both foci can convey, postverbal focus might have a pragmatic effect of signaling that it represents the speaker’s definitive last word, and that the speaker does not intend to continue the discussion (Rusudan Asatiani, p.c.). In other words, postverbal focus may have an additional pragmatic interpretation of speaker confidence. Finally, the symmetry between the two focus positions is not complete, since certain focal contexts, in contrast with the ones discussed above, strongly favor preverbal focus placement over
postverbal. Specifically, this is the case for constituents modified by focus-inducing particles such as *only* and *even*, which, at least for some speakers, strongly favor preverbal placement in simple clauses:

     M.-ERG only G.-NOM VER-kiss-AOR.3SG
     ‘Manana only kissed Giorgi.’ *(only scopes over Giorgi)*

     b.% Manana-m a-k’oc-a *mxolod* Giorg-i.
     M.-ERG VER-kiss-AOR.3SG only G.-NOM
     ‘Manana only kissed Giorgi.’ *(only scopes over Giorgi)*

(216)  a. Manana-m Giorg-i-c k’i a-k’oc-a.
     M.-ERG G.-NOM also EMPH VER-kiss-AOR.3SG
     ‘Manana kissed even Giorgi.’

     b.% Manana-m a-k’oc-a Giorg-i-c k’i.
     M.-ERG VER-kiss-AOR.3SG G.-NOM also EMPH
     ‘Manana kissed even Giorgi.’

To sum up the distributional evidence presented in the current section, narrow foci, both non-contrastive and contrastive, can be found both in the IPrP and the IPoP in simple clauses in Georgian. The parallelism between the two positions, however, is not full, notably, due to certain pragmatic differences between them. Namely, postverbal focus placement seems to convey more confidence on the behalf of the speaker. Furthermore, constituents modified by focus-inducing particles exhibit a strong preference for preverbal placement (subject to inter-speaker variation).

3.2 Participial small clauses

Now that the distribution of narrow foci in simple clauses is established, consider narrow foci in clauses with participial complements – i.e. clauses in which a verb selects a participial complement. Recall from Chapter 3 that the verb in such clauses can either precede or follow the participial complement – just as it can precede or follow a nominal direct object, in OV or VO structures in broad-focus conditions. Also, for

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67 I thank Stavros Skopeteas and Rusudan Asatiani for generously sharing their thoughts and unpublished notes on the distribution of foci in clauses with participial complements in Georgian, cited here as Skopeteas & Asatiani (2016).
comparison, recall that in Chapter 4 it was shown that when a wh-question is formed on the basis of a participial complement, the wh-phrase is found in the IPrP of the verbs akvs/h’qavs ‘have’, extracted from the participial phrase that acts as the complement of the verb.

Compared to wh-phrases, narrow foci have a more complex distribution in the same clause type – just as narrow foci in simple clauses have a more complex distribution than wh-phrases. However, even in comparison to narrow foci in simple clauses, those in clauses with participial complements allow for more placement options. In particular, narrow foci in clauses with participial complements can be found in the IPrP or IPOP of the verb or in the clause-final position, given that, with two verbal forms in the same clause, the IPOP of the verbs akvs/h’qavs ‘have’ is not necessarily the clause final position. As is shown in Section 5.2 below, this more complex distribution still follows from the same principles that govern the distribution of foci in simple clauses.

To start with, narrow foci are most commonly found in the IPrP of the verbs akvs/h’qavs ‘have’, with the participial complement either placed in the postverbal domain as in (B) in (217), or with part of it topicalized, as in (B’) in (217):

(217) A: Vi-s h-q’-av-s [na-cem-i Gior-g-i]? who-DAT 3SG-have-SF-3SG PTCP-hit-PTCP G.-NOM
‘Who has hit Giorgi?’

B: Mar-i-am-s h-q’-av-s [Giorg-i na-cem-i]. M.-DAT 3SG-have-SF-3SG G.-NOM PTCP-hit-PTCP
‘Mariami has hit Giorgi.’

B’: Giorg-i Mar-i-am-s h-q’-av-s na-cem-i. G.-NOM M.-DAT 3SG-have-SF-3SG PTCP-hit-PTCP
‘Mariami has hit Giorgi.’

Next, narrow foci can also be placed in the IPOP of the verbs akvs/h’qavs ‘have’ or the IPOP of the participle (which is also the absolutely final position in the clause), as shown in (218):
(218) A: Vi-s h-q’-av-s [na-cem-i Giorg-i]? who-DAT 3SG-have-SF-3SG PTCP-hit-PTCP G.-NOM ‘Who has hit Giorgi?’

B: Giorg-i h-q’-av-s Mariam-s na-cem-i. G.-NOM 3SG-have-SF-3SG M.-DAT PTCP-hit-PTCP ‘Mariami has hit Giorgi.’

B’: Giorg-i h-q’-av-s na-cem-i Mariam-s. G.-NOM 3SG-have-SF-3SG PTCP-hit-PTCP M.-DAT ‘Mariami has hit Giorgi.’

B”: Giorg-i na-cem-i h-q’-av-s Mariam-s. G.-NOM PTCP-hit-PTCP 3SG-have-SF-3SG M.-DAT ‘Mariami has hit Giorgi.’

The same is true for contrastive foci: IPrP placement is preferred, IPoP placement is possible, and clause-final placement ranks the lowest of the three but is not infelicitous.

(219) A: Dato-s h-q’ av-s [na-cem-i Guram-i]. D.-DAT 3SG-have-SF-3SG PTCP-hit-PTCP G.-NOM ‘Dato has hit Gurami.’

B: Ara, Guram-i Mariam-s h-q’-av-s na-cem-i. no G.-NOM M.-DAT 3SG-have-SF-3SG PTCP-hit-PTCP ‘No, Mariami has hit Gurami.’

B’: Ara, Guram-i h-q’-av-s Mariam-s na-cem-i. no G.-NOM 3SG-have-SF-3SG M.-DAT PTCP-hit-PTCP ‘No, Mariami has hit Gurami.’

B”:? Ara, Guram-i h-q’-av-s na-cem-i Mariam-s. no G.-NOM 3SG-have-SF-3SG PTCP-hit-PTCP M.-DAT ‘No, Mariami has hit Gurami.’

B””:? Ara, Guram-i na-cem-i h-q’-av-s Mariam-s. no G.-NOM PTCP-hit-PTCP 3SG-have-SF-3SG M.-DAT ‘No, Mariami has hit Gurami.’
Finally, foci modified by focus-inducing particles such as *mxolod* ‘only’ and *-ac k’i* ‘even’ can be found in the IPrP or IPoP of the verb. However, these expressions resist being placed clause-finally, either in the IPoP of the participle or the verb:

(220) a. *Mxolod Maria-s h-q’-av-s [Kote na-cem-i].*
    only M.-DAT 3SG-have-SF-3SG K.NOM PTCP-hit-PTCP
    ‘Only Maria has hit Kote.’

    b. *Kote h-q’-av-s *mxolod Maria-s na-cem-i.*
    K.NOM 3SG-have-SF-3SG only M.-DAT PTCP -hit-PTCP
    ‘Only Maria has hit Kote.’

A structural account of narrow foci in clauses with participial complements is provided in Section 5.2 of the current chapter.

### 3.3 Clauses with a (non-finite) modal

Next, consider narrow focus placement in clauses that consist of the non-inflecting modal verb *unda* ‘have to, must’ and a finite lexical verb. Recall from Chapter 4 that *unda* ‘have to, must’ is merged clause-medially, and in a wh-question formed on the basis of this construction the wh-phrase is found in the IPrP of the modal.

In turn, narrow foci in the *unda* ‘must, have to’ + finite lexical verb constructions work in the following way: in replies to wh-questions, narrow focus placement in the IPrP of the modal is preferred, and clause-final positioning of the narrowly focused constituent is also fully felicitous. In contrast, clause-medial placement, in the IPoP of the modal, is judged as less good:
The same is true for contrastive contexts, as shown in (222), and for foci modified by focus-sensitive particles, as in (223): narrow foci appear in the IPrP of *unda* ‘must, have to’, or the absolutely clause-final position. Placing the narrow focus in between *unda* ‘must, have to’ and the verb results in degraded judgements.

(221) A: *Ra unda v-nax-o-t P’ragha-ši?*  
`what MOD 1-see-OPT.1-PL Prague-in`  
‘What do we have to see in Prague?’

B: *P’ragha-ši K’arl-is xid-i unda v-nax-o-t.*  
`Prague-in Charles-GEN bridge-NOM MOD 1-see-OPT.1-PL`  
‘We have to see Charles Bridge in Prague.’

B’:??*P’ragha-ši unda K’arl-is xid-i v-nax-o-t.*  
`Prague-in MOD Charles-GEN bridge-NOM 1-see-OPT.1-PL`  
‘We have to see Charles Bridge in Prague.’

B”: *P’ragha-ši unda v-nax-o-t K’arl-is xid-i.*  
`Prague-in MOD 1-see-OPT.1-PL Charles-GEN bridge-NOM`  
‘We have to see Charles Bridge in Prague.’

(222) A: *P’ragha-ši K’arl-is xid-i unda v-nax-o-t.*  
`Prague-in Charles-GEN bridge-NOM MOD 1-see-OPT.1-PL`  
‘We have to see Charles Bridge in Prague.’

B: *Ara, P’ragha-ši c’minda Vit’is t’adzari unda v-nax-o-t.*  
`no Prague-in saint Vitus-GEN church MOD 1-see-OPT.1-PL`  
‘No, we have to see the St. Vitus Cathedral in Prague.’

B’:??*Ara, P’ragha-ši unda c’minda Vit’is t’adzari v-nax-o-t.*  
`no Prague-in MOD saint Vitus-GEN church 1-see-OPT.1-PL`  
‘No, we have to see the St. Vitus Cathedral in Prague.’

B: *Ara, P’ragha-ši unda v-nax-o-t c’minda Vit’is t’adzari.*  
`no Prague-in MOD 1-see-OPT.1-PL saint Vitus-GEN church`  
‘No, we have to see the St. Vitus Cathedral in Prague.’

(223) a. *P’ragha-ši mxolod K’arl-is xid-i unda v-nax-o-t.*  
`Prague-in only Charles-GEN bridge-NOM MOD 1-see-OPT.1-PL`  
‘We only have to see Charles Bridge in Prague.’ *(only scopes over Charles Bridge)*
A structural account of narrow foci found in constructions with unda ‘must, have to’ is offered in Section 5.3 in the current chapter.

### 3.4 Narrow foci in nominalizations

Before delving into the distribution of narrow foci in embedded nominalizations, let us review the general properties of Georgian nominalizations, also known as masdars. As was shown in Chapter 5, in the context of wh-phrases in embedded nominalizations, Georgian nominalizations are very small. They can have their own direct object (and, for some speakers, also an indirect object), but cannot have an independent subject, and cannot have timing or location independent of those of the main verb. Owing to its small size, the word order in a nominalization is fixed as OV.

Chapter 5 discussed two types of embedded nominalizations in Georgian: those embedded under a finite verb, and those embedded under finite verbs with modal meaning unda ‘want’, šeuđźia ‘can, be able to’ and sc’irdeba ‘need’. We have seen that the two differ in their case-marking properties – specifically, nominalizations embedded under finite verbs carry dative case while those embedded under verbs with modal meaning are marked nominative. The main distinction with respect to wh-phrases embedded in nominalizations, however, cross-cuts this distinction. Specifically, I showed in Chapter 5 that adjunct wh-phrases appear in the IPrP of the matrix verb, regardless of the type of the verb, while argument wh-phrases pied-pipe the rest of the nominalization to the IPrP of the matrix verb – again, the type of the matrix verb notwithstanding.
In this section, the distribution of narrow foci in the same two types of embedded nominalizations is considered. As shown below, the facts concerning argument narrow foci, like those concerning argument wh-phrases, are the same in both types. Adjunct narrow foci are not considered here, given that we have seen in Section 2.5 of Chapter 5, based on the example of adjunct wh-phrases as in (194), that in embedded nominalizations adjuncts modify the matrix verb and not the nominalized one.

First, consider narrow foci, found in replies to WHQs, in nominalizations embedded under verbs unda ‘want’, šeudzlia ‘can, be able to’ and še’irdeba ‘need’. Here, the preferred option is for the nominalization containing narrow focus to appear in the IPrP of the matrix verb, in line with what we have seen for wh-phrases in nominalizations in Chapter 5.

In contrast with wh-phrases, however, nominalizations containing narrow foci can also occur in the IPoP of the matrix verb. Finally, what is ruled out is movement of the narrow focus alone, without the rest of the nominalization, into the IPrP of the matrix verb. This is shown for nominalizations embedded under verbs with modal meaning in (224) and (225), and for those embedded under a lexical verb in (226):

(224) A: [R-is(i) č'am-a] g-inda-t rest'oran-ši?
   what-GEN eat-NMLZ 2-want-PL restaurant-in
   ‘What do you want to eat at the restaurant?’

B: [Tevz-is č'am-a] m-inda rest'oran-ši.
   fish-GEN eat-NMLZ 1-want restaurant-in
   ‘I want to eat fish at the restaurant.’

B': Rest'oran-ši m-inda [tevz-is č'am-a].
   restaurant-in 1-want fish-GEN eat-NMLZ
   ‘I want to eat fish at the restaurant.’

B'':* Tevz-is m-inda č'am-a rest'oran-ši.
   fish-GEN 1-want eat-NMLZ restaurant-in
   (‘I want to eat fish at the restaurant.’)

(225) A: [R-is(i) da-lev-a] še-gv-i-dzl-i-a saghamo-s?
   what-GEN PRV-drink-NMLZ PRV-1PL-VER-can-SM-3SG evening-DAT
   ‘What can we drink tonight?’
B: [C’itel-i ghvin-is da-lev-a] še-gv-i-dzl-i-a saghamo-s.
red-NOM wine-GEN PRV-drink-NMLZ PRV-1PL-VER-can-SM-3SG evening-DAT
‘We can drink red wine tonight.’

B’: Saghamo-s še-gv-i-dzl-i-a [c’itel-i ghvin-is da-lev-a].
evening-DAT PRV-1PL-VER-can-SM-3SG red-NOM wine-GEN PRV-drink-NMLZ
‘We can drink red wine tonight.’

B’’: *Saghamo-s c’itel-i ghvin-is še-gv-i-dzl-i-a da-lev-a.
evening-DAT red-NOM wine-GEN P RV-1PL-VER-can-SM-3SG PRV-drink-NMLZ
(‘We can drink red wine tonight.’)

(226) A: [R-is q’id-v-a-s] cdil-ob-s Levan-i?
what-GEN buy-TS-NMLZ-DAT try-SF-PRS.3SG L.-NOM
‘What is Levani trying to buy?’

B: Levan-i [mankan-is q’id-v-a-s] cdil-ob-s.
L.-NOM car-GEN buy-TS-NMLZ-DAT try-SF-PRS.3SG
‘Levani is trying to buy a car.’

B’: Levan-i cdil-ob-s [mankan-is q’id-v-a-s].
L.NOM try-SF-PRS.3SG car-GEN buy-TS-NMLZ-DAT
‘Levani is trying to buy a car.’

B’’:* Levan-i mankan-is cdil-ob-s q’id-v-a-s.
L.-NOM car-GEN buy-TS-NMLZ-DAT try-SF-PRS.3SG
(‘Levani is trying to buy a car.’)

The picture is the same for contrastive foci, as illustrated in (227) and (228): namely, the whole
nominalization containing narrow focus appears in the IPrP or IPoP of the matrix verb.

(227) A: [Tevz-is ’am-a] g-inda-t rest’oran-ši?
fish-GEN eat-NMLZ 2-want-PL restaurant-in
‘Do you want to eat fish at the restaurant?’

B: Ara, [katam-is ’am-a] m-inda rest’oran-ši.
no chicken-GEN eat-NMLZ 1-want restaurant-in
‘No, I want to eat chicken at the restaurant.’
Finally, nominalizations containing constituents modified by focus-inducing particles are felicitous both in the IPrP and IPoP of the embedding verb, as shown in (229) and (230):

(229) a.  [Mxolod tevz-is č’am-a] m-inda rest’oran-ši.
only fish-GEN eat-NMLZ 1-want restaurant-in
‘I only want to eat fish at the restaurant.’ (only scopes over fish)

b. Še-gv-i-dzl-i-a [mxolod gvin-is da-lev-a] saghamo-s.
PRV-1PL-VER-can-SM-3SG only wine-GEN PRV-drink-NMLZ evening-DAT
‘We can only drink wine tonight.’ (only scopes over wine)

(230) a. Levan-i [mxolod mankan-is q’id-v-a-s] cdil-ob-s.
L.-NOM only car-GEN buy-TS-NMLZ-DAT try-SF-PRS.3SG
‘Levani is only trying to buy a car.’ (only scopes over car)

b. Levan-i cdil-ob-s [mxolod mankan-is q’id-v-a-s].
L.-NOM try-SF-PRS.3SG only car-GEN buy-TS-NMLZ-DAT
‘Levani is only trying to buy a car.’ (only scoping over car)

To sum up, the current section showed that, like argument wh-phrases, narrow foci, if embedded in a nominalization, cannot be extracted from it. On the other hand, in contrast with nominalizations containing wh-phrases, those containing narrow foci can occur in the IPoP of the matrix verb.
4. Focus co-occurrence restrictions

As we have seen in Chapter 4, Chapter 5 and the current chapter, there are three types of constituents in Georgian that are specified for occurring in the IPrP, or – for narrow foci and object neg-words (in broad focus contexts) – also in the IPoP. Therefore, it is important to know what happens when more than one such constituent occurs in the same clause. Several such situations were addressed already: specifically, multiple neg-words in the same clause are considered in Section 2 in Chapter 4 above, and multiple wh-questions are discussed in Chapter 5 above. Co-occurrence patterns of wh-phrases with neg-words, which are used as a diagnostic for the structural position of wh-phrases, were also discussed in Chapter 5, and the respective co-occurrence patterns of narrow foci and neg-words are discussed in Section 5 in the current chapter. The current section deals with the remaining two types of co-occurrences: those between two narrow foci, and those between narrow foci and wh-phrases.

To start with multiple narrow focus in a single clause, it is an open question whether two or more narrow foci can even co-occur. To the extent that this is possible, one of the foci might be an instance of second-occurrence focus, which has its own syntactic, semantic and prosodic properties (Gussenhoven 1984; Hajičová, Partee & Sgall 1998), or one of the would-be foci might be interpreted as a contrastive topic. Such examples, therefore, would not instantiate two narrow foci as such.

Another potential context for more than one narrow focus is a reply to a multiple WHQ. In such a case, though, the operators that bind the wh-phrases would undergo the process of absorption (Higginbotham & May 1981). During this process, the operators that bind the wh-phrases are ‘absorbed’ – i.e., integrated with each other into a single operator – which means that, after absorption takes place, multiple wh-phrases are bound by a single wh-operator, and, essentially, treated as a single wh-phrase. Arguably, the two narrow foci in a reply to a multiple WHQ would similarly be interpreted as a single narrow focus. In line with that analogy, the constituents in the reply corresponding to the wh-phrases are preferentially placed in the IPrP in the same relative order, as shown in (231):
(231) a.  *V-is-tvis sad i-mgher-a Levan ma simgher-a?*  
who-GEN-for where VER-sing.AOR.3SG L.-ERG song-NOM  
‘Where did Levani sing a song for whom?’

b.  *Levan ma Lena s-tvis pilarmonia-ši i-mgher-a simgher-a.*  
L.-ERG L.-GEN-for philharmonic_hall-in VER-sing.AOR.3SG song-NOM  
‘Levani sang a song for Lena in the philharmonic hall.’

Yet another context in which narrow foci might potentially co-occur would be when the two narrow foci are of different subtypes. Specifically, some Georgian speakers allow for the constituent in a reply to a WHQ, which corresponds to the wh-phrase in the WHQ, to co-occur with constituent modified by focus-inducing particle such as *even* or *only*, as in (232). Note that the availability of a reply such as B or B' in (232) is, of course, contingent on whether a question such as A in (232), with a wh-phrase and a narrowly focused constituent co-occurring, is judged as grammatical by a given speaker, given the co-occurrence of wh-phrase and narrow focus in the same clause; more on this below in the current section.

(232) A:  *%Vine e-lap’arak’a masc’avlebel-s-a-c k’i gušin?*  
who VER-speak-AOR.3SG teacher-DAT-EV-too EMPH yesterday  
‘Who spoke even to the teacher yesterday?’

B:  *%Gušin masc’avlebel-s-a-c k’i e-lap’arak-a Manana.*  
yesterday teacher-DAT-EV-too EMPH VER-speak-AOR.3SG Manana.NOM  
‘Manana spoke even to the teacher yesterday.’

B':  *???Gušin Manana e-lap’arak-a masc’avlebel-s-a-c k’i.*  
yesterday Manana.NOM VER-speak-AOR.3SG teacher-DAT-EV-too EMPH  
‘Manana spoke even to the teacher yesterday.’

B'':  *%Gušin masc’avlebel-s-a-c k’i Manana e-lap’arak’a.*  
yesterday teacher-DAT-EV-too EMPH Manana.NOM VER-speak-AOR.3SG  
‘Manana spoke even to the teacher yesterday.’

As the replies in (232) show, two scenarios are possible when two foci – one corresponding to the wh-phrase in the wh-question, and one modified by a focus-inducing particle – co-occur in a single clause. In B, the *even*-modified constituent ‘wins over’ the IPrP, and the other narrow focus, *Manana*, is realized in the IPoP instead. This seems to be the only way in which Georgian can accommodate two narrow foci (of
necessarily different types) in a single clause; reversing their order, as in the reply B', results in strongly degraded judgements. The other possible reply is B", where Manana is realized in the IPrP, and the even-modified constituent is found further to the left. In this case, the latter likely receives a secondary topical interpretation.\textsuperscript{68} The generalization for such cases, to the extent that it can be made, is that the narrow focus that corresponds to the wh-phrase may be realized in the IPrP or IPoP. The constituent modified by a focus-inducing particle may be realized in the IPrP or further to the left in the clause, likely receiving a topical interpretation, but it cannot be realized in the postverbal domain, in line with the data in Section 3.1.

Next, consider the co-occurrence of narrow foci and wh-phrases – i.e., occurrence of narrow foci in wh-questions. Recall that the term ‘narrow focus’ used here comprises three different types of narrow focus: (i) a constituent in a reply to a WHQ corresponding to the wh-phrase in the WHQ, (ii) a constituent correcting or contradicting its counterpart in another statement, and (iii) a constituent modified by a focus-inducing particle such as only or even. Of these, only (iii) can occur in a WHQ; (i) cannot be found there for reasons of general congruency, and (ii), if found in a WHQ, would receive topical interpretation.

Furthermore, only some Georgian speakers accept WHQs with a constituent modified by only or even as felicitous. For those who do, the constituent modified by such a particle can appear further to the left of the wh-phrase in the IPrP or in the postverbal domain. As with multiple foci, it is likely that it receives a secondary topical interpretation in these cases.

\begin{verbatim}
(233) a. % Mxolod Manana-m vi-s a-k'oc-a?
      only M.-ERG who-DAT VER-kiss-AOR.3SG
     ‘Who did only Manana kiss?’
\end{verbatim}

\textsuperscript{68} The possibility of topicalization for even-modified phrases has been mentioned in the literature before: É. Kiss (1998: 253) points out that even-modified phrases in English may be topicalized, if they receive a pitch accent: \textit{EVEN JOHN Mary invited to her birthday party}. The judgements on the acceptability of such examples are not consistent though. Furthermore, according to É. Kiss (1998: 253), only-modified phrases cannot be topicalized, regardless of the prosodic contour employed: \textit{ONLY JOHN Mary invited to her birthday party}. In Georgian, however, both even- and only-modified constituents may receive a topical interpretation.
b.\% Vi-s a-k’oc-a mxolod Manana-m?
   who-DAT VER-kiss-AOR.3SG only M.-ERG
   ‘Who did only Manana kiss?’

\[(34)\] a.\% K’vira-s-a-c k’i vin muša-ob-s?
   Sunday-DAT-EV-too EMPH who work-SF-PRS.3SG
   ‘Who works even on a Sunday?’

b.\% Vin muša-ob s k’vira-s-a-c k’i?
   who work-SF-PRS.3SG Sunday-DAT-EV-too EMPH
   ‘Who works even on a Sunday?’

Moreover, some speakers prefer another strategy, whereby there is only one focus per clause. In this way, they maintain it that both the wh-expression and the focal item are found in the IPrP of the verb in their respective clauses:

\[(35)\] Vin aris (is) bič’-i [cp mxolod Manana-m rom a-k’oc-a]?
   who be.PRS.3SG DEM boy-NOM only M.-ERG COMP VER-kiss-AOR.3SG
   ‘Who is the boy that only Manana kissed?’

5. Structural properties

5.1 Simple clauses

5.1.1 Preverbal narrow foci

The current section discusses the structural properties of preverbal placement of narrow foci in Georgian; postverbal placement, in turn, is addressed in Section 5.1.2.

Before delving into analytical issues, let us recap what we know so far. As was demonstrated in Section 3 in the current chapter, narrow foci in Georgian, if found in the preverbal domain, surface in the IPrP and not further to the left of the verb. This is true of narrow foci found in replies to WHQs, as was shown in (206) above and repeated in the reply in (236) below, as well as contrastive foci, as was demonstrated in (214) and repeated in (237) below:
Similarly, IPPrP placement is the requirement for preverbal constituents modified by focus-sensitive particles such as even, only and also, as shown in (215) and (216) above and repeated in (238) and (239) below, respectively (recall also that this type of narrow focus resists IPoP placement in simple clauses):

(238)  
Manana-m mxolod Giorg-i a-k’oc-a.  
M.-ERG only G.-NOM VER-kiss-AOR.3SG  
‘Manana only kissed Giorgi.’ (only scopes over Giorgi)

(239)  
Manana-m Giorg-i-c k’i a-k’oc-a.  
M.-ERG G.-NOM-also EMPH VER-kiss-AOR.3SG  
‘Manana kissed even Giorgi.’

Recall that the main analytical options for focus-verb adjacency, based on the two main structural configurations first introduced in Chapter 1, are the following. The first one of the two is a Spec-Head configuration, which results from A-bar movement of the focused constituent to the specifier position of a certain projection, accompanied by movement of the verb to the head of the same projection; this is the
configuration that underlies wh-question formation in Georgian, as was shown in Chapter 5. This option further breaks down into the implementations of the Spec-Head configuration at different heights in the clause, such as the CP area or the vP area. The second one is the in-situ interpretation of focus, made possible by the material that would otherwise intervene between the focus and the verb undergoing displacement to the right or left periphery of the clause. Each of these options is considered below with respect to narrow foci.

A Spec-Head configuration as underlying preverbal focus in Georgian is easy to rule out. The evidence comes from the distribution of neg-words. As was demonstrated in Chapter 4, neg-words in Georgian are interpreted in situ and cannot appear in the CP-area, owing to their non-referential nature, which does not allow them to be interpreted as topical. At the same time, as is discussed in more detail below and exemplified in (248), a subject neg-word can linearly precede a narrowly focused direct object. This means that the structural position of the focused constituent is necessarily lower in the structure than the base position of the subject. The narrowly focused constituent being found so low in the clause, within the thematic domain, speaks against it being found in a projection dedicated to housing material with particular information-structural properties.

Moving on to the other analytic option, which relies on the in-situ interpretation of narrowly focused constituents in the IPrP, there are a number of pieces of evidence favoring this approach over the Spec-Head configuration analysis. These include quantifier scope facts, island facts, and interaction of narrow focus with neg-words. In the remainder of this section, each of these is addressed in more detail. Accordingly, the syntactic structure I am working to motivate in this section is shown in (240), based on the reply in (236) above:
Starting with the quantifier scope facts, narrowly focused constituents align with their in-situ counterparts with respect to scope, which suggests that they, too, are found in situ. It is worth reiterating that, in general, surface scope is strongly preferred in Georgian; inverse scope may be available in a context that favors it and/or if it is accompanied by particular prosodic cues that signal inverse scope. While the details of scope taking in Georgian require further investigation, what they make clear is that surface scope is the default and deviating from it in order to achieve inverse scope requires additional means. In line with this, direct objects in broad focus contexts have narrow scope, as compared with structurally higher adverbs. To illustrate, the utterance in (241) is more naturally interpreted as describing the situation in which a professor usually calls on more than three students (i.e., rarely calls on less than three; $\text{ADV} > \text{NUM}$), as opposed to the situation in which there are less than three students such that the professor rarely calls on them ($?\text{NUM} > \text{ADV}$).

(241) \textit{Masc’avlebel-i išviatad sam-ze nak’leb st’udent’-s mo-u-c’od-eb-s.}  
\textit{teacher-NOM seldom three-on less student-DAT PRV-VER-call-SF-PRS.3SG}  
\textit{‘The teacher seldom calls on fewer than three students.’}  
(\text{ADV} > \text{NUM}; ?\text{NUM} > \text{ADV})
Similarly, narrowly focused constituents have narrow scope as compared to the topicalized constituents (with the option for broad/inverse scope strongly degraded):

(242) A: Masc’avlebel-i ramden st’udent’-s mo-u-c’od-eb-s (xolme) išviatad?
teacher-NOM how_many student-DAT PRV-VER-call-SF-PRS.3SG habitually seldom
‘How many students does the teacher seldom call on?’

B: Masc’avlebel-i išviatad sam-ze nak’leb st’udent’-s mo-u-c’od-eb-s.
teacher-NOM seldom three-on less student-DAT PRV-VER-call-SF-PRS.3SG
‘The teacher seldom calls on fewer than three students.’

The fact that narrowly focused constituents align with their counterparts in broad focus declaratives with respect to their scope properties suggests that they also are found in situ, as opposed to a Spec-Head configuration with the verb, which would be found higher in the clause. More specifically, if the structure employed in (242) resulted from a Spec-Head configuration, this configuration would be found above an adverb such as išviatad, at the top of the vP or between the vP and TP domains. Accordingly, the focused constituent would be able to scope over the adverb. However, such a reading is ruled out.

With respect to island effects, let us consider relative clause (RC) islands. Only a subset of focus types – namely, constituents modified by focus-inducing particles and corrective foci, but crucially not constituents in a reply to a WHQ that correspond to the wh-phrase in a WHQ – can be embedded in a RC. This is because the latter context would require the corresponding wh-expression in the preceding wh-question to also be embedded in a RC. This is ungrammatical in Georgian, as was shown in Chapter 5. In contrast, corrective foci or narrow foci resulting from association with a focus-inducing particle do not have to be preceded by a WHQ. Such foci can be placed in RCs, as shown in (243) and (244), respectively.

(243) A: Marik’a-m i-q’id-a c’ind-eb-i [RC romeli-c Nino-m
M.-ERG VER-buy-AOR.3SG socks-PL-NOM which-COMP N.-ERG
mo-ksov-a].
PRV-knit-AOR.3SG
‘Marika bought the socks that Nino knitted.’
These examples also provide evidence that narrow foci are interpreted in situ: if their interpretation involved movement, placing them inside a strong island, such as a RC, would result in ungrammaticality.

Moving on to Georgian-specific evidence for in-situ interpretation of narrow focus in IPrP, let us consider the interaction of narrow foci and neg-words. Recall that neg-words also have a requirement to surface in the IPrP, as was shown in Chapter 4, but, at the same time neg-words are necessarily found in situ, since their non-referential nature does not allow them to dislocate. The reasoning for this view that was presented in Section 2 in Chapter 4 is as follows. Changes in the base order of arguments and adjuncts have information structural consequences; furthermore, there are only two types of such word order changes: topicalization and narrow focalization. In Chapter 4 I showed that, given their non-referential semantic nature, neg-words cannot undergo topicalization/displacement into the left or right periphery. This means that, setting aside a scenario where the neg-word itself carries narrow focus, neg-words are found in situ. With that in mind, neg-word placement in narrow focus contexts reveals important generalizations with respect to focus placement – as it did for wh-phrases, though the two mutual distributions are different.

Let us consider a context with a narrowly focused subject and a neg-word direct object (DO). Before delving into that though, first consider a benchmark context not involving neg-words, shown in (245), in order to remind ourselves the default distribution of constituents in a clause with a preverbal narrow focus.
As shown in (245), a (non-negative) direct object can surface either in the postverbal domain, as in (B), or to the left of the narrowly focused subject in the IPrP, as in (B'):

(245) A: \textit{Dghes vin ar i-q’id-a p’amidor-eb-i?}  
\textit{today who NEG VER-buy-AOR.3SG tomato-PL-NOM}  
‘Who didn’t buy tomatoes today?’

\begin{verbatim}
B: Dghes Mariam-ma ar i-q’id-a p’amidor-eb-i.
\end{verbatim}
\textit{today M.-ERG NEG VER-buy-AOR.3SG tomato-PL-NOM}  
‘Mariami didn’t buy tomatoes today.’

\begin{verbatim}
B': Dghes p’amidor-eb-i Mariam-ma ar i-q’id-a.
\end{verbatim}
\textit{today tomato-PL-NOM M.-ERG NEG VER-buy-AOR.3SG}  
‘Mariami didn’t buy tomatoes today.’

Compare that with a parallel context in which the DO is a neg-word, as shown in (246). Here, the DO neg-word \textit{araperi} ‘nothing’ cannot precede a narrowly focused subject, because that would involve a derived position of the neg-word, which is disallowed in Georgian. In contrast, leaving \textit{araperi} ‘nothing’ in its base position in the postverbal domain is allowed:

(246) A: \textit{Dghes vin ar i-q’id-a ara-per-i?}  
\textit{today who NEG VER-buy-AOR.3SG NEG-thing-NOM}  
‘Who bought nothing today?’

\begin{verbatim}
B: Dghes Mariam-ma ar i-q’id-a ara-per-i.
\end{verbatim}
\textit{today M.-ERG NEG VER-buy-AOR.3SG NEG-thing-NOM}  
‘Mariami bought nothing today.’

\begin{verbatim}
B':* Dghes ara-per-i Mariam-ma ar i-q’id-a.
\end{verbatim}
\textit{today NEG-thing-NOM M.-ERG NEG VER-buy-AOR.3SG}  
(‘Mariami bought nothing today.’)

Taken together, (245) and (246) show that non-focal non-negative DOs such as \textit{p’amidorebi} ‘tomatoes’ can surface to the left of the focused subject in the IPrP or in the postverbal domain. This contrasts with their non-focal neg-word counterparts, as in (B) in (246), which can only be found in the postverbal domain, but not preceding the narrowly focused subject in the IPrP. Now, the fact that the neg-word is interpreted
in situ here does not provide definitive evidence for the structural position of the focus and the verb: both an in-situ interpretation of focus (accompanied by movement of the verb to v, which derives postverbal placement of the neg-word), and movement of both elements, focus and the verb, to PredP would result in the same linearization in this case.

With that in mind, consider a context with a narrowly focused DO and a neg-word subject. Before that though, let us review what the same context would look like without neg-words. An example with a narrowly focused DO and a non-negative subject is provided in (247). As the reader can see, a non-negative subject can surface either to the left of the narrowly focused DO in the IPrP, or in the postverbal domain:

(247) A: *Dghes ra ar i-q’id-a* Nino-m?
   today what NEG VER-buy-AOR.3SG N.-ERG
   ‘What didn’t Nino buy today?’

   B: *Dghes Nino-m p’amidor-eb-i ar i-q’id-a.*
   today N.-ERG tomato-PL-NOM NEG VER-buy-AOR.3SG
   ‘Nino didn’t buy tomatoes today.’

   B’: *Dghes p’amidor-eb-i ar i-q’id-a* Nino-m.
   today tomato-PL-NOM NEG VER-buy-AOR.3SG N.-ERG
   ‘Nino didn’t buy tomatoes today.’

Now, compare (247) with a parallel context, in which the non-focal subject is a neg-word, as in the replies B and B’ in (248). Here, the subject neg-word *aravin* ‘no-one’ can precede a narrowly focused DO. In contrast, postverbal placement of *aravin* in the same context is degraded – even though such placement would mirror the word order in the WHQ:

(248) A: *Dghes ra ar i-q’id-a* ara-vin?
   today what NEG VER-buy-AOR.3SG NEG-who
   ‘What did no-one buy today?’

   B: *Dghes ara-vin p’amidor-eb-i ar i-q’id-a.*
   today NEG-who tomato-PL-NOM NEG VER-buy-AOR.3SG
   ‘No-one bought tomatoes today.’
B':??Dghes  p'amidor-eb-i  ar  i-q'id-a  ara-vin.
today  tomato-PL-NOM  NEG  VER-buy-AOR.3SG  NEG-who

‘No-one bought tomatoes today.’

What follows from this distribution? While (247) shows that non-negative non-focal subjects, such as Ninom, have considerable freedom with respect to their position in the clause, (248) shows that this is not so for neg-word subjects, such as aravin ‘no-one’. Specifically, the only possible word order in the reply to the WHQ in (248) is with the subject neg-word to the left of the narrowly focused direct object. This contrasts with what we have seen in wh-questions, in which neg-words, regardless of their thematic role, cannot linearly precede wh-phrases; the reader is reminded of the wh-phrase and neg-word interaction facts in (249) and (250):

(249) a.  Dghes  ra  ar  i-q'id-a  ara-vin?  
today  what  NEG  VER-buy-AOR.3SG  NEG-who

‘What did no-one buy today?’

b.  *  Dghes  ara-vin  ra  (ar)  i-q'id-a?  
today  NEG-who  what  NEG  VER-buy-AOR.3SG

(‘What did no-one buy today?’)

c.  *  Ara-vin  dghes  ra  (ar)  i-q'id-a?  
NEG-who  today  what  NEG  VER-buy-AOR.3SG

(‘What did no-one buy today?’)

(250) a.  Dghes  vin  ar  i-q'id-a  ara-peri?  
today  who  NEG  VER-buy-AOR.3SG  NEG-what

‘Who bought nothing today?’

b.  *  Dghes  ara-peri  vin  (ar)  i-q'id-a?  
today  NEG-what  who  NEG  VER-buy-AOR.3SG

(‘Who bought nothing today?’)

c.  *  Ara-peri  dghes  vin  (ar)  i-q'id-a?  
NEG-what  today  who  NEG  VER-buy-AOR.3SG

(‘Who bought nothing today?’)
Now, consider (246), (248), (249) and (250) together. Keeping in mind that the position of the neg-word is identical in both narrow focus contexts and wh-questions, given that, as we have established, neg-words do not leave their in-situ position, these example provide evidence that the structure underlying narrow foci is crucially different from that underlying wh-questions.

What is the exact difference, then? Observe that the word order in the felicitous reply (B) in (248) is identical to the neutral SOV order that would be found in a broad focus context. Furthermore, we know that the neg-word is found in situ. This, in turn, means that narrow focus and the verb are found very low in the structure – i.e., in their in-situ positions. The derivation of (B) in (248) is provided in (251):

(251)

```
(251) CP
   | AdvP Dghes 'today'
   | CP C ...
   | AspP Asp vP
   | NP aravin 'no-one'
   | vP VP
   | NP p'amidorebi 'tomatoes'
   | V ar iq'ida 'NEG bought'
```

To recap, the evidence that has been provided in this section provides strong support for the hypothesis that narrowly focused constituents, like neg-words, are found in situ.

This hypothesis is further supported by the fact that some speakers allow for DO neg-words to intervene between a focused subject and the verb, which corresponds to the default SOV word order, and means that both the focused subject and the neg-word are found in their base positions:
In contrast, the same word order, narrow focus > neg-word > verb, is impossible when the theta roles are reversed – that is, with a subject neg-word intervening between a focused DO and the verb. This is expected under the current proposal, since in such a word order neither of the verbal arguments would be found in situ:

(253) A: *Ghvino ara-vin ar i-q’id-a.
wine.NOM NEG-who NEG VER-buy-AOR.3SG
(‘No-one bought wine.’)
In contrast, when a RC modifies a noun phrase that bears narrow focus, RC dislocation is obligatory:

\[(255)\]

A: *Vin i-mgher-a teatr-ši gušin?*

who VER-sing.AOR.3SG theater-IN yesterday

‘Who sang at the theater yesterday?’

B: *Es axalgazrda kal-ma, i-mgher-a, i-mgher-a.*

DEM young woman-ERG which-ERG-COMP pearl-PL-NOM

‘This young woman, who has pearls in her hair, sang.’

B’: *Es axalgazrda kal-ma, i-mgher-a.*

DEM young woman-ERG

‘This young woman, who has pearls in her hair, sang.’

The same generalization holds for postpositional phrases (PPs) that modify noun phrases. Here, too, dislocating a PP that modifies a non-narrowly focused phrase results in degraded judgments (though the judgements are not as sharp as with the dislocation of a RC in (254) and (255)):

\[(256)\]

A: *Ra xd-eb-od-a mezobl-is bagh-ši gušin?*

what happen-SF-SM-IPFV.3SG neighbor-GEN garden-in yesterday

‘What happened at the neighbor’s garden yesterday?’
Building on the work on split nominal phrases in German, in particular by Frey (2000) and Ott (2012; 2015), Fuchs (2016) suggests that Georgian only allows split nominal phrases in those cases where one of the two parts of the split phrase carries narrow focus. This approach fits well with the Georgian data in examples in (255) and (257), under the in-situ interpretation analysis: when a constituent modified by a RC or PP is focused, the RC/PP surfaces in the postverbal domain, like other familiarity topics. The evidence from RC/PP dislocation, then, fits well with the in-situ analysis of focus placement.

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69 There is independent evidence suggesting that Georgian does not allow sub-extraction from nominal phrases (Fuchs 2016). In line with that, both ‘pieces’ of the split nominal phrase are merged in full, with subsequent partial deletion.
Finally, before wrapping up the discussion of preverbal narrow foci, let us briefly consider narrow foci in the IPrP with respect to their binding properties. Recall from Chapter 1 that scrambling of the indirect object (IO) and direct object (DO) does not affect the binding relations between them: namely, the IO binds the DO with either word order (while the opposite, the DO binding the IO, is impossible):

(258) a. Me Bakar-\textsubscript{s}\textsubscript{i} [tavis\textsubscript{-}i \ tavi\textsubscript{-}i\textsubscript{]} agh-v-u-c’er-e.  
1SG B.-DAT 3REFL.GEN.SG-NOM self-NOM PRV-1SG-VER-write-AOR.3SG  
‘I described Bakar to himself.’ (Lit.: I to.Bakar himself described.)

b. Me [tavis\textsubscript{-}i \ tavi\textsubscript{-}i\textsubscript{]} Bakar-\textsubscript{s}\textsubscript{i} agh-v-u-c’er-e.  
1SG 3REFL.GEN.SG-NOM self-NOM B.-DAT PRV-1SG-VER-write-AOR.3SG  
‘I described Bakar to himself.’ (Lit.: I himself to.Bakar described.’)  
(Amiridze 2006: 57)

When the antecedent of the anaphor bears narrow focus, only the DO>IO word order is possible. This is expected, since narrow focus must be located in the IPrP and not further to the left of the verb:

(259) A: Šen vi-s agh-u-c’er-e tavis-i tavi?  
2SG who-DAT PRV-VER-write-AOR.2SG 3REFL.GEN.SG-NOM self-NOM  
‘Who did you describe to himself?’

B: Me [tavis\textsubscript{-}i \ tavi\textsubscript{-}i\textsubscript{]} Bakar-\textsubscript{s}\textsubscript{i} agh-v-u-c’er-e.  
1SG 3REFL.GEN.SG-NOM self-NOM B.-DAT PRV-1SG-VER-write-AOR.3SG  
‘I described Bakar to himself.’ (Lit.: I himself to.Bakar described.’)

B’:* Me Bakar-\textsubscript{s}\textsubscript{i} [tavis\textsubscript{-}i \ tavi\textsubscript{-}i\textsubscript{]} agh-v-u-c’er-e.  
1SG B.-DAT 3REFL.GEN.SG-NOM self-NOM PRV-1SG-VER-write-AOR.3SG  
‘I described Bakar to himself.’ (Lit.: I to.Bakar himself described.’)

The pattern in (259) means that the word order permutation that occurs in order to achieve preverbal placement of the narrowly focused constituent does not disrupt the existing anaphoric dependency between Bakars and tavisi tavi\textsuperscript{70} Anticipating the discussion in Section 5.1.2, note that preverbal foci and postverbal foci align in this property.

\textsuperscript{70} Note that the nominal anaphor tavisis tavi exhibits more flexibility with respect to word order changes than the possessive anaphor tavis-i, which was discussed in Section 1 of Chapter 4; see Amiridze (2006) for a detailed analysis of both types of anaphors in Georgian.
Overall, as this section shows, the evidence from quantifier scope facts, island facts, interaction of narrow focus with neg-words, and obligatory extraposition of postpositional phrases (PPs) and relative clauses (RCs) that modify a narrowly focused constituent, combined together, provides strong support to the in-situ interpretation of narrow focus in the IPrP, as opposed to a derivation based on a Spec-Head configuration.

5.1.2 Postverbal narrow foci

As was shown in Section 3 in the current chapter, in contrast with many languages of the same typological profile, Georgian also allows for placement of some narrowly focused items in the immediately postverbal position (henceforth IPoP) – in addition to the IPrP, as was described in detail above. Specifically, narrow foci in replies to WHQs are often found in the IPoP, as was shown in (207) and repeated in (260) below. Recall that there is no discernable difference in interpretation of IPoP foci, as compared to their IPrP counterparts, other than the possible notion of greater confidence in their answer on the speaker’s behalf, as was discussed in Section 3.1.

(260) A: Gušin dila-s bebia ra-s a-lag-eb-d-a? = (207)
   yesterday morning-DAT grandma.NOM what-DAT VER-clean-SF-SM-IPFV.3SG
   ‘What did grandma clean yesterday morning?’
B: Gušin dila-s bebi-a a-lag-eb-d-a samzareulo-s.
   yesterday morning-DAT grandma.NOM VER-clean-SF-SM-IPFV.3SG kitchen-DAT
   ‘Yesterday morning grandma cleaned the kitchen.’

Similarly, contrastive foci may also be found in the IPoP, similarly to postverbal foci in Basque, and in contrast with most other verb-final languages (more on parallelism with Basque below):

(261) A: Mariam-i gharib-d-a šaršan. = (214)
   M.-NOM PRV-grow_poor-SM-AOR.3SG last_year
   ‘Mariami grew poor last year.’
B: Ara, šaršan gharib-d-a Levan-i.
   no last_year PRV-grow_poor-SM-AOR.3SG L.-NOM
   ‘No, LEVANI grew poor last year.’
However, constituents modified by focus-sensitive particles such as *even* and *only*, for most speakers, are infelicitous in the IPoP:

(262) \% Manana-
\mbox{\textit{m}} i-q’id-a \textit{mxolod} \textit{vašl-eb-i}.
\begin{tabular}{llll}
M.	ext{-ERG} & VER-buy-AOR.3SG & only & apple-PL-NOM
\end{tabular}
\begin{tabular}{l}
‘Manana bought only apples.’
\end{tabular}

Furthermore, as already discussed in Section 3.1 in the current chapter, there is a strong preference for no other elements to surface postverbally when the IPoP is filled by a narrowly focused constituent. Because of that, it is not immediately obvious whether the requirement is for focus in the IPoP to be adjacent to the verb or to be clause-final. As (263) shows, focus in the IPoP, in fact, must be both verb-adjacent and clause-final; violating either of the requirements leads to degraded judgements:

(263) A: Šen \textit{vin} agh-u-c’er-e Bakar-s?
\begin{tabular}{llll}
2SG & who & PRV-VER-write-AOR.2SG & B.-DAT
\end{tabular}
\begin{tabular}{l}
‘Who did you describe to Bakar?’
\end{tabular}

B: \textit{Bakar-s me agh-v-u-c’er-e Marik’a}.
\begin{tabular}{llll}
B.-DAT & 1SG & PRV-1SG-VER-write-AOR.3SG & M.-NOM
\end{tabular}
\begin{tabular}{l}
‘I described Marika to Bakar.’ (Lit.: I Marika to.Bakar described.)
\end{tabular}

B’:*\textit{Me agh-v-u-c’er-e Marik’a Bakar-s}.
\begin{tabular}{llll}
1SG & PRV-1SG-VER-write-AOR.3SG & M.-NOM & B.-DAT
\end{tabular}
\begin{tabular}{l}
‘I described Marika to Bakar.’ (Lit.: I Marika to.Bakar described.)
\end{tabular}

B’:*\textit{Me agh-v-u-c’er-e Marik’a Bakar-s}.
\begin{tabular}{llll}
1SG & PRV-1SG-VER-write-AOR.3SG & B.-DAT & M.-NOM
\end{tabular}
\begin{tabular}{l}
‘I described Marika to Bakar.’ (Lit.: I Marika to.Bakar described.)
\end{tabular}

The same preference obtains even when there is more than one postverbal element in the wh-question that precedes the narrow focus context: in a reply to such a question, if the IPoP is chosen as the locus for the postverbal element, there is a strong preference to only have the focused element in the postverbal domain – as opposed to mirroring the word order in the WHQ:
The IPrP and IPoP exhibit remarkable similarities with respect to phenomena such as binding, quantifier scope, island facts, interaction of narrow focus with neg-words, and obligatory extraposition of postpositional phrases (PPs) and relative clauses (RCs) that are associated with a narrowly focused constituent. In the remainder of this section, each of these factors is considered separately. Based on this evidence, I propose that postverbal foci are (i) adjoined (low) on the right side of the clausal spine, as shown in (265) for the example in (260). The main alternatives to this analysis are the following two: (ii) postverbal foci obtained in a Spec-Head configuration, but with a right-hand specifier and (iii) postverbal foci as interpreted in situ, accompanied by verb raising, which derives the VO word order (in a parallel fashion to the derivation of neutral VO that I adopt).

(265)

```
CP
  AdvP Gušín dilas 'yesterday morning'
    CP C TP ...
      VoiceP
        NP bebia 'grandma'
          Voice vP
            ApplP
              VP NP samzareulosi
               V alagebda 'kitchen'
```
Moving on to the evidence that bears on the question, consider anaphor binding. Just as binding relations are unaltered when one of the members of the anaphoric relationship is narrowly focused in the IPrP, as was shown in (259), the binding relations are also preserved when either the anaphor (266) or the antecedent (267) is focused in the IPoP:

(266) A: Šen vin agh-u-c’er-e Bakar-s?  
2SG who PRV-VER-write-AOR.2SG B.-DAT  
‘Who did you describe to Bakar?’

B: Me Bakar-sì agh-v-u-c’er-e [tavis-i tav-i].  
1SG B.-DAT PRV-1SG-VER-write-AOR.3SG 3REFL.GEN.SG-NOM self-NOM  
‘I described Bakar to himself.’ (Lit.: I himself to.Bakar described.)

(267) A: Šen vi-s agh-u-c’er-e tavis-i tavi?  
2SG who-DAT PRV-VER-write-AOR.2SG 3REFL.GEN.SG-NOM self-NOM  
‘Who did you describe to himself?’

B: Me [tavis-i tav-i]. agh-v-u-c’er-e Bakar-sì.  
1SG 3REFL.GEN.SG-NOM self-NOM PRV-1SG-VER-write-AOR.3SG B.-DAT  
‘I described Bakar to himself.’ (Lit.: I himself to.Bakar described.)

In this respect, narrow foci in the IPoP are identical to preverbal foci, and also to their counterparts in broad focus contexts.

Second, when it comes to quantifier scope, narrow foci in the IPoP, again, behave in a parallel fashion to narrow foci in the IPrP: that is, they receive narrow/surface scope; cf. (242) for the IPrP facts.

(268) A: Masc’avlebel-i ramden st’udonet-s mo-u-c’od-eb-s (xolme) išviatad?  
teacher-NOM how Many student-DAT PRV-VER-call-SF-PRS.3SG habitually seldom  
‘How many students does the teacher seldom call on?’

B: Masc’avlebel-i išviatad mo-u-c’od-eb-s sam-ze nak’leb st’udonet-s.  
teacher-NOM seldom PRV-VER-call-SF-PRS.3SG three-on less student-DAT  
‘The teacher seldom calls on fewer than three students.’  
(ADV > NUM; * NUM > ADV)
Furthermore, recall from Chapter 3 that preverbal and postverbal placement of DOs in neutral contexts (not narrowly focused) also are parallel in that they exhibit a strong preference for surface scope – i.e., narrow scope for the DO (though this does not translate into structural parallelism, as shown in (265) and argued for below).

Third, with respect to island constraints, corrective narrow foci placed in the IPoP can be embedded in a strong island, such as a RC, just as we saw for preverbal foci in Section 5.1.1:

(269) A:  Nana-m i-q’id-a c’ind-eb-i romeli-c  Nino-m mo-ksov-a.
   N.-ERG VER-buy-AOR.3SG socks-PL-NOM which-COMP N.-ERG PRV-knit-AOR.3SG
   ‘Nana bought the socks that Nino knitted.’

   B: Ara, Nan-m i-q’id-a c’ind-eb-i romeli-c mo-ksov-a
   no N.-ERG VER-buy-AOR.3SG socks-PL-NOM which-COMP PRV-knit-AOR.3SG
   Nini-m.
   N.-ERG
   ‘No, Nana bought the socks that Nini knitted.’

There is more inter-speaker variation when it comes to constituents accompanied by focus-inducing particles placed in the IPoP: such foci are accepted only by a subset of speakers. This is consistent with what we have seen for the same type of constituents not embedded in an island in (262), which were also degraded:

(270) %Marik’a-m i-q’id-a c’ind-eb-i romeli-c mo-ksov-a mxolod
   M.-ERG VER-buy-AOR.3SG socks-PL-NOM which-COMP PRV-knit-AOR.3SG only
   Nana-m.
   N.-ERG
   ‘Marika bought the socks that only Nana knitted.’

Next, evidence for the adjunct status of postverbal foci comes from their interaction with preverbal neg-words (recall that postverbal foci and postverbal neg-words do not co-occur). As was shown in Section 5.1.1, preverbal foci do not allow for neg-words to appear to their left, unless the neg-word is found in situ, such as a subject neg-word with a narrowly focused DO, since it would involve topicalization of the neg-word:
In contrast, postverbal focus in contexts such as these is felicitous with a preverbal neg-word:

(272) A: *\textit{Dghes ara-per-i Mariam-ma ar i-q’id-a.} \\
\hspace{1em} \text{today NEG-thing-NOM M.-ERG NEG VER-buy-AOR.3SG} \\
\hspace{1em} \text{‘Mariami bought nothing today.’}

B: \textit{Dghes araperi Mariam-ma ar i-q’id-a.} \\
\hspace{1em} \text{today NEG-thing-NOM M.-ERG NEG VER-buy-AOR.3SG} \\
\hspace{1em} \text{‘Mariami bought nothing today.’}

Under the approach adopted here, the contrast between (271) and (272) is expected, with (272) providing crucial support for the low adjunct status of a narrow focus in the IPoP. Let us unpack the evidence. To recap, the reply (B) in (271) is infelicitous, because preverbal narrow foci are interpreted in situ, and consequently, placement of object neg-word to the left of the preverbal focus can only result from topicalization of the neg-word, which is ruled out – hence the infelicity. If (B) in (272) were to rely on \textit{Mariamma} being placed into a right-hand specifier, or being interpreted in situ, accompanied by verb raising (analytical options (ii) and (iii) from above, respectively), (B) in (272) would be expected to be infelicitous too, given that both of these options reply on topicalization of \textit{araperi}, just as (B) in (271) does. However, (B) in (272) is perfectly acceptable. The reason for that, I propose, is that \textit{araperi} in (B) in (272) is interpreted in situ, with \textit{Mariamma} adjoined on the right side of the clausal spine. The syntactic representation of that is provided in (273):
Finally, consider the behavior of postpositional phrases (PPs) and relative clauses (RCs) that modify postverbal narrow foci. Recall that we have seen obligatory PP/RC dislocation in preverbal narrow focus contexts, if the PP/RC modifies the narrowly focused constituent in the IPrP, as was shown in Section 5.1.1. This contrasts with contexts in which the preverbal constituent does not bear narrow focus, in which case the PP/RC undergoing dislocation is strongly degraded. In the postverbal domain, the picture is different, but for an independent reason mentioned above: there is a salient preference for no other constituents to appear in the postverbal domain if the IPoP houses a narrowly focused constituent.

To start with a broad-focus baseline, when the constituent in the IPoP is not narrowly focused, PP/RC dislocation is not felicitous:

(274) a. *Me gušin bagh-ši v-nax-e kal-i [PP q ’vavil-eb-it xel-ši].
    1SG yesterday garden-in 1SG-see-AOR.1SG woman-NOM flower-PL-with
    hand-in
    ‘I saw a woman with flowers in her hand in the garden yesterday.’
b. ??Me v-nax-e kal-i gušin bagh-ši [PP q ’vavil-eb-it xel-ši].
   1SG 1SG-see-AOR woman-NOM yesterday garden-in flower-PL-with hand-in
   ‘I saw a woman with flowers in her hand in the garden yesterday.’

(275) a. Nik’o-m nax-a teatr-ši gušin kal-i [RC romel-s-a-c
   N.-ERG see-AOR.3SG theater-in yesterday woman-NOM which-DAT-EV-COMP
   h-kon-d-a margalit-’eb-i tma-ši].
   3SG-have-SM-AOR.3SG pearl-PL-NOM hair-in
   ‘Niko saw a woman who had pearls in her hair at the theater yesterday.’

b. ??Nik’o-m nax-a kal-i teatr-ši gušin,
   N.-ERG see-AOR.3SG woman-NOM theater-in yesterday
   [RC romel-s-a-c h-kon-d-a margalit-’eb-i tma-ši].
   which-DAT-EV-COMP 3SG-have-SM-AOR.3SG pearl-PL-NOM hair-in
   ‘Niko saw a woman who had pearls in her hair at the theater yesterday.’

However, when the constituent in the IPoP carries narrow focus, it cannot be accompanied by either a
   dislocated or a non-dislocated PP/RC. The reason for this has been discussed above: with a narrowly
   focused constituent in the IPoP, no other constituent can appear in the postverbal domain. The only way to
   make these examples grammatical is to place the narrowly focused constituent into the IPrP, dissociating it
   from the RC/PP in the postverbal domain:

(276) A: Vin nax-e mezobl-is bagh-ši gušin?
   who see-AOR.2SG neighbor-GEN garden-in yesterday
   ‘Who did you see in the neighbor’s garden yesterday?’

B: * (Me) v-nax-e kal-i gušin [PP q ’vavil-eb-it xel-ši].
   1SG 1SG-see-AOR woman-NOM yesterday flower-PL-with hand-in
   (‘I saw a woman with flowers in her hand in the garden.’)

B’:* (Me) v-nax-e kal-i [PP q ’vavil-eb-it xel-ši]; gušin.
   1SG 1SG-see-AOR woman-NOM flower-PL-with hand-in yesterday
   (‘I saw a woman with flowers in her hand in the garden.’)

(277) A: Nik’o-m vin nax-a teatr-ši gušin?
   N.-ERG who see-AOR.3SG theater-in yesterday
   ‘Who did Niko see at the theater yesterday?’
B:??Nik’o-m nax-a kal-i, teatr-ši gušin, [RC romel-s-a-c
N.-ERG see-AOR.3SG woman-NOM theater-in yesterday which-DAT-EV-COMP
h-kon-d-a marginal-eb-i tma-ši].
3SG-have-SM-AOR.3SG pearl-PL-NOM hair-in

B:* Nik’o-m nax-a teatr-ši gušin kal-i,
N.-ERG see-AOR.3SG theater-in yesterday woman-NOM
[RC romel-s-a-c h-kon-d-a marginal-eb-i tma-ši].
which-DAT-EV-COMP 3SG-have-SM-AOR.3SG pearl-PL-NOM hair-in
(‘Niko saw a woman who had pearls in her hair at the theater yesterday.’)

It is not immediately clear what the preference for postverbal focus to be the only element in the postverbal domain stems from. It is likely, though, that the reason is non-syntactic in nature. Instead, it likely stems from the communicative need to make postverbal focus salient, and placing it into the postverbal domain by itself is a means to that end.

As the examples from binding, quantifier scope, island facts, and PP/RC dislocation show, postverbal foci are parallel to preverbal foci in their syntactic properties, which bears on the possible analytical approach to postverbal foci. First of all, this means that option (ii) considered in the beginning of this section, the Spec-Head configuration, is not a plausible analysis for postverbal foci, for the same reasons that it was implausible for preverbal foci. Moreover, the Spec-Head configuration, in order to achieve the right word order, would involve a right-hand specifier – a theoretical concept with a controversial status (Ordóñez 1998; Cinque 2005; Kayne). However, ruling out a Spec-Head configuration as a possible analysis for postverbal foci does not leave us with just one, in-situ alternative, as was the case for preverbal foci. Instead, recall that there are two other possibilities to consider: (i) postverbal foci as adjoined on the right and (iii) postverbal foci as interpreted in situ, accompanied by verb raising, which derives the VO word order.

Some diagnostics that would allow us to tease apart these two notions, unfortunately, are not available in Georgian. For instance, as already mentioned, Georgian does not allow sub-extraction (Fuchs 2016), which means that there is no way to use island constraints as a diagnostic. This leaves us with possible tests
relying on scope and binding facts to determine whether postverbal foci are adjoined on the right or interpreted in situ.

As was already shown, narrow foci in the IPrP and IPoP both scope below a low preverbal adverb. This excludes the possibility of high adjunction. Similarly, both preverbal and postverbal foci scope below negation (while the same word orders in broad-focus contexts allow for both scope readings). The relative scope of negation and preverbal and postverbal foci, respectively, can be used as a diagnostic for the position of postverbal focus, as was done by Ortiz de Urbina (2002) for Basque. Before proceeding to Georgian, consider the Basque data.

In Basque, the focused constituent is placed in the IPrP of the (fronted) auxiliary, as in (278), and scopes over the verbal negation marker:

(278) \[[Andoniri]\_Foc ez diot ardoa ekarri.\]
Andoni.to NEG AUX wine brought
‘I did not bring wine to Andoni.’
(=It is to Andoni that I did not bring wine; Andoni \(\succ\) NEG) \(\text{(Ortiz de Urbina 2002)}\)

Postverbal foci align in their scopal properties with preverbal foci:

(279) Ez diot ekarri ardoa [Andoniri]\_Foc.
NEG AUX brought wine Andoni.to
‘I did not bring the wine to Andoni.’
(=It is to Andoni that I did not bring wine; Andoni \(\succ\) NEG) \(\text{(Ortiz de Urbina 2002)}\)

Based on the data shown in (278) and (279), Ortiz de Urbina (2002) concludes that postverbal focus in Basque undergoes movement to a special projection and occupies the same position that preverbal (pre-auxiliary) focus does. The surface word order results from remnant movement of the other material over the focus in cases like (279). This is shown in (280):\(^{71}\)

\(^{71}\) The word order permutation within the FocP has no bearing on the analysis at hand.
In Georgian, the results of the test are both similar and different, and, I propose, they have a different analytical import. Specifically, both preverbal and postverbal foci scope above verbal negation in Georgian:

(281) A: \textit{Vi-s ar mo-u-t’an-a ghvino Levan-ma?}  
\begin{tabular}{l}
\text{who-DAT NEG PRV-VER-bring-AOR.3SG wine.NOM L.-ERG} \\
\text{‘For whom did Levani not bring wine?’}
\end{tabular}

B: \textit{Levan-ma Nino-s ar mo-u-t’an-a ghvino.}  
\begin{tabular}{l}
\text{L.-ERG N.-DAT NEG PRV-VER-bring-AOR.3SG wine.NOM} \\
\text{‘Levani did not bring wine for Nino.’} \\
\text{(=It is for Nino that Levani did not bring wine; Nino > NEG)} \\
\text{(*=It is not the case that Levani brought wine for Nino; *NEG > Nino)}
\end{tabular}

B”: \textit{Levan-ma ghvino ar mo-u-t’an-a Nino-s.}  
\begin{tabular}{l}
\text{L.-ERG wine.NOM NEG PRV-VER-bring-AOR.3SG N.-DAT} \\
\text{‘Levani did not bring wine for Nino.’} \\
\text{(=It is for Nino that Levani did not bring wine; Nino > NEG)} \\
\text{(*=It is not the case that Levani brought wine for Nino; *NEG > Nino)}
\end{tabular}

However, an analysis completely parallel to the one proposed for Basque, with movement of narrow foci to a dedicated projection, followed by remnant movement of the other material to the left of the focused constituent, does not apply to Georgian. The main reason is that, as we have seen, narrow foci do not raise to a dedicated projection in Georgian. Without the movement of the focus to a dedicated projection, the
remnant movement-style analysis, with the rest of the clause moving over the focused constituent, is impossible.

The only remaining plausible alternative for Georgian postverbal foci, therefore, is adjunction on the right, as was shown in (260) and (265) above, repeated as (282) and (283) below.

(282) A:  
\[
\text{Gušin dila-s bebia ra-s a-lag-eb-d-a?} = (64)
\]
\[
\text{yesterday morning-DAT grandma.NOM what-DAT VER-clean-SF-SM-IPFV.3SG}
\]
\[
\text{‘What did grandma clean yesterday morning?’}
\]

B:  
\[
\text{Gušin dila-s bebi-a a-lag-eb-d-a samzareulo-s.}
\]
\[
\text{yesterday morning-DAT grandma.NOM VER-clean-SF-SM-IPFV.3SG kitchen-DAT}
\]
\[
\text{‘Yesterday morning grandma cleaned the kitchen.’}
\]

The adjunction site of postverbal focus being low, at the level of VP, as was shown in (265) and is repeated below in (283), explains the fact that postverbal foci align with their preverbal counterparts in their scope properties. The same strategy has been proposed for postverbal foci in Old High German (Hinterhölzl & Petrova 2018; Fuß 2018) and Early New High German (Bies 1996) – verb-final languages that, like Georgian, and in contrast with most verb-final languages, allow for postverbal foci.

(283)  
\[
\text{=(265)}
\]
Note also that taking the adjunction approach means that the two focus positions in Georgian, the preverbal and postverbal ones, may differ in some of their information-structural properties. As we have seen, this is indeed the case: only a subset of narrow foci that appear preverbally are also allowed in the postverbal domain. Namely, most speakers do not allow constituents modified by focus-inducing particles such as *only* and *even* in the IPoP. The reason for this restriction is not immediately clear, since other exhaustively interpreted foci (not modified by the focus-inducing particles) are allowed in the postverbal domain. Furthermore, there is the additional pragmatic effect of speaker’s confidence in the information that they are conveying that is associated with postverbal foci, as opposed to preverbal foci. This latter interpretive component is compatible with the presupposition of existence over the null pronominal co-indexed with the right-adjointed focus. The null pronominal creates an expectation of a closed set, and the right-adjointed focus expression serves as a definitive indication of which element of that set is selected.

The adjunction analysis for postverbal foci proposed here also aligns well with typological and diachronic facts. Recall from Section 3.1 that postverbal focus placement is not commonly found in verb-final languages, but it is not unprecedented. As already discussed, postverbal placement of contrastively focused constituents is found in Basque, and postverbal placement of new information/informational foci is found in Old High German, Early New High German, and Ossetic. Note that in all of these verb-final languages, the constituents that are allowed in the postverbal domain have a particular information-structural status, such as contrastive or new – as opposed to any kind of a constituent in a broad focus context. As proposed by É. Kiss (2014a), allowing objects that contribute new information to appear in the postverbal domain was what facilitated the switch from SOV to SVO as the basic word order in Old Hungarian. According to her analysis, the dislocated position of the object was subsequently reanalyzed as the underlying one, leading to the headedness switch. The switch in headedness in Old Hungarian, therefore, started with new information object foci appearing in a VO configuration, and the VO configuration subsequently reanalyzed as a broad focus one.
In Georgian, the situation is somewhat different, according to the analysis proposed here. Specifically, Georgian allows SVO as the neutral word order. At the same time, Georgian places certain restrictions on the types of foci that can appear in the IPoP. The latter process resembles the one that has been described for Hungarian, with only certain constituents with a particular information structural status being allowed in the postverbal domain. However, in contrast with Hungarian, this process co-exists with all types of non-focal constituents being allowed postverbally. Additionally, in line with Neeleman’s (2015) analysis of a variety of a number of verb-final languages, and Skopeteas & Fanselow’s approach to Georgian VO, adopted here, I take broad focus VO in Georgian to be derived by short movement of the verb, as opposed to right-adjunction of the object.

Finally, recall that other verb-final languages, such as Turkish, only allow given material to appear in the postverbal domain. Taken together, the Georgian, (Old) Hungarian and Turkish evidence suggests that there is more than one way for verb-final languages to allow postverbal constituents: specifically, narrowly focused ones, topical ones, and non-focused/non-topical constituents may be allowed postverbally, depending on a language.

5.2 Participial small clauses

Recall from Section 3.2 that narrow foci (of the type found in replies to WHQs) in constructions with participial complements can appear in the IPrP or IPoP of the verb, or in the clause final-position, as was shown in (217) and (218) above, and is repeated as (284) below:

(284) A: Vi-s h-q’-av-s na-cem-i Giorgi?  
who-DAT 3SG-have-SF-3SG PTCP-hit-PTCP G.-NOM  
‘Who has hit Giorgi?’

B: Giorgi Mariam-s h-q’-av-s na-cem-i.  
G.-NOM M.-DAT 3SG-have-SF-3SG PTCP-hit-PTCP  
‘Mariami has hit Giorgi.’
B':  \textit{Giorg-i h-q' -av-s}  \textit{Mariam-s na-cem-i.}  
\begin{tabular}{lll}
G.-NOM & 3SG-have-SF-3SG & M.-dat \end{tabular}  
PTCP-hit-PTCP  
‘Mariami has hit Giorgi.’

B'':  \textit{Giorg-i h-q' -av-s}  \textit{na-cem-i}  \textit{Mariam-s.}  
\begin{tabular}{lll}
G.-NOM & 3SG-have-SF-3SG & M.-dat \end{tabular}  
PTCP-hit-PTCP  
‘Mariami has hit Giorgi.’

B''':  \textit{Giorg-i na-cem-i h-q' -av-s}  \textit{Mariam-s.}  
\begin{tabular}{lll}
G.-NOM & PTCP-hit-PTCP & 3SG-have-SF-3SG \end{tabular}  
M.-DAT  
‘Mariami has hit Giorgi.’

Contrastive foci and constituents modified by focus-inducing particles differ from the example above in that some speakers are less comfortable with their clause-final placement.

Recall from the discussion of wh-questions formed on the basis of clauses with participial complements in Chapter 5 that such clauses are structurally parallel to simple transitive clauses, with the only difference between the two pertaining to whether the complement of the verb is a nominal phrase or a small clause. Based on this parallel, I suggested that wh-question formation in clauses with participial complements is also parallel to that found in small clauses, which fits the data well. Namely, in both clause types, the wh-phrase undergoes movement to Spec, PredP, with the verb raising to Pred\(^0\).

Analytically, then, preverbal placement of narrow foci in clauses with participial complements should be parallel to that of narrow foci in simple clauses: in both structures, preverbal foci are found in situ, while postverbal ones are adjoined on the right side of the clausal spine. This is illustrated in (285) with a tree diagram for the reply (B) in (284). Note that the remnant of the participial complement in such a context is generated as an adjunct on the right side of the clausal spine, given its status of a familiarity topic, and co-indexed with a null pronominal in its thematic position. Since it was established in Section 5.3 in Chapter 3 that the derivation of the VO order via short movement of the verb is available in broad-focus contexts only, this option does not apply here.
Next, consider placement of narrow focus clause-medially, ‘sandwiched’ between the verbs *akvs/h ’qavs* ‘have’ and the participle, as in (B’) in (284). In line with the analysis for postverbal foci in simple clauses, the verb in such an utterance is found in situ, with postverbal focus adjoined on the right. The participial complement is also adjoined on the right, as was the case in reply (B) in (284), illustrated in (285). The structural representation of the reply (B’) in (284) is provided in (286):
The ordering of adjuncts in the postverbal domain is predicted to be free – therefore, from the point of view of the current analysis, it is not surprising that a reply such as (B") in (284) is also possible: in it, the order of postverbal adjuncts is the opposite from that found in (286). This is illustrated in (287):
Finally, as the reply (B'') in (284) shows, the narrowly focused constituent may be found in the absolutely clause-final position, following the verb, with the participial complement preceding the verb. Such a construction is derivationally simpler than the preceding two, with the verb and the participial complement both found in their base positions, and with the narrowly focused constituent adjoined on the right side of the clausal spine. The (relevant segment of the) tree for reply (B'') in (284) is provided in (288).

(288)

To recap, I argued in this section that the various word order found in clauses with participial complements in narrow focus contexts result from the interplay of two factors: in-situ interpretation or right-adjunction of the narrow focus, and in-situ interpretation or adjunction of the remnant of the participial phrase.

The analysis proposed here is also supported by neg-word data. Specifically, in clauses with participial complements neg-words are found in the IPrP of the verbs akvs/h’qavs ‘have’, which corresponds to their in-situ placement:

(289) a. Nik’o-s ara-vin h-q’-av-s na-cem-i sk’ola-št.
N.-DAT NEG-who 3SG-have-SF-3SG PTCP-hit-NOM school-in
‘Niko hasn’t hit anyone at school.’
b. * Nik’o-s  h-qi’av-s  sk’ola-ši  ara-vin  na-cem-i.  
N.-DAT 3SG-have-SF-3SG school-in NEG-who PTCP-hit-NOM  
(‘Niko hasn’t hit anyone at school.’)

c. * Ara-vi-s  Nik’o  h-qi’av-s  na-cem-i  sk’ola-ši.  
NEG-who-DAT N.NOM 3SG-have-SF-3SG PTCP-hit-NOM school-in
(‘No-one has hit Niko at school.’)

5.3 Clauses with a (non-finite) modal

Next, consider clauses formed by the modal unda ‘have to, must’ and a finite verb. Recall from Section 3.3 that the distribution of foci that we have seen in these types of utterances is the following: they can be placed into the IPrP of unda, or in the IPoP of the lexical verb; placement of foci into the IPoP of unda is avoided, especially for contrastive foci and those modified by focus-inducing particles. The general pattern is shown in (290), repeated from (221) (note that the other two types of focus are less felicitous in (B’)-type structures):

(290) A:  Ra  unda  v-nax-o-t  P’ragha-ši?  
what  MOD 1-see-OPT.1-PL Prague-in  
‘What do we have to see in Pargue?’

B:  P’ragha-ši  K’arl-is  xid-i  unda  v-nax-o-t.  
Prague-in Charles-GEN bridge-NOM MOD 1-see-OPT.1-PL  
‘We have to see Charles Bridge in Prague.’

B’: ?? P’ragha-ši  unda  K’arl-is  xid-i  v-nax-o-t.  
Prague-in MOD Charles-GEN bridge-NOM 1-see-OPT.1-PL  
‘We have to see Charles Bridge in Prague.’

B”: P’ragha-ši  unda  v-nax-o-t  K’arl-is  xid-i.  
Prague-in MOD 1-see-OPT.1-PL Charles-GEN bridge-NOM  
‘We have to see Charles Bridge in Prague.’

Recall from the discussion of WHQs formed on the basis of constructions with unda ‘have to, must’ in Chapter 5 that unda ‘have to, must’ originates in Aux⁰ and, in WHQs, undergoes movement to Pred⁰, with
the wh-phrase surfacing in its IPrP. As (290) shows, narrow foci in such constructions may behave like wh-phrases, or, alternatively, may be found in the clause-final position. Placement of narrow foci in the IPoP of *unda* ‘have to, must’, in turn, is degraded. Therefore, analytically, I propose that narrow foci in constructions with *unda* ‘have to, must’, like wh-phrases, are found in Spec, PredP, accompanied by movement of *unda* ‘have to, must’ to Pred, as shown in (291). In this, narrow foci in constructions with *unda* ‘have to, must’ differ from narrow foci in all other contexts, which do not undergo movement to Spec, PredP. Given the distribution of *unda* ‘have to, must’, however, narrow foci that precede the modal clearly cannot be found in their base positions, since *unda* ‘have to, must’ is merged above the thematic layer of the clause.

In addition to the IPrP of the modal, narrow focus may also surface in the absolutely clause-final position, which results from right-adjunction, as shown in (292).
What this means is that in *unda* ‘have to, must’ + finite verb constructions, narrow foci either move to Spec, PredP, or dislocate to the right. In requiring narrow foci to move to Spec, PredP, the constructions with *unda* ‘have to, must’ differ from all the other contexts we have seen, where preverbal foci are found in situ.

### 5.4 Narrow foci in nominalizations

Finally, consider narrow foci found in embedded nominalizations – specifically, in two types of nominalizations: those embedded under lexical verbs, and those embedded under verbs with modal meaning, such as *unda* ‘want’, šeudzia ‘can, be able to’ and sč’irdeba ‘need’. In terms of the behavior of nominalizations in narrow focus contexts, as was shown in Section 3.4, the two types of nominalizations are identical, and are treated together here. Note also that I only discuss argument foci, since adjunct foci
in such contexts modify the clause as a whole (as opposed to just the nominalization), and are merged outside of the nominalization.

Recall from Chapter 5 that the internal structure of nominalizations adopted here is as in (293) and (294). Lack of independent (transitive) subjects and temporal/locative adjuncts in nominalizations, as well as the unavailability of VO word orders (due to the lack of the vP-projection) shows that they are very small.

(293) \textit{mankan-is q’id-v-a}
\text{car-GEN buy-TS-NMLZ}
\text{‘buying of a car’}

(294)
\[
\begin{array}{c}
\text{nP} \\
\text{VP} \\
\text{n} \\
\text{-a} \\
\text{NP} \\
\text{V} \\
\text{mankanis} \\
\text{q’idv-}
\end{array}
\text{‘car-GEN’ ‘buying’}
\]

As we saw in Section 3.4, the distribution of narrow foci in embedded nominalizations is simple: the nominalization containing narrow focus appears either in the IPrP of the IPoP of the matrix verb. Only OV order is allowed inside the nominalization, and the narrowly focused constituent cannot move out of the nominalization. This is illustrated in (295) and (296):

(295) A: [\text{ap } \textit{R-is(i)} \text{ c’am-a }] \text{ g-inda-t rest’oran-ši?}
\text{what-GEN eat-NMLZ 2-want-PL restaurant-in}
\text{‘What do you want to eat at the restaurant?’}

B: [\text{ap } \textit{Tevz-is} \text{ c’am-a }] \text{ m-inda rest’oran-ši.}
\text{fish-GEN eat-NMLZ 1-want restaurant-in}
\text{‘I want to eat fish at the restaurant.’}

B’: \textit{Rest’oran-ši m-inda [\text{ap tevz-is} \text{ c’am-a}].}
\text{restaurant-in 1-want fish-GEN eat-NMLZ}
\text{‘I want to eat fish at the restaurant.’}
The evidence presented so far suggests that narrow foci in preverbal nominalizations behave like wh-phrases, and, accordingly, should have the same structural representation. However, in contrast with what we have seen with wh-phrases in such contexts, postverbal placement of the nominalization is readily accepted by Georgian speakers, as shown above. Such variability in placement suggests that the Spec-Head derivation that was argued to be the underlying mechanism for wh-phrases embedded in nominalizations does not account for the narrow focus data in the structures of the same type. If it did, we would be forced to postulate optionality of movement of narrow foci-containing nominalizations to Spec, PredP, and that would be analytically undesirable; in particular, if only some foci underwent movement, it would be unclear what motivates movement or lack thereof.

On the contrary, it is analytically more congruent for foci embedded in nominalizations to receive treatment parallel to that advocated for preverbal and postverbal foci in simple clauses. This is because nominalizations are arguments of the verb, and, in line with that, we have seen that nominalizations containing foci behave identically to simple foci. Accordingly, they should have the same structural representation. Therefore, I propose that nominalizations containing narrow foci, when embedded under a finite verb and found in its IPrP, are interpreted in situ, as shown in (297) in the relevant portion of the structure corresponding to the reply B in (296):

(296) A: \[\text{what-GEN} \text{ buy-TS-NMLZ-DAT} \text{ try-SF-PRS.3SG} \text{ L.-NOM} \]
\[\text{'What is Levani trying to buy?'}\]

B: \[\text{Levan-i} \text{ [\text{car-GEN} \text{ buy-TS-NMLZ-DAT} \text{ try-SF-PRS.3SG} \text{ L.-NOM}]} \]
\[\text{'Levani is trying to buy a car.'}\]

B': \[\text{'Levani is trying to buy a car.'} \]

The evidence presented so far suggests that narrow foci in preverbal nominalizations behave like wh-phrases, and, accordingly, should have the same structural representation. However, in contrast with what we have seen with wh-phrases in such contexts, postverbal placement of the nominalization is readily accepted by Georgian speakers, as shown above. Such variability in placement suggests that the Spec-Head derivation that was argued to be the underlying mechanism for wh-phrases embedded in nominalizations does not account for the narrow focus data in the structures of the same type. If it did, we would be forced to postulate optionality of movement of narrow foci-containing nominalizations to Spec, PredP, and that would be analytically undesirable; in particular, if only some foci underwent movement, it would be unclear what motivates movement or lack thereof.

On the contrary, it is analytically more congruent for foci embedded in nominalizations to receive treatment parallel to that advocated for preverbal and postverbal foci in simple clauses. This is because nominalizations are arguments of the verb, and, in line with that, we have seen that nominalizations containing foci behave identically to simple foci. Accordingly, they should have the same structural representation. Therefore, I propose that nominalizations containing narrow foci, when embedded under a finite verb and found in its IPrP, are interpreted in situ, as shown in (297) in the relevant portion of the structure corresponding to the reply B in (296):
By the same logic, focus-containing nominalizations in the IPoP of the lexical verb should be analyzed like postverbal foci. Structurally, this means that such nominalizations are adjoined on the right, as shown in (298):
To sum up, narrow foci embedded in nominalizations behave like simple preverbal and postverbal foci: interpreted in situ when preverbal, adjoined on the right when postverbal.

6. Summary

In this chapter, I considered the behavior and structural characteristics of foci in Georgian in a number of constructions. These included: simple clauses with a single verb, clauses with participial complements, clauses with the modal *unda* ‘must, have to’, and embedded nominalizations. To summarize the main conclusions, I showed that in simple clauses, narrow foci are found in the IPrP or IPoP of the verb; structurally, this corresponds to in-situ interpretation of preverbal foci (accompanied by topicalization/displacement of the material that would otherwise intervene between the focus and the verb), and right-adjunction of postverbal foci (if a postverbal focus is an argument of the verb, it is co-indexed with a null pronominal in its thematic position). Narrow foci in clauses with participial complements, on the surface, have a more complex distribution, in that they can be found in the IPrP or IPoP of the verb, as
well as in the clause-final position, following the participle. Analytically, I showed that the distribution of narrow foci in such clauses can be accounted for in the same way as in simple clauses: namely, preverbal narrow foci are interpreted in situ, while postverbal ones are adjoined on the right. Furthermore, the option for the participial clause to be adjoined on the right, too, contributed to the number of the possible surface word orders. With narrow foci embedded in nominalizations, the whole nominalization either surfaces in the IPrP or IPoP of the verb. I propose that such constructions are also parallel to simple foci, and, accordingly, preverbal nominalizations in such contexts are found in situ, while postverbal ones are adjoined on the right. Finally, in clauses with the modal *unda* ‘must, have to’ and a finite lexical verb, narrow foci can be found either in the IPrP of the modal, or in the clause-final position, following the finite verb. This means that, exceptionally, preverbal narrow foci in clauses with *unda* ‘must, have to’ undergo movement to Spec, PredP, as opposed to being interpreted in situ, since that is the only analysis compatible with the distributional facts of *unda* ‘must, have to’. It is unclear at present why *unda* ‘must, have to’ differs from other verbs in this respect, though the explanation is likely to stem from the fact that *unda* ‘must, have to’ is the highest verbal head in the constructions that it appears in. Additionally, as in the other cases, postverbal foci in clauses with *unda* ‘must, have to’ are adjoined on the right. The conclusions reached in this chapter are also summarized in Table 20.

*Table 20. Summary of the structures addressed in Chapter 6*

<table>
<thead>
<tr>
<th>Clause type</th>
<th>Position of narrow focus</th>
<th>Adjunct on the right</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple clause, IPrP</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Simple clause, IPoP</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Clause with a participial complement, IPrP</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Clause with a participial complement, IPoP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clause with <em>unda</em> ‘have to, must’, IPrP</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Clause with <em>unda</em> ‘have to, must’, IPoP</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Embedded in a nominalization, IPrP of the finite verb</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Embedded in a nominalization, IPoP of the finite verb</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>
Overall, the narrow focus data allows for several syntactic implementations and provides evidence for both the in-situ and Spec-Head strategies for achieving adjacency between the narrow focus and the verb. Furthermore, it also provides evidence for another such strategy - adjunction in the postverbal domain.
Chapter 7. Prosodic properties of the IPrP and IPoP

1. Introduction
The current chapter reports on an experimental investigation of the prosodic properties of narrow foci, preverbal and postverbal, and wh-questions in Georgian. Recall from Chapter 5 and Chapter 6 that these categories of constituents have different underlying syntactic structures: preverbal narrow foci are interpreted in situ, postverbal ones undergo low adjunction on the right side of the clausal spine, and wh-phrases undergo movement to Spec, PredP, accompanied by movement of the verb to Pred\(^0\). The current chapter is dedicated to the prosodic properties of narrow foci and wh-phrases, building on the principles of Georgian intonational phonology and word stress assignment that were established in Chapter 2. In the experimental investigation discussed here, two types of focus are considered: narrow foci found in replies to wh-questions and contrastive foci found in corrective replies to questions or statements. Preverbal narrow foci and wh-phrases receive particular attention here, since their preverbal placement allows for a direct comparison between the two categories, though postverbal foci are also considered.

As this chapter shows, despite syntactic differences, preverbal narrow foci and wh-questions have parallel prosodic (F0) realizations. In particular, both preverbal (subject) foci and wh-phrases are characterized by a rising-falling contour that spans the focused constituent/wh-phrase and the verb (preverbal object foci have a realization that is close to that of broad foci; it is also addressed in this chapter). Postverbal foci, in line with the existing literature, are found to carry a low and flat contour. In contrast with these F0 results, the duration of the stressed syllable is not reliably correlated with focus type: among
preverbal foci, the initial syllable increases in duration only in narrowly focused subjects; this is not the case for preverbal objects and postverbal foci.

This chapter is structured in the following way. Before turning to the experimental results, Section 2 provides a brief review of the existing literature on the prosodic properties of preverbal and postverbal foci in Georgian. After that, Section 3 discusses a semi-controlled production study investigating the prosody of narrowly focused constituents (Experiment 1). More specifically, Section 3 reports on the stress properties of narrowly focused constituents and the F0 contours that accompany them, as compared to the same constituents found in broad focus conditions. Additionally, due to the semi-controlled design of Experiment 1, the narrow focus results discussed in Section 3 also provide evidence about speakers’ preferences with respect to word orders used in narrow focus contexts. These are addressed in detail in Section 3.4. Finally, Section 4 reports on Experiment 2, a controlled study that targets the prosodic realization of wh-questions.

2. Theoretical background and previous work

Certain aspects of the prosodic realization of narrow focus and, to a lesser extent, wh-questions in Georgian have already received some attention in the literature.

To start with narrow foci, many important generalizations about their prosodic properties have been established in the work of Stavros Skopeteas, Rusudan Asatiani, Caroline Féry and Gisbert Fanselow. Specifically, Skopeteas, Féry an Asatiani (2009) convincingly argue that even though Georgian allows considerable freedom of word order, the word order variation is restricted by information-structural factors, and show that one of the most important of these factors is the requirement for narrowly focused items in the preverbal domain to appear in the IPrP. Skopeteas and Fanselow (2010) further bring postverbal focus into the picture, and show experimentally that contrastive foci can be realized both preverbally and postverbally. In turn, Skopeteas and Féry (2010), based on an instrumental investigation, show that the preverbal and postverbal foci have systematically different prosodic realizations. One of the most important
conclusions that Skopeteas & Féry (2010) make is that postverbal foci are typically realized with a low and flat pitch contour that does not occur in other contexts, which they call ‘superlow’; cf. Figure 63 below.

![Pitch contour graph](image)

*Figure 63. Postverbal focus in an utterance Nino eloliaveba MAMAS (“Nino cherishes her FATHER”) is characterized by a low and flat tonal contour (Skopeteas & Féry 2010).*

Finally, Skopeteas & Féry (2011) investigate the prosodic realization of exhaustivity in Georgian and conclude that it is signaled by pitch expansion on the exhaustively interpreted constituent combined with increased duration and breathy voice on the first (stressed) syllable; cf. Section 2 of Chapter 6 on the availability of exhaustive interpretation of both preverbal and postverbal foci in Georgian.

These contributions are crucial for our understanding of the syntax and prosody of focus in Georgian. At the same time, however, the prosodic expression of focus in Georgian has been subject to conflicting analyses. For instance, Skopeteas & Féry (2010) and Asatiani & Skopeteas (2012) conclude that focal items are prosodically grouped together with the verb and separated by a prosodic boundary from the material preceding the focus+verb prosodic unit. The same generalization is also made in Jun, Vicenik and Lofstedt’s (2007) and Vicenik and Jun’s (2014) general work on the prosodic properties of Georgian. In contrast, Skopeteas & Féry (2016) reach a different theoretical conclusion, even though the acoustic facts that their analysis is based on broadly align with those reported in the existing literature. In particular, they propose a Match Theory-style analysis of the prosodic realization of focus in Georgian, according to which preverbal foci are phrased separately from the verb and grouped together with the preceding material.
Such discrepancies among the existing accounts highlight the need for further research on the topic. In particular, there are two questions to ask. Are the patterns observed in the available data consistent and representative of all focus contexts? Are the analytical approaches to prosodic data rigorous enough and based on specific criteria?

An attempt to answer both of these questions is made in Experiment 1, reported on in Section 3 of the current chapter. As compared to the previous studies, the current investigation is based on the largest dataset which includes all major types of focus: preverbal and postverbal, on various constituents (subject, object, VP, whole sentence) and with various types of verbs (transitive, unaccusative, unergative). Furthermore, in contrast with the previous studies, in which participants were asked to read or memorize and pronounce utterances containing narrow foci, the semi-controlled design of the current study gave the participants freedom to choose their own responses to experimental prompts. Such an approach leads to greater naturalness of the data, while at the same time allowing for direct comparison of individual responses. The greater range of data, in turn, allows for more generalizable results.

As for the theoretical approach, in the analysis of the results of the experiment, the tonal inventory that has been proposed for Georgian by Vicenik & Jun (2014) is adopted and built upon. According to this approach, prosodic grouping is signaled by the lack of a high final boundary tone on the first of the two constituents that are prosodically phrased together. Accordingly, prosodic phrasing in the current analysis is determined based on this highly specific phonetic notion. As the remainder of the chapter shows, the results reported here provide support for the approach according to which preverbal (subject) narrow foci (and wh-phrases) undergo prosodic grouping with the following verb, and are separated from the preceding material (Jun, Vicenik & Lofstedt 2007; Skopeteas & Féry 2010; Asatiani & Skopeteas 2012; Vicenik & Jun 2014). In contrast with preverbal subjects, preverbal object narrow foci, according to the current results, behave differently and provide some evidence for a boundary tone separating them from the verb, though this boundary is weakly implemented.
Next, wh-questions in Georgian have also been addressed in the literature. It should be noted, though, that wh-questions in the existing work have been considered together with yes/no-questions, and not approached from the point of view of their focal properties. The prosodic properties of both types of questions have been addressed by Tevdoradze (2005), Jun et al. (2007) and Vicenik & Jun (2014). These studies uncovered some key properties of wh-questions in Georgian, such as the fact that a single rising-falling contour spans the wh-phrase and the following verb, and the postverbal region is subject to strong de-accenting until the final high or high-low boundary tone is reached. However, the existing work is based on observations about single pitch-tracks, as opposed to statistical generalizations. Experiment 2, reported on here, is intended to fill in the gap, by allowing to make generalizations over controlled data elicited from a number of speakers. Most importantly, Experiment 2 highlights the similarity in the prosodic realizations of narrow foci and wh-phrases that has gone unnoticed so far.

3. Experiment 1: narrow focus

3.1 Stimuli and design

There are two main research questions behind the current study. The first and the main one is the prosodic realization of narrow foci. The semi-controlled design of the study, described below, allowed speakers to have some degree of freedom in their responses while controlling for lexical and phonological variables. Subsequently, the experimental design allowed for another research question to be addressed. In particular, the second research question concerns speakers’ choices of the syntactic constructions (word orders) employed in narrow focus contexts. It is addressed in Section 3.3 of the current chapter.

During the experiment, the participants were presented with a series of picture prompts that appeared on a laptop screen as PowerPoint slides. Each picture prompt was accompanied by a statement introducing the main participant of the event described by the prompt, and a question about it; both the statement and the question were written on the slide in the Georgian orthography, and also provided as an embedded pre-recorded sound track, with a native speaker of Georgian reading out the statement and the question for each slide. The audio recording was provided in order to make answering the question shown on the screen more
natural. A sample picture prompt is provided in Figure 64, with the accompanying statement and question
(transliterated) given in (299).

Figure 64. Sample picture prompt used in Experiment 1

(299)

Es

mebaduri-a.
DEM fisherman.NOM-be.3SG

Ra
what

da-i-č’ir-a
mebadur-ma
PRV-VER-catch-AOR.3SG fisherman-ERG

šaršan
last

zapxul-ši?
summer-LOC
‘This is a fisherman. What did the fisherman catch last summer?’
When presented with a prompt, the participants were asked to listen to the pre-recorded statement and
question, and answer the question they heard, based on what they see in the picture. They were instructed
to speak clearly, use natural intonation and avoid single-word replies; at the same time, there was no
requirement to repeat all the words used in the question.
The stimuli were designed in such a way as to capture possible syntactic and/or prosodic variability
between different types of verbs, as well as different constituents carrying focus. 14 transitive verbs, 9
unergative and 7 unaccusative verbs were used, in aorist and imperfect forms, based on whether the event
267


described is punctual or durative, respectively. The unergative vs. unaccusative status of a verb was decided based on whether the verb takes an ergative or nominative subject in the aorist *screve* (transitive verbs in Georgian take ergative subjects; cf. Chapter 1). A full list of the verbs used is provided in Table 21.

<table>
<thead>
<tr>
<th>Verb</th>
<th>Forms used</th>
<th>Verb</th>
<th>Forms used</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transitives</strong></td>
<td></td>
<td><strong>Unergatives</strong></td>
<td></td>
</tr>
<tr>
<td>boil, cook</td>
<td><em>xarš-av-d-a</em> ‘cook-SF-SM-IPFV.3SG’</td>
<td>sneeze</td>
<td><em>da-a-cemin-a</em> ‘PRV-VER-sneeze-AOR.3SG’</td>
</tr>
<tr>
<td>build</td>
<td><em>a-šen-eb-d-a</em> ‘PRV-build-SF-SM-IPFV.3SG’</td>
<td>laugh</td>
<td><em>i-cin-od-a</em> ‘VER-laugh-SM-AOR.3SG’</td>
</tr>
<tr>
<td>buy</td>
<td><em>i-q’id-a</em> ‘VER-buy-AOR.3SG’</td>
<td>be nervous</td>
<td><em>nerviul-ob-d-a</em> ‘be_nervous-SF-SM-IPFV.3SG’</td>
</tr>
<tr>
<td>catch</td>
<td><em>da-i-č’ir-a</em> ‘PRV-VER-catch-AOR.3SG’</td>
<td>pray</td>
<td><em>locul-ob-d-a</em> ‘pray-SF-SM-IPFV.3SG’</td>
</tr>
<tr>
<td>clean</td>
<td><em>a-lag-eb-d-a</em> ‘PRV-fix-SF-SM-IPFV.3SG’</td>
<td>go for a walk</td>
<td><em>seirn-ob-d-a</em> ‘stroll-SF-SM-IPFV.3SG’</td>
</tr>
<tr>
<td>drive</td>
<td><em>a-t’ar-eb-d-a</em> ‘PRV-drive-SF-SM-IPFV.3SG’</td>
<td>swim</td>
<td><em>cur-av-d-a</em> ‘swim-SF-SM-IPFV.3SG’</td>
</tr>
<tr>
<td>find, discover</td>
<td><em>i-p’ov-a</em> ‘VER-find-AOR.3SG’</td>
<td>work</td>
<td><em>muša-ob-d-a</em> ‘work-SF-SM-IPFV.3SG’</td>
</tr>
<tr>
<td>fix</td>
<td><em>a-remont’eb-d-a</em> ‘PRV-fix-SF-SM-IPFV.3SG’</td>
<td>dine</td>
<td><em>sadil-ob-d-a</em> ‘dine-SF-SM-IPFV.3SG’</td>
</tr>
<tr>
<td>iron</td>
<td><em>a-uto-eb-d-a</em> ‘PRV-iron-SF-SM-IPFV.3SG’</td>
<td>hunt</td>
<td><em>nadir-ob-d-a</em> ‘hunt-SF-SM-IPFV.3SG’</td>
</tr>
<tr>
<td>pick, collect</td>
<td><em>a-grov-eb-d-a</em> ‘PRV-pick-SF-SM-IPFV.3SG’</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Unaccusatives</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>play</td>
<td><em>tamaš-ob-d-nen</em> ‘play-SF-SM-IPFV.3PL’</td>
<td>disappear</td>
<td><em>u-činar-d-eb-od-a</em> ‘VER-disappear-SM-SF-SM-IPFV.3SG’</td>
</tr>
<tr>
<td>steal</td>
<td><em>i-p’ar-av-d-a</em> ‘VER-find-SF-SM-IPFV.3SG’</td>
<td>be angry</td>
<td><em>ga-braz-d-a</em> ‘PRV-be_angry-SM-IPFV.3SG’</td>
</tr>
<tr>
<td>try on</td>
<td><em>mo-i-zom-a</em> ‘PRV-VER-try_on-AOR.3SG’</td>
<td>fall</td>
<td><em>gadno-var-d-a</em> ‘PRV-fall-SM-AOR.3SG’</td>
</tr>
<tr>
<td>watch, see</td>
<td><em>u-q’ur-eb-d-a</em> ‘VER-watch-SF-SM-AOR.3SG’</td>
<td>hide oneself</td>
<td><em>i-mal-eb-od-a</em> ‘VER-hide-SF-SM-IPFV.3SG’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>jump</td>
<td><em>xt’-eb-od-a</em> ‘jump-SF-SM-IPFV.3SG’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>return</td>
<td><em>brund-eb-od-nen</em> ‘return-SF-SM-IPFV.3PL’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>grow poor</td>
<td><em>ga-gharib-d-a</em> ‘PRV-be_poor-SM-AOR.3SG’</td>
</tr>
</tbody>
</table>
Based on the verbs in Table 21, situational statements were built (n=30), with direct objects represented by nouns that are typical direct objects for a given verb (e.g., *pick flowers*, *play hide-n-seek*, etc.); personal names (*Mariami, Giorgi*, etc.) and some common nouns or adjective + noun combinations (*a fisherman, Olympic champion, bouncy girl*) were used as subjects. In order to maximize the likelihood of collecting responses with easily analyzable pitch contours, lexical items containing no or few voiceless segments were used as verbal arguments. However, naturalness of the stimuli was taken to be no less important than the phonetic make-up, and, in some examples, a better fitting lexical item containing a voiceless segment was chosen over a fully voiced lexical item that was a poorer contextual fit. Additionally, a temporal adjunct was added to each situational statement, in order to provide additional segmental material that, if repeated by the participant, may buffer the focal material from phrase-initial or phrase-final prosodic processes, such as initial glottalization or final lengthening. A sample situational statement is provided in (300):

(300)  
\begin{align*}
\text{Mebadur-ma} & \quad \text{da-i-ć′ir-a} & \quad \text{zvigen-i} & \quad \text{šaršan} & \quad \text{zapxul-št}. \\
\text{fisherman-ERG} & \quad \text{PRV-VER-catch-AOR.3SG} & \quad \text{shark-NOM} & \quad \text{last} & \quad \text{summer-LOC} \\
\end{align*}
‘The fisherman caught a shark last summer.’

Next, each of the situational statements was turned into five questions, aimed at eliciting broad focus over the whole reply (301), narrow focus on the direct object (302), subject (303), and the VP (304), and contrastive focus on one of the constituents (subject, object, or the verb) (305).

(301) \textit{Ra} \quad \textit{mo-xd-a} \quad šaršan \quad zapxul-št?
what \quad \text{PRV-happen-AOR.3SG} \quad \text{last} \quad \text{summer-LOC}
‘What happened last summer?’

(302) \textit{Ra} \quad \textit{da-i-ć′ir-a} \quad mebadur-ma \quad šaršan \quad zapxul-št?
what \quad \text{PRV-VER-catch-AOR.3SG} \quad \text{fisherman-ERG} \quad \text{last} \quad \text{summer-LOC}
‘What did the fisherman catch last summer?’

(303) \textit{Vin} \quad \textit{da-i-ć′ir-a} \quad zvigen-i \quad šaršan \quad zapxul-št?
what \quad \text{PRV-VER-catch-AOR.3SG} \quad \text{shark-NOM} \quad \text{last} \quad \text{summer-LOC}
‘Who caught a shark last summer?’
(304) *Ra* ga-`a-k`et-a mebadur-ma šaršan zapxul-ši?
what PRV-VER-do-AOR.3SG fisherman-ERG last summer-LOC
‘What did the fisherman do last summer?’

(305) *Rvapexa* da-i-č’ir-a mebadur-ma šaršan zapxul-ši?
octopus.NOM PRV-VER-catch-AOR.3SG fisherman-ERG last summer-LOC
‘Did the fisherman catch AN OCTOPUS last summer?’

The resulting full set of questions consisted of 150 questions (30 situational statements * 5 focus types). However, the speaker who was pre-recorded pronouncing the questions failed to pronounce some of them naturally, and the final set that was used in Experiment 1 consisted of 110 questions. The questions were randomized, combined with an introductory statement and inserted into PowerPoint slides together with the picture prompts.

Eight native speakers of Georgian participated in the study: two males (M3, M4) and six females (F6-F11). All speakers were natives of Tbilisi, with a complete or in-progress university degree, with the age range 20-35 y.o, mean age 26.8 y.o. The recordings were performed in Tbilisi, Georgia, using a Shure SM10A (head-worn, close-range) microphone and a Zoom H4n recorder. All data was sampled at a sampling rate of 44.100 Hz and 16 bits per sample.

After eliminating disfluent tokens (due to pauses, errors, etc.), the final dataset consisted of 817 replies. A breakdown of the complete dataset by speaker and focus type is provided in Table 22.

<table>
<thead>
<tr>
<th>speaker</th>
<th>broad</th>
<th>O_F</th>
<th>S_F</th>
<th>[VP]_F</th>
<th>Contrastive</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>O</td>
<td>S</td>
</tr>
<tr>
<td>F6</td>
<td>24</td>
<td>8</td>
<td>23</td>
<td>28</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>F7</td>
<td>22</td>
<td>7</td>
<td>25</td>
<td>28</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>F8</td>
<td>23</td>
<td>7</td>
<td>24</td>
<td>27</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>F9</td>
<td>21</td>
<td>8</td>
<td>22</td>
<td>24</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>F10</td>
<td>24</td>
<td>8</td>
<td>24</td>
<td>26</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>F11</td>
<td>26</td>
<td>9</td>
<td>25</td>
<td>28</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>M3</td>
<td>23</td>
<td>9</td>
<td>23</td>
<td>22</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>M4</td>
<td>26</td>
<td>8</td>
<td>25</td>
<td>29</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>189</td>
<td>64</td>
<td>191</td>
<td>212</td>
<td>47</td>
<td>78</td>
</tr>
</tbody>
</table>
3.2 Prosodic properties of focus constructions

3.2.1 Analysis and results

The dataset introduced in Section 3.1 was used for the acoustic analysis of intonational contours that accompany different types of focus. As shown in Table 48 in Section 3.3 below, many of the clause types used in different focus contexts were iterated a number of times, which allows for a statistical analysis of the F0 contours used in them. In order to perform the analysis, the data obtained was annotated in Praat (Boersma & Weenink 2018); average duration, intensity and F0 of each syllable, as well as F0 at four fixed points in a syllable (starting point, 1/4, 2/4, 3/4) were measured using a modified Praat script by Elvira-Garcia (Elvira-Garcia 2014). Before that, the correct syllabification was established with three native speakers of Georgian. In Praat, the following settings were used for the F0 analysis: pitch range 75-500 Hz for the female speakers and 50-450 Hz for the male speakers, voicing threshold = 0.6, octave jump cost = 0.6. The syllable duration results are presented and discussed in Section 3.2.1.1 and F0 results can be found in Section 3.2.1.2.

3.2.1.1 Duration

As was shown in Chapter 2, syllable duration is the most reliable cue for initial word stress in Georgian nominals. Recall that the results of the study presented in Chapter 2 show that, regardless of syllable count, the initial syllable is characterized by greater duration than subsequent syllables. Based on this fact, I concluded that the initial syllable carries word-level stress, since the effect at hand cannot be effectively explained away as any other phonological process.

It has been noted in the literature that the acoustic effect of stress on the stressed syllable (which may rely on various acoustic means) becomes more prominent if the word in question carries narrow focus. For instance, if word stress is cued by duration or a pitch movement, this effect may become more pronounced when the word in question is narrowly focused. In particular, the increase in duration of the stressed syllable under narrow focus has been documented for English (Xu & Xu 2005) and German (Braun & Ladd 2003;
Baumann et al. 2007; Kügler & Genzel 2009), and the increase in the duration of the onset and coda of the stressed syllable under narrow focus has been noted for Dutch (Hanssen, Peters & Gussenhoven 2008). More generally, an increase in the duration of the word carrying narrow focus is reported for Swedish (Allwood 1974), English (Cooper, Eady & Mueller 1985; Eady & Cooper 1986; Eady et al. 1986; Sityaev & House 2003), German (Baumann, Grice & Steindamm 2006; Féry & Kügler 2008; Kügler 2008) and Korean (Jun & Kim 2007).\(^{72}\)

However, as the current section shows, the picture is not as consistent in Georgian. More precisely, the durational effect is found in individual examples but is not reliably present in all focus types and clause types. Consequently, it cannot be treated as a consistent acoustic marker of narrow focus. Before delving into the statistical analysis, consider some individual examples.

Figure 65 (below) shows the prosodic realization of several utterances (n=6), the gloss and translation for which are provided below:

\[(306)\]  
Ilona a-grov-eb-d-a q’vavil-eb-s.  
L.NOM PRV-pick-SF-SM-IPFV.3SG flower-PL-DAT  
‘Ilona was picking flowers’

Of the six utterances, one is a broad-focus one, two carry narrow focus on the subject, two on the object, and one on the VP. Averaged syllable durations for each focus type are provided in Figure 65.

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\(^{72}\) On the other hand, there is also some work suggesting that the acoustic cues that are used for the realization of word stress and those that are used for the realization of narrow focus are orthogonal (due to their functional load). See, in particular, Vogel, Athanasopoulou and Pincus (2016), who show, for Spanish and Greek, that word stress is cued primarily (not exclusively) by F0 but contrastive focus is cued primarily (not exclusively) by duration.
As Figure 65 shows, all focus types have similar syllable durations in all corresponding syllables. In subject and object focus examples, the initial syllable of the narrowly focused word (Ilona and q’vavilebs, respectively) has a slightly longer realization than the corresponding syllable in constituents that do not carry narrow focus. This effect is more noticeable with a narrowly focused subject than a narrowly focused object, while the initial syllable of a focused VP lacks such a durational effect altogether. As an aside, note also that there is prominent final lengthening (on the nouns), especially utterance-finally; it is consistently present throughout the dataset and is not going to be discussed further.

Next, consider another set of parallel examples (n=6), glossed and translated in (307):

(307) Mamuk’a  a-t’ar-eb-d-a  mankana-s.
M.NOM   PRV-drive-SF-SM-IPFV.3SG  car-DAT
‘Mamuka was driving a car’
Of the six examples, three carry narrow focus on the VP, two on the subject, and one on the object. Averaged syllable durations for each focus type are shown in Figure 66.

![Figure 66. Mean syllable duration in utterances ‘Mamuk'a at'arebda mankanas’, with various focus types](image)

Here, too, as would be expected based on the previous example, the initial syllable of the narrowly focused object (*mankanas*) has greater duration than the initial syllable of the same word in the other two conditions. However, unexpectedly, the initial syllable of the subject is greatest in the same (object focus) condition, meaning that, for the subject in the current example, its focus status is not correlated with the increased duration of the stressed syllable.

Other examples, particularly those with complex NPs (adjective + noun) also exhibit a lack of reliable correspondence between the greater duration of the initial syllable of a word and its status as narrowly focused. Figure 67 illustrates that with a set of noun phrases *mousvenari gogo* ‘bouncy girl’ (n=18), extracted from the example provided below:
(308)  Mousvenar-i  gogo  i-p’ar-av-d-a  alubl-eb-s.
bouncy-NOM  girl.NOM  VER-find-SF-SM-AOR.3SG  cherry-PL-DAT

‘The bouncy girl stole cherries.’

In this set, the subject NP is narrowly focused in 3 examples, and in the other ones (6 VP focus examples, 7 broad focus examples and two examples with narrow focus on the object) it is out of focus.

![Figure 67. Mean syllable duration in the noun phrase 'mousvenari gogo', with various focus types. Notably, the noun phrase 'mousvenari gogo' only carries narrow focus in the S-focus condition; in the other conditions (broad, O and VP), the noun phrase in question is out of focus.](image-url)

As you can see in Figure 67, the duration of the initial syllable in the narrow focus condition (S) is, in fact, shorter than in the other conditions, in which the noun phrase is out of focus. Instead, as Figure 67 shows, the resulting ip has the same rhythmic pattern of greater and lesser syllable duration that was discovered for six-syllable words in Chapter 2. Notably, here, like in Chapter 2, the rhythmicity also does not seem to stem from the segmental make-up of the syllables. Most importantly for our purposes, this rhythm is also not correlated with whether the word in question carries narrow focus or not.
To sum up the evidence presented by these individual examples, there does not seem to be a robust correlation between the duration of the stressed syllable and the information-structural status of the word. In order to determine if the same pattern – the duration of the stressed syllable not being significantly affected by the focused vs. non-focused status of the word – is obtained in the full dataset, the following analysis was carried out. Nouns of equal syllable count that occupy the same position in a clause of the same type were selected for comparison. Since tri- and tetrasyllabic nouns comprise the bulk of the nouns in the stimuli, they were selected for comparison. Nouns as opposed to, e.g., the VPs were selected, since the stress properties of nouns were established in Chapter 2, whereas those of verbs remain to be investigated; syllable count was held constant, since, as was shown in Chapter 2, the absolute duration of the initial syllable decreases as the syllable count increases.

Clause type and position in the clause were held constant so that phrase-final lengthening and other effects that may result from different amounts of segmental material, such as polysyllabic shortening (Lehiste 1972), affect all the examples equally. However, in order for the conclusions to be statistically sound, the presence of adjuncts was disregarded in each clause type. Therefore, e.g., the SVO clause type comprised SVO, NoSVO, SVOX and XSVO subtypes. In total, three clause types (with subtypes) were considered: SVO (NoSVO, SVO, XSVO, SVOX), SOV (SOV, XSOV) and SV (SV, XSV, SXV, NoSV, NoSVX). In each of these clause types, the duration of the initial syllable of tri- and tetrasyllabic subjects and objects were investigated; therefore, each of the three clause types contributed two sets of nouns, based on syllable count, resulting in eight sets of nouns (note that the SVO clause type contributed four sets of nouns, two subject and two object ones, and SOV does not contribute subject foci, since they would be non-adjacent with the verb). This is shown in Table 23.
Table 23. Noun sets used for the investigation of syllable duration in Experiment 1, with token counts

<table>
<thead>
<tr>
<th>Clause type</th>
<th>Noun type</th>
<th>Syllable count</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>SVO</td>
<td>subjects</td>
<td>3 σ</td>
<td>76</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 σ</td>
<td>23</td>
</tr>
<tr>
<td>SV</td>
<td>subjects</td>
<td>3 σ</td>
<td>131</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 σ</td>
<td>73</td>
</tr>
<tr>
<td>SVO</td>
<td>objects</td>
<td>3 σ</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 σ</td>
<td>n/a</td>
</tr>
<tr>
<td>SOV</td>
<td>objects</td>
<td>3 σ</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 σ</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>381</td>
</tr>
</tbody>
</table>

Subsequently, the noun sets consisting of fewer than twenty tokens (tetrasyllabic objects in SVO- and SOV-type clauses) were discarded. The durational properties of each of the remaining six noun sets are discussed in detail below. Statistical analysis of the syllable duration data was performed using the `glmer` function in the `lme4` package for R (R Core Team 2017). For each of the noun sets, a model with fixed factors DURATION (of the initial syllable) and FOCUS TYPE and random factors SPEAKER, WORD and CLAUSE SUBTYPE (with a random intercept for each of those predictors, but no random slopes) was considered first. If such a model failed to converge or produced no significant results, a model with random factors SPEAKER and WORD was also run. In both models, broad focus acted as the intercept and was taken to be the baseline that other types of focus are compared with.

Overall, as the figures (Figure 68 - Figure 71) below show, there is a clear trend for contrastively focused preverbal subjects to have the greatest duration of the initial syllable among subjects in clauses of all focus types, followed by non-contrastively focused subjects, followed by subjects in all other focus types. The statistical results, however, show that duration of the initial syllable is correlated with focus type only in a subset of cases – namely, in tetrasyllabic subjects in SVO- and SV-type clauses. In all other noun sets, no significance or unexpected significance (given the focus type) was obtained. These results are detailed below.
A. Trisyllabic subjects in SVO-type clauses

The total count of trisyllabic subjects in SVO-type clauses, broken down by lexical item and focus type, is provided in Table 24, with average syllable duration results shown in Figure 68 and summarized in Table 25.

*Table 24. Trisyllabic nouns selected for the comparison of stressed syllable duration under different focus conditions in SVO-type clauses, with total counts*

<table>
<thead>
<tr>
<th>Subjects (SVO, XSVO, SVOX, NoSVO), 3 syllables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus type</td>
</tr>
<tr>
<td>-------------------------</td>
</tr>
<tr>
<td><em>Ilona ‘Ilona.NOM’</em></td>
</tr>
<tr>
<td><em>bebia ‘grandma.NOM’</em></td>
</tr>
<tr>
<td><em>Manana-m ‘Manana-ERG’</em></td>
</tr>
<tr>
<td><em>Giorgi ‘Giorgi.NOM’</em></td>
</tr>
<tr>
<td><em>Mamuk’a ‘Mamuk’a.NOM’</em></td>
</tr>
<tr>
<td><em>bavšv-eb-i ‘child-PL-NOM’</em></td>
</tr>
<tr>
<td><strong>Total:</strong></td>
</tr>
</tbody>
</table>

*Figure 68. Syllable durations in trisyllabic subjects in SVO-type clauses with different focus types*
Table 25. Syllable durations (ms) in trisyllabic subjects in SVO-type clauses with different focus types

<table>
<thead>
<tr>
<th>Focus type</th>
<th>Syllable number</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
</tr>
</thead>
<tbody>
<tr>
<td>broad</td>
<td></td>
<td>142</td>
<td>152</td>
<td>125</td>
</tr>
<tr>
<td>O</td>
<td></td>
<td>161</td>
<td>155</td>
<td>129</td>
</tr>
<tr>
<td>O_contrast</td>
<td></td>
<td>125</td>
<td>128</td>
<td>152</td>
</tr>
<tr>
<td>S</td>
<td></td>
<td>169</td>
<td>159</td>
<td>142</td>
</tr>
<tr>
<td>S_contrast</td>
<td></td>
<td>219</td>
<td>149</td>
<td>143</td>
</tr>
<tr>
<td>VP</td>
<td></td>
<td>146</td>
<td>142</td>
<td>136</td>
</tr>
</tbody>
</table>

As Figure 68 and Table 25 show, there is a clear effect of focus type in trisyllabic subjects in SVO-type clauses. Namely, contrastively focused subjects have the highest average duration of the initial (stressed) syllable (219 ms), followed by non-contrastively focused subjects (169 ms); subjects in all other focus types have shorter average initial syllable durations. A model with fixed factors DURATION (of the initial syllable) and FOCUS TYPE and random factors SPEAKER, WORD and CLAUSE SUBTYPE failed to converge. However, a model with only SPEAKER and WORD as random factors showed that the duration of the initial syllable in contrastively focused subjects in significantly greater (p=0.01) than the intercept (duration of the initial syllable of the subject in broad focus clauses). No other durational differences resulted in significance.

B. Tetrasyllabic subjects in SVO-type clauses

The total count of tetrasyllabic subjects in SVO-type clauses, broken down by lexical item and focus type, is provided in Table 26, with average syllable duration results shown in Figure 69 and summarized in Table 27.

Table 26. Tetrasyllabic nouns selected for the comparison of stressed syllable duration under different focus conditions in SVO-type clauses, with total counts

<table>
<thead>
<tr>
<th>Subjects (SVO, XSVO, SVOX, NoSVO), 4 syllables</th>
<th>Focus type</th>
<th>broad</th>
<th>VP</th>
<th>S</th>
<th>O</th>
<th>S_contrast</th>
<th>O_contrast</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>moxalise-m ‘volunteer-ERG’</td>
<td>broad</td>
<td>1</td>
<td>3</td>
<td>O</td>
<td>S_contrast</td>
<td>O_contrast</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Mariam-i ‘Mariami-NOM’</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>mebadur-ma ‘fisherman-ERG’</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>xelosan-i ‘handyman-NOM’</td>
<td></td>
<td>3</td>
<td>2</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>3</td>
<td>7</td>
<td>8</td>
<td>2</td>
<td>3</td>
<td></td>
<td>23</td>
</tr>
</tbody>
</table>
Table 27. Syllable durations (ms) in tetrasyllabic subjects in SVO-type clauses with different focus types

<table>
<thead>
<tr>
<th>Focus type</th>
<th>Syllable number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st</td>
</tr>
<tr>
<td>broad</td>
<td>166</td>
</tr>
<tr>
<td>O_contrast</td>
<td>146</td>
</tr>
<tr>
<td>S</td>
<td>209 *</td>
</tr>
<tr>
<td>S_contrast</td>
<td>232</td>
</tr>
<tr>
<td>VP</td>
<td>167</td>
</tr>
</tbody>
</table>

As shown in Figure 69 and Table 27, tetrasyllabic subjects in SVO-type clauses behave similarly to trisyllabic ones: in both cases, the duration of the initial syllable is the greatest in contrastively focused subjects (232 ms), followed by non-contrastively focused subjects (209 ms), followed by all other focus types. This trend for contrastively and non-contrastively focused subjects to behave differently from the other types of focus, in terms of the duration of the initial syllable, is even clearer for tetrasyllabic subjects. As Figure 69 shows, contrastively and non-contrastively focused subjects, with comparably high mean durations of the initial syllable, clearly group together to the exclusion of all other types of focus, which have considerably shorter durations of the initial syllables. A model with fixed factors DURATION (of the initial syllable) and FOCUS TYPE and random factors SPEAKER, WORD and CLAUSE SUBTYPE showed that
the difference between non-contrastively focused subjects and subjects found in broad focus clauses is statistically significant (p=0.044); no other differences turned out to be significant (including that between the contrastively focused subjects and subjects in broad focus clauses).

C. **Trisyllabic subjects in SV-type clauses**

The total count of trisyllabic subjects in SV-type clauses, broken down by lexical item and focus type, is provided in Table 28, with average syllable duration results shown in Figure 70 and summarized in Table 29.

Table 28. Trisyllabic nouns selected for the comparison of stressed syllable duration under different focus conditions in SV-type clauses, with total counts

<table>
<thead>
<tr>
<th>Subjects (SV, XSV, SVX, NoSV, NoSVX), 3 syllables</th>
<th>Focus type</th>
<th>broad</th>
<th>VP</th>
<th>S</th>
<th>S_contrast</th>
<th>V_contrast</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tornik’e ‘Tornike.NOM’</td>
<td>7</td>
<td>2</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Levan-i ‘Levani-NOM’</td>
<td>14</td>
<td>10</td>
<td>12</td>
<td>5</td>
<td>4</td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>Demet’re ‘Demetre-NOM’</td>
<td>7</td>
<td>6</td>
<td>6</td>
<td></td>
<td>3</td>
<td></td>
<td>22</td>
</tr>
<tr>
<td>Nat’al-i ‘Natali-NOM’</td>
<td>7</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td></td>
<td></td>
<td>23</td>
</tr>
<tr>
<td>Elene-m ‘Elene-ERG’</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>bebia ‘grandma.NOM’</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Ilona ‘Ilona.NOM’</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong>:</td>
<td><strong>45</strong></td>
<td><strong>28</strong></td>
<td><strong>30</strong></td>
<td><strong>21</strong></td>
<td><strong>7</strong></td>
<td></td>
<td><strong>131</strong></td>
</tr>
</tbody>
</table>

Figure 70. Syllable durations in trisyllabic subjects in SV-type clauses with different focus types
Table 29. Syllable durations (ms) in trisyllabic subjects in SV-type clauses with different focus types

<table>
<thead>
<tr>
<th>Focus type</th>
<th>Syllable number</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st</td>
<td>2nd</td>
<td>3rd</td>
<td></td>
</tr>
<tr>
<td>broad</td>
<td>174</td>
<td>152</td>
<td>162</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>177</td>
<td>155</td>
<td>152</td>
<td></td>
</tr>
<tr>
<td>S_contrast</td>
<td>206</td>
<td>148</td>
<td>118</td>
<td></td>
</tr>
<tr>
<td>V_contrast</td>
<td>162</td>
<td>155</td>
<td>138</td>
<td></td>
</tr>
<tr>
<td>VP</td>
<td>153</td>
<td>155</td>
<td>156</td>
<td></td>
</tr>
</tbody>
</table>

As was the case with both trisyllabic and tetrasyllabic subjects in SVO clauses, the duration of the initial syllable is the greatest in contrastively focused subjects in SV-type clauses (206 ms), with non-contrastively focused subjects coming second (177 ms), followed by all other focus types. But, in contrast with the previous noun sets, the absolute differences in average syllable durations are somewhat smaller here, which was also reflected in the statistical analysis. A model with fixed factors DURATION (of the initial syllable) and FOCUS TYPE and random factors SPEAKER, WORD and CLAUSE SUBTYPE resulted in no significance. Similarly, a model with random factors SPEAKER and WORD produced no significant results.

D. Tetrasyllabic subjects in SV-type clauses

The total count of tetrasyllabic subjects in SV-type clauses, broken down by lexical item and focus type, is provided in Table 30, with average syllable duration results shown in Figure 71 and summarized in Table 31.

Table 30. Tetrasyllabic nouns selected for the comparison of stressed syllable duration under different focus conditions in SV-type clauses, with total counts

<table>
<thead>
<tr>
<th>Subjects (SV, XSV, SVX, NoSV, NoSVX), 4 syllables</th>
<th>Focus type</th>
<th>broad</th>
<th>VP</th>
<th>S</th>
<th>S_contrast</th>
<th>V_contrast</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>moxalise ‘volunteer.NOM’</td>
<td>broad</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>direkt ‘or-i’ ‘direktor-NOM’</td>
<td>broad</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Mariam ‘Mariami-NOM’</td>
<td></td>
<td>9</td>
<td>6</td>
<td></td>
<td>2</td>
<td></td>
<td>17</td>
</tr>
<tr>
<td>prinvel-eb-i ‘bird-pl-NOM’</td>
<td></td>
<td>5</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>xuligan-i ‘hoolligan-NOM’</td>
<td></td>
<td>2</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>močveneba ‘ghost.NOM’</td>
<td></td>
<td>9</td>
<td></td>
<td>3</td>
<td>1</td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>T’ariel-i ‘Tarieli-NOM’</td>
<td></td>
<td>2</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>19</td>
<td>20</td>
<td>23</td>
<td>7</td>
<td>4</td>
<td>73</td>
</tr>
</tbody>
</table>
Tetrasyllabic subjects in SV-type clauses behave similarly to the previous noun sets in that here, too, the greatest duration of the initial syllable is found in contrastively focused subjects (241 ms). Non-contrastively focused subjects closely follow (225 ms), but, unlike in the previous cases, the duration of the initial syllable in subjects in broad focus contexts is also comparable (241 ms). A model with fixed factors DURATION (of the initial syllable) and FOCUS TYPE and random factors SPEAKER, WORD and CLAUSE SUBTYPE revealed that the non-contrastive subject condition is significantly different from the broad focus condition \( p=0.048 \); no other significant differences were found. The statistical results for tetrasyllabic subjects in SV-clauses, therefore, are parallel to those for tetrasyllabic subjects in SVO-type clauses.
E. Trisyllabic objects in SVO-type clauses

The total count of trisyllabic objects in SVO-type clauses, broken down by lexical item and focus type, is provided in Table 32, with average syllable duration results shown in Figure 72 and summarized in Table 33.

Table 32. Trisyllabic nouns selected for the comparison of stressed syllable duration under different focus conditions in SVO-type clauses, with total counts

<table>
<thead>
<tr>
<th>Objects (SVO, XSVO, SVOX, NoSVO), 3 syllables</th>
<th>Focus type</th>
<th>broad</th>
<th>VP</th>
<th>S</th>
<th>O</th>
<th>S_contrast</th>
<th>O_contrast</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>q’vavil-eb-s ‘flower-PL-DAT’</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td></td>
<td>2</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>muraba-s ‘jam-DAT’</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td></td>
<td>1</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>banan-i ‘banana-NOM’</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>mankana-s ‘car-DAT’</td>
<td>3</td>
<td>5</td>
<td>8</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>zvigen-i ‘shark-NOM’</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>alubl-eb-s ‘cherry-PL-DAT’</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>9</strong></td>
<td><strong>12</strong></td>
<td><strong>19</strong></td>
<td><strong>9</strong></td>
<td><strong>3</strong></td>
<td><strong>5</strong></td>
<td><strong>57</strong></td>
<td></td>
</tr>
</tbody>
</table>

Figure 72. Syllable durations in trisyllabic subjects in SVO-type clauses with different focus types
Table 33. Syllable durations (ms) in trisyllabic subjects in SVO-type clauses with different focus types

<table>
<thead>
<tr>
<th>Focus type</th>
<th>Syllable number</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
</tr>
</thead>
<tbody>
<tr>
<td>broad</td>
<td></td>
<td>221</td>
<td>143</td>
<td>414</td>
</tr>
<tr>
<td>O</td>
<td></td>
<td>203</td>
<td>172</td>
<td>335</td>
</tr>
<tr>
<td>O_contrast</td>
<td></td>
<td>228</td>
<td>152</td>
<td>345</td>
</tr>
<tr>
<td>S</td>
<td></td>
<td>198 **</td>
<td>145</td>
<td>292</td>
</tr>
<tr>
<td>S_contrast</td>
<td></td>
<td>214</td>
<td>158</td>
<td>394</td>
</tr>
<tr>
<td>VP</td>
<td></td>
<td>232</td>
<td>152</td>
<td>397</td>
</tr>
</tbody>
</table>

As shown in Figure 72 and Table 33, durational properties of postverbal nouns differ from those we have seen in preverbal subjects in different types of clauses so far. Specifically, there is considerably more uniformity across different focus types in postverbal objects in SVO-type clauses. In particular, the absolute values for the average durations of the initial syllables of contrastively and non-contrastively focused objects closely align with those in the other focus types. This pattern is different from what we have seen in preverbal subjects, where focus (contrastive and non-contrastive) had an effect on the duration of the stressed syllable. In terms of the statistical analysis, a model with fixed factors DURATION (of the initial syllable) and FOCUS TYPE and random factors SPEAKER, WORD and CLAUSE SUBTYPE failed to converge in this case. A model with random factors SPEAKER and WORD, unexpectedly, resulted in a significant difference between the condition with contrastive focus on the subject and the broad focus condition (p=0.009). What is important for our purposes, however, is the lack of correlation between focus type and the duration of the stressed syllable in trisyllabic postverbal objects.

F. Trisyllabic objects in SOV-type clauses

The total count of trisyllabic objects in SOV-type clauses, broken down by lexical item and focus type, is provided in Table 34, with average syllable duration results shown in Figure 73 and summarized in Table 35.
Table 34. Trisyllabic nouns selected for the comparison of stressed syllable duration under different focus conditions in SOV-type clauses, with total counts

<table>
<thead>
<tr>
<th>Focus type</th>
<th>broad</th>
<th>VP</th>
<th>S</th>
<th>O</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>q’vavil-eb</em>-s ‘flower-PL-DAT’</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td><em>muraba</em>-s ‘jam-DAT’</td>
<td>2</td>
<td>1</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><em>banan-i</em> ‘banana-NOM’</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><em>mankan-a</em>-s ‘car-DAT’</td>
<td>1</td>
<td>1</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><em>zvigen-i</em> ‘shark-NOM’</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><em>alubl-eb</em>-s ‘cherry-PL-DAT’</td>
<td>1</td>
<td>1</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td>9</td>
<td>6</td>
<td>6</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

Figure 73. Syllable durations in trisyllabic objects in SOV-type clauses with different focus types

Table 35. Syllable durations (ms) in trisyllabic subjects in SOV-type clauses with different focus types

<table>
<thead>
<tr>
<th>Focus type</th>
<th>Syllable number</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
</tr>
</thead>
<tbody>
<tr>
<td>broad</td>
<td>224</td>
<td>141</td>
<td>224</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>227</td>
<td>147</td>
<td>237</td>
<td></td>
</tr>
<tr>
<td>VP</td>
<td>242</td>
<td>139</td>
<td>248</td>
<td></td>
</tr>
</tbody>
</table>

As Figure 73 and Table 35 show, the overall pattern in syllable durations in trisyllabic objects in SOV-type clauses resembles that found in trisyllabic objects in SVO-type clauses in the preceding noun set. Namely, the high-low-high durational values, per syllable, starting from the left, are found in all focus types, with the absolute values being comparable. Notably, based on the visualization of the data in Figure
73, there is no correlation between focus type and the duration of the stressed syllable: in the object focus condition, the duration of the stressed syllable is smaller than that found in the VP-focus condition.

However, providing a statistical analysis for this case turned out to be difficult. A model with fixed factors DURATION (of the initial syllable) and FOCUS TYPE and random factors SPEAKER, WORD and CLAUSE SUBTYPE failed to converge, and so did a model with random factors SPEAKER and WORD. Ultimately, only a model with random factors SPEAKER and SYLLABLE successfully converged but revealed no significant differences.

To sum up the data presented in the current section, we have seen that the durational properties of the stressed (initial) syllable in Georgian are not reliably correlated with the expression of focus. Recall that, based on the existing studies, the starting assumption was that narrow focus on a constituent affects the realization of the stressed syllable in that constituent, making it more prominent; the phonetic realization of such focus-induced prominence (F0 value, duration, etc.) is language-specific (cf. Xu & Xu 2005; Braun & Ladd 2003; Baumann et al. 2007; Hanssen, Peters & Gussenhoven 2008 for duration of the stressed syllable under narrow focus). As we have established in Chapter 2, in Georgian syllable duration marks word stress, fixed on the initial syllable. But, contrary to the starting assumption, the data in the current section showed that duration of the stressed syllable is not a reliable cue for narrow focus in Georgian. Specifically, greater duration of the stressed syllable was found only in a subset of the data inspected – tetrasyllabic subjects in SVO- and SV-type clauses. In trisyllabic subjects in SVO-type clauses, greater duration of the stressed syllable was reliably identified only in contrastively focused subjects; no correlation between initial syllable duration and focus type was discovered in trisyllabic subjects in SV-type clauses. Furthermore, contrary to the initial assumption, greater duration of the initial syllable was found in the subject (as opposed to object) focus condition in trisyllabic objects in SVO-type clauses; no significant durational difference was found in trisyllabic objects in SOV-type clauses.

These results are not entirely surprising, however. First, it has been observed that the relationship between narrow focus and its acoustic realization, particularly the realization of the stressed syllable under
narrow focus is more nuanced than might seem. Specifically, a unidirectional dependency that may be summarized as “if a word carries narrow focus, the stressed syllable has greater duration/higher F0 peak” is too simplistic to describe the facts. In fact, with respect to durational effects, it has been shown that the increase in duration of the stressed syllable under narrow focus conditions may result from the increased duration of particular subparts of the syllable, such as onset and coda (Hanssen, Peters & Gussenhoven 2008). Similarly, with respect to F0 effects, more subtle factors, such as F0 peak scaling and the location of the F0 peak within a syllable (Xu & Xu 2005; Baumann et al. 2007) have to be considered. With this in mind, it is not surprising that the relation between the duration of the stressed syllable and narrow focus realization in Georgian is more nuanced too and is sensitive to factors such as the thematic role of a narrowly focused constituent and its placement (preverbal or postverbal).

Furthermore, recall from Chapter 2 that Georgian stress is phonologically inactive (Hyman 2012), in that it does not take part in morphophonological processes in the language, and Georgian speakers do not have consistent intuitions about its placement. In this respect, the fact that some types of narrow foci, such as narrowly focused tetrasyllabic subjects in SVO- and SV-type clauses, are consistently marked by greater duration of the stressed syllable, as shown in this section, is unexpected. Specifically, if word stress is not used in other morphophonological processes, and speakers are not aware of it, it is unexpected that narrow focus has a consistent effect on the realization of stress.

In the next section, a more reliable acoustic cue to narrow focus in Georgian is discussed: F0 contours signaling the patterns of prosodic phrasing.

### 3.2.1.2 F0 values

Recall from Chapter 2 that the neutral intonational contour found in broad focus declaratives in Georgian is a series of Accentual Phrases (APs), each carrying a rising intonational contour (Jun, Vicenik & Lofstedt 2007; Vicenik & Jun 2014), as exemplified in Figure 74 below, repeated from Chapter 2. The sharp final rise in pitch at the end of one prosodic word/phrase and a steep fall on the initial syllable of the following...
one are indicative of a prosodic boundary between adjacent APs. This neutral intonational contour is found in out-of-the-blue declaratives and broad-focus utterances, such as replies to a question *What happened?*.

Recall also that in addition to the neutral intonational contour, Georgian allows for optional grouping of two or more APs together, typically lexical items that form a syntactic constituent, such as a noun and a modifying adjective. APs phrased together do not have a high boundary tone between them and instead carry a single rising contour over both prosodic words. Compare the APs *dzalian* ‘very’, *lamazi* ‘beautiful’ and *gogo* ‘girl’ in Figure 74 above, which are not phrased together, to the single ip *čemi mezobeli* ‘my neighbor’ in Figure 75. Note that pronominal status of *čemi* is not the factor that drives prosodic grouping in this case – non-pronominal modifiers can undergo grouping with the head noun in the same fashion.
Figure 75. In an utterance Gasul ghames čemi mezobeli televizors uq’urebda ‘Last night my neighbor watched TV’, the noun phrase čemi mezobeli ‘my neighbor’ forms a single ip. Recording ID: F7_I_#10

The data discussed in the remainder of this section shows that the function of prosodic grouping in Georgian goes well beyond such optional cases. One of the central claims of the current section is that prosodic grouping, akin to that shown in Figure 75, plays a crucial role in the prosodic realization of (preverbal) narrow focus in Georgian. Specifically, as the data below shows, subject narrow foci in the IPrP and wh-phrases lack a prosodic boundary between the focused constituent and the following verb; instead, the focused constituent/wh-phrase and the verb are realized with a single falling F0 contour. Such a prosodic realization is unique to these narrow focus contexts, and, as such, constitutes their prosodic signature.

The picture is somewhat different with preverbal object foci, which may show some evidence for a boundary tone separating them from the verb, though the realization of this boundary tone is weak, as compared to final boundary tones found in all other contexts. An example of a preverbal focus contour is provided in Figure 76 (note that there is no evidence for a boundary tone between the preverbal narrowly focused object and the verb in the pitch track in Figure 76).
Figure 76. Prosodic realization of the utterance Gušin dilas bebia samzareulos alagebda ‘Yesterday morning, grandma cleaned the kitchen’, with a narrowly focused constituent samzareulos ‘kitchen’ in the IPrP. Recording ID: F13_1_#24

Narrow focus in the IPoP position also has its own prosodic realization, which is distinct from that of narrow foci found in the IPrP, and may be distinct from the neutral/broad-focus realization of postverbal constituents. Particularly, postverbal foci never form a single phrase with the preceding verb, and instead may be realized with a steeper and deeper fall in F0 from the high final boundary on the verb to the postverbal focused constituent. Although this typical postverbal focus realization is readily identifiable in individual and averaged pitch tracks and has also been described in the literature (as a “superlow”; Skopeteas & Féry 2010), it has been harder to capture in the statistical analysis, as will be detailed below. An example of the prosodic realization of postverbal focus is provided in Figure 77.
Figure 77. Prosodic realization of the utterance Šaršan zapxulši bavšvebi tamašobdnen damalobanas ‘Last summer, the children played hide-n-seek’, with a narrowly focused constituent damalobanas ‘hide-n-seek’ in the IPoP. Recording ID: F6_3_#26

Turning to the experimental data, as already mentioned in the beginning of Section 3.2.1, F0 was measured at four points per syllable (starting point, 1/4, 2/4, 3/4) in the current dataset. The goal behind making F0 measurements four times per syllable was to create a detailed enough description of an intonational contour, which would allow for reliable tracking of the location and shape of F0 movements within a word/phrase. However, as you may have noticed in Table 21 and Table 46, as well as in the discussion of syllable duration in Section 3.2.1.1, the constituents in the stimuli in Experiment 1 are not of equal syllable count. This makes aligning the stimuli with each other, in order to compare their F0 properties, problematic. When investigating syllable duration data in Section 3.2.1.1, we obviated the issue of unequal syllable count by grouping the nouns in the dataset by syllable count (as well as clause type and focus type); because syllable duration acts as a reliable indicator of stress at the level of a word, such an approach was entirely appropriate. In contrast, F0 contours are often meaningful at a phrasal level. That is, a pitch contour that is typical of a certain discourse context can span several prosodic words, and the same
contour can be found in phrases of variable syllable counts. This is because the pitch targets that an F0 contour consists of anchor to particular prominent syllables at the edges of a prosodic phrase of a given type and/or the stressed syllables. With this in mind, making comparison of F0 properties of utterances of variable syllable counts is quite difficult.

Furthermore, intonational pitch targets can be both left- and right-aligned in a given prosodic domain, so choosing one or the other word/phrase edge in order to align the stimuli of unequal syllable count with each other can get in the way of making generalizations about the location of intonational pitch targets. Specifically, in a language that marks both left and right edges of a word/phrase with boundary tones, aligning stimuli of varying syllable counts with each other, by either left or right edge, would not allow to capture the distribution of pitch targets (syllables of interest shown by underscoring in (309)):

(309) a.azione b.azione
azione aazione
aziozazione aazione

As was shown in Chapter 2, Georgian is exactly the kind of a language that is shown in (309): that is, it carries intonational pitch targets on the ultima and penult, and may also intonationally mark the left edge of a word/phrase. In order to overcome this alignment problem, for the purposes of the statistical analysis of the F0 data, for each lexical and functional word in the data set, only the initial, penultimate and final syllables were taken into account; word-medial syllables, the loci of tonal interpolation between pitch targets, were discounted. Cf. also Skopeteas & Féry (2016) on the use of the same technique for the comparison of prosodic words of unequal syllable length.73

Consequently, each resulting ‘word’ in the final dataset is trisyllabic, and contains only the initial syllable (coded ‘1’), the penult (coded ‘-2’) and ultima (coded ‘-1’) of the original word. Therefore, all SVO

73 Note that Skopeteas & Féry (2016) in their study on Georgian prosody used three final syllables (antepenultimate, penultimate, final), as opposed to two final syllables used here. The decision to discount the antepenult as a potential locus of was made based on the fact that no durational or F0 effects were found on the antepenult in Chapter 2.
utterances for the purposes of statistical analysis are reduced to nine syllables: σ_{S1}, σ_{S-2}, σ_{S-1}, σ_{V1}, σ_{V-2}, σ_{V-1}, σ_{O1}, σ_{O-2}, σ_{O-1}. For instance, an utterance *Meadurma daič’ira zvigeni* ‘The fisherman caught a shark’ is reduced to (me)_{S1} (dur)_{S-2} (ma)_{S-1} (č’i)_{V1} (ra)_{V-2} (zvi)_{O1} (ge)_{O-2} (ni)_{O-1}. Figure 78 provides an example of an F0 curve found in the resulting reduced utterance, and Figure 79 shows averaged F0 contours of SVO utterances with various types of focus, with each of the three constituents reduced to three syllables.

Figure 78. The F0 contour of an utterance *Meadurma daič’ira zvigeni* ‘The fisherman caught a shark’, with each word reduced to three syllables (initial, X1; penultimate, X-2; final, X-1), smoothed at 0.3; Recording ID: F6_2_#1
As expected on the basis of the existing literature and preliminary observations, utterances containing narrow foci systematically differ in their prosodic realization from the broad focus/neutral utterances. Furthermore, preverbal foci and postverbal foci have consistently different realizations. In particular, as Figure 79 shows, preverbal focus (in Figure 79, subject focus) is manifested by a lack of a high final boundary tone, while the key prosodic property of postverbal focus (in Figure 79, object focus) is the steepness and depth of the fall from the final high boundary tone of the preceding verb.

In order to have a sufficient number of datapoints for a statistical analysis, certain individual clause types in the current dataset were grouped together, based on the order of the main constituents (S, V, O) in them, similarly to the way it was done in the syllable duration study discussed in the previous section. However, the grouping used in the current section was different in several respects. First, as already mentioned, instead of full individual words, all major constituents of a stimulus (e.g., S, V, O or S and V) were considered as a unit, but only three syllables (initial, penultimate, final) per word were taken into account. Second, constituents other than the major ones, such as temporal adjuncts (coded ‘X’ or ‘XX’) or the word ara ‘no’ (coded ‘No’), were discounted, in order to allow for clause subtypes such as SVO,
(XX)SVO and (No)SVO to be considered together as the SVO clause type. Importantly, though, in any given grouping of clause subtypes into a single clause type, discounting of adjuncts only on one side of the major constituents was allowed. That is, clause types SVO(XX) or S(XX)VO were not included in the SVO clause type described above. This is because the amount and location of adjunct material can affect e.g. the overall steepness of F0 declination over an utterance. In order to control for that, even after the adjuncts were discarded, only the clauses in which the adjuncts had been in the same position with respect to the major constituents were considered together. Taking this into account, the resulting clause types considered in the current study are listed in (310) below.

Moreover, as shown (310), it was decided that the adjunct-less clause types should be grouped together with the respective clauses in which adjuncts had been initial, as opposed to medial or final. The rationale for that is the following. Initial adjuncts are typically prosodified separately from the rest of the clause, so that the realization of the major constituent that follow an initial adjunct, such as S, is comparable to that of an initial S. In contrast, final (or medial) adjuncts, even when prosodified separately from the preceding constituents, can affect the steepness of the overall fall in F0 over the course of the utterance. This clause type grouping principle contrasts with the one used in the investigation of syllable duration in the previous section, where nouns from clause types such as (XX)SVO and SVO(XX) were considered together. There, grouping nouns from these clause types was allowed, since the presence or absence of adjuncts in a clause is not expected to affect syllable duration in the major constituents.

Based on the considerations outlined above, the following groupings of clause types were investigated (types 4 and 5 were considered because they allowed for more than one focus type in the current data set):

(310) 1. SVO, (XX)SVO and (No)SVO

2. SV, (X)SV, (XX)SV and (No)SV

3. SOV and (XX)SOV

4. (No)SV(X)
5. SV(X) and SV(XX)

As already mentioned and as shown in Figure 79, the F0 property that is affected by focus type is, in IPrP focus, the absence of a high boundary tone between the focused constituent and the verb, and, in IPoP focus, the depth of the fall in F0 on the postverbal focused constituent. To start with preverbal foci, with reference to the syllable-coding technique that is used in the current dataset, F0 properties of syllables $\sigma_{S-1}$ and $\sigma_{O-1}$ are the most informative for preverbal focused subjects and objects, respectively, since they are the ones that may or may not carry the final boundary tone. In turn, in postverbal foci, the lowest F0 point is reached in the penultimate syllable of the focused constituent, as shown in Figure 78; therefore, the F0 values of the syllable $\sigma_{O-2}$ were selected for detailed investigation.

Average F0 per syllable was used in the statistical analysis, since the alignment of a pitch target within a syllable may vary. As was the case with the syllable duration data, statistical analysis of the F0 values was performed using the `glmer` function in the `lme4` package for R (R Core Team 2017). For each of the clause types, a model with fixed factors F0_MEAN (of the syllable of interest) and FOCUS TYPE and random factors SPEAKER, WORD and CLAUSE SUBTYPE was considered first. If such a model failed to converge or produced no significant results, a model with random factors SPEAKER and WORD was also run. In both models, broad focus acted as the intercept and was taken to be the baseline that other types of focus were compared with. In the remainder of this section, the clause types listed above are considered individually.

Before delving into the analysis of individual clause types, it should be mentioned that verb type in the intransitive clauses (unergative vs. unaccusative) did not give rise to significant differences. With this in mind, going further, verb types are not discussed as a factor to be considered in the prosodic realization of foci. Instead, verbs of both subtypes in the intransitive clauses are considered together.
1. SVO, (XX)SVO and (No)SVO

The total count of SVO-type clauses selected for comparison, with adjuncts trimmed off, broken down by focus type, is provided in Table 36. Averaged F0 curves are shown in Figure 80, and average F0 values for the syllables of interest for the comparison of different focus types are provided in Table 37.

Table 36. The total count of SVO-type clauses with different focus conditions, selected for the comparison of F0 curves.

<table>
<thead>
<tr>
<th>SVO-type clauses: SVO, (XX)SVO, (No)SVO</th>
<th>broad</th>
<th>VP</th>
<th>S</th>
<th>S_contrast</th>
<th>O</th>
<th>O_contrast</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utterance count</td>
<td>18</td>
<td>16</td>
<td>23</td>
<td>5</td>
<td>15</td>
<td>7</td>
<td>84</td>
</tr>
</tbody>
</table>

Figure 80. Averaged F0 contours in SVO-type utterances with various types of focus, with each word reduced to three syllables (initial, \(X_1\); penultimate, \(X_2\); final, \(X_3\)), smoothed at 0.2
Table 37. Averaged F0 values (Hz) per syllable for syllables of interest for the comparison of different focus types in SVO-type clauses

<table>
<thead>
<tr>
<th>Focus type</th>
<th>Syllable</th>
<th>S₁</th>
<th>V₁</th>
<th>O₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>broad</td>
<td>269</td>
<td>240</td>
<td>182</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>259</td>
<td>235</td>
<td>146</td>
<td></td>
</tr>
<tr>
<td>O_contrast</td>
<td>295</td>
<td>269</td>
<td>143</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>230 ***</td>
<td>214 ***</td>
<td>173</td>
<td></td>
</tr>
<tr>
<td>S_contrast</td>
<td>243</td>
<td>220 *</td>
<td>177</td>
<td></td>
</tr>
<tr>
<td>VP</td>
<td>274</td>
<td>234</td>
<td>183</td>
<td></td>
</tr>
</tbody>
</table>

Consider the general shapes of the F0 curves in Figure 80. As you can see, contrastively and non-contrastively focused subjects, as expected, lack final boundary tones. The lack of a boundary tone between a focused constituent in the IPrP and the verb has been hypothesized to be a marker of (preverbal) narrow focus in Georgian at the outset of the current Section. Note also that in the same conditions, with the subjects contrastively or non-contrastively focused, the boundary tone between the verb and the following object is also considerably less pronounced than in the examples of other focus types. The lack of this final boundary tone is also expected, but attributable to a different process, post-focal deaccenting; cf. Ladd (1978), Beckman & Pierrehumbert (1986) and Jun (1998) for Japanese. Next, as expected, the F0 curves for broad and VP focus closely follow each other, and instantiate the neutral prosodic pattern also exemplified in Figure 48 and Figure 78. The object focus F0 curve is also similar to those of broad and VP-foci, but the important difference lies in the F0 values on the final object: in the object focus condition, the pitch falls considerably lower than in the other two. Finally, the F0 curve for contrastive object focus falls equally low on the final object, and is also characterized by the greatest pitch excursion. The depth of the F0 fall on the postverbal object in contrastive and non-contrastive object focus conditions, as well as the height of the boundary tone on the preceding verb are expected, based on the instrumental results reported in Skopeteas & Féry (2010).

Since there are (at least) three points in the SVO-type clauses where different focus types clearly diverge from each other in their average F0 values, based on Figure 80 – S₁, V₁, O₂ – each of them is considered separately below.
The first syllable where the different focus types noticeably diverge in their F0 values is the final syllable of the subject, $S_{1}$. A model with fixed factors $F0_{\text{MEAN}}$ (of $\sigma_{S_{1}}$) and $\text{FOCUS TYPE}$ and random factors $\text{SPEAKER}$, $\text{WORD}$ and $\text{CLAUSE SUBTYPE}$ revealed that the final syllable of the subject in the subject focus condition (but not in the contrastively focused subject condition) is significantly different from its counterpart in the broad focus condition ($p<0.001$). This conclusion supports the hypothesis that the absence of the high boundary tone between the constituent in the IPrP and the verb is indicative of narrow focus on the constituent in the IPrP.

The next point of notable divergence between the F0 curves in Figure 80 is $V_{1}$. Here, the focus types seem to form three groups: contrastive and non-contrastive subject foci pattern together, and so do VP, broad, and object foci; contrastive object foci differ from both groups and reach the highest F0 point at 300 Hz. A model with fixed factors $F0_{\text{MEAN}}$ (of $\sigma_{V_{1}}$) and $\text{FOCUS TYPE}$ and random factors $\text{SPEAKER}$, $\text{WORD}$ and $\text{CLAUSE SUBTYPE}$ shows that contrastively and non-contrastively focused subject conditions are indeed significantly different from the broad focus condition ($p=0.025$ and $p=0.01$, respectively), but the contrastively focused object condition is not ($p=0.5$).

The final point of divergence between the focus types in Figure 80 is $O_{2}$. Here, the averages F0 curve of the two object focus conditions, contrastive and non-contrastive, impressionistically, falls considerably lower than those of the other four conditions. However, a model with fixed factors $F0_{\text{MEAN}}$ (of $\sigma_{O_{2}}$) and $\text{FOCUS TYPE}$ and random factors $\text{SPEAKER}$, $\text{WORD}$ and $\text{CLAUSE SUBTYPE}$ failed to converge. A model with just $\text{SPEAKER}$ and $\text{WORD}$ as random factors did not show the contrastively and non-contrastive focused object conditions to be significantly different from the broad focus condition ($p=0.5$ for both conditions).

These results show that the contexts in which the subject in the IPrP is (contrastively or non-contrastively) focused are readily identifiable by the lack of two boundary tones: between the focused subject and the verb, and between the verb and the following object. The contexts with a (contrastively or non-contrastively) focused object in the IPoP, though readily identifiable as different from the other
conditions in syllables V-1 and especially O-2 in Figure 80, turned out to be not statistically significantly different from them.

2. SV, (X)SV, (XX)SV and (No)SV

The total count of SV-type clauses selected for comparison, with adjuncts trimmed off, broken down by focus type, is provided in Table 38. Averaged F0 curves are shown in Figure 81, and average F0 values for the syllable of interest for the comparison of different focus types are provided in Table 39.

Table 38. The total count of SV-type clauses with different focus conditions, selected for the comparison of F0 curves.

<table>
<thead>
<tr>
<th>SV-type clauses: (SV), (X)SV, (XX)SV, (No)SV</th>
<th>broad</th>
<th>VP</th>
<th>S</th>
<th>S_contrast</th>
<th>V_contrast</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utterance count</td>
<td>73</td>
<td>57</td>
<td>59</td>
<td>18</td>
<td>9</td>
<td>216</td>
</tr>
</tbody>
</table>

Figure 81. Averaged F0 contours in SV-type utterances with various types of focus, with each word reduced to three syllables (initial, X1; penultimate, X2; final, X1), smoothed at 0.2
Table 39. Averaged F0 values (Hz) per syllable for the syllable of interest for the comparison of different focus types in SV-type clauses

<table>
<thead>
<tr>
<th>Focus type</th>
<th>Syllable</th>
<th>S-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>broad</td>
<td></td>
<td>227</td>
</tr>
<tr>
<td>V_contrast</td>
<td></td>
<td>242</td>
</tr>
<tr>
<td>S</td>
<td></td>
<td>216 ***</td>
</tr>
<tr>
<td>S_contrast</td>
<td></td>
<td>207 **</td>
</tr>
<tr>
<td>VP</td>
<td></td>
<td>246</td>
</tr>
</tbody>
</table>

As Figure 81 shows, there is a notable difference in the F0 curves of the two subject focus conditions, the contrastive and non-contrastive one, and the three other conditions. In the non-subject focus conditions (broad, VP- and contrastive verb focus), the initial subject clearly carries a high final boundary tone; in the two subject focus conditions, in contrast, this high boundary tone is completely absent. Accordingly, a model with fixed factors F0_MEAN (of $\sigma_{S-1}$) and FOCUS TYPE and random factors SPEAKER, WORD and CLAUSE SUBTYPE revealed that the contrastive and non-contrastive subject focus conditions are significantly different from the broad focus condition ($p=0.006$ and $p<0.001$, respectively). These results align well with what we have seen for the two subject focus conditions in SVO-type clauses. In both clause types narrow focus on a subject in the IPrP is expressed by a lack of a prosodic boundary between the subject and the verb.

3. **SOV and (XX)SOV**

The total count of SOV-type clauses selected for comparison, with adjuncts trimmed off, broken down by focus type, is provided in Table 40. Averaged F0 curves are shown in Figure 82, and average F0 values for the syllables of interest for the comparison of different focus types are provided in Table 41.

Table 40. The total count of SOV-type clauses with different focus conditions, selected for the comparison of F0 curves.

<table>
<thead>
<tr>
<th>SOV-type clauses: SOV, (XX)SOV</th>
<th>broad</th>
<th>VP</th>
<th>O</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utterance count</td>
<td>19</td>
<td>12</td>
<td>13</td>
<td>44</td>
</tr>
</tbody>
</table>
Figure 82. Averaged F0 contours in SOV-type utterances with various types of focus, with each word reduced to three syllables (initial, $X_1$; penultimate, $X_2$; final, $X_3$), smoothed at 0.2

Table 41. Averaged F0 values (Hz) per syllable for syllables of interest for the comparison of different focus types in SOV-type clauses

<table>
<thead>
<tr>
<th>Focus type</th>
<th>Syllable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$S_1$</td>
</tr>
<tr>
<td>broad</td>
<td>204</td>
</tr>
<tr>
<td>O</td>
<td>199</td>
</tr>
<tr>
<td>VP</td>
<td>234</td>
</tr>
</tbody>
</table>

As Figure 82 shows, the pitch contours of all three focus types are comparable: in all of them, there is a pronounced boundary tone between the initial subject and the following object, while the boundary between the object and the verb is much more subdued, especially in the broad and object focus conditions. According to the statistical analysis, a model with fixed factors F0\_MEAN (of $\sigma_{S-1}$) and FOCUS TYPE and random factors SPEAKER, WORD and CLAUSE SUBTYPE revealed no significant difference in F0 properties of the final syllable of the subject constituent in the three focus types. Similarly, the same model with F0\_MEAN (of $\sigma_{O-1}$) as a fixed factor showed that there is no significant difference between the F0 properties in the final syllable of the object constituent. Overall, therefore, narrow focus on the object behaves
differently from the other types of narrow foci, in that it patterns closer together with the broad focus
condition.

At first sight, this might seem like a surprising conclusion that goes against the generalization made so
far, that preverbal foci are prosodically grouped together with the following verb. However, the fact that
narrowly focused objects behave differently from other narrowly focused constituents, and prosodically
pattern closely with broad foci has long been noted in the literature – in particular, in the focus projection
or focus percolation proposals (Contreras 1976; Culicover & Rochemont 1983; Selkirk 1984; von Stechow
& Uhmann 1986; Reinhart 1995; Cinque 1993; Zubizarreta 1998). The main idea that underlies these
approaches to focus is that if a sub-constituent of a complex phrase is interpreted as focused, the whole
phrase is treated as focus for the purpose of focus interpretation. Focus percolation is typically observed
with internal arguments, direct objects in particular, as the constituents carrying Nuclear Stress. Since direct
objects carry Nuclear Stress both in broad focus conditions and when narrowly focused, it means that the
neutral/broad focus word order and prosodic pattern is compatible with multiple information-structural
scenarios, in which various constituents can carry narrow focus. The size of the constituent carrying narrow
focus may vary and ranges from the direct object alone to the projection that embeds it (VP), to the next
embedding projection, such as a vP or TP, and so on.

Crucially, constituents other than the direct object and the projections on the clausal spine that embed
it – for instance, the subject of the clause – do not take part in the focus percolation/projection. This means
that narrow focus on the subject is incompatible with the prosodic pattern typical of broad focus (and, in a
language that poses structural requirements for the expression of narrow focus, like Georgian, subject focus
would also be incompatible with the neutral SOV word order).

With this in mind, it is not surprising that the prosodic realization of narrow focus on the preverbal
object coincides with that of broad focus; instead, Georgian provides empirical support for the focus
projection/percolation accounts, which predict that utterances with narrow focus on the direct object and
broad focus ones have the same prosodic realization.
4. (No)SV(X)

The total count of (No)SV(X) clauses, with adjuncts trimmed off, broken down by focus type, is provided in Table 42. Averaged F0 curves are shown in Figure 83, and average F0 values for the syllable of interest for the comparison of the focus types are provided in Table 43.

Table 42. The total count of (No)SV(X) clauses with different focus conditions, selected for the comparison of F0 curves.

<table>
<thead>
<tr>
<th>(No)SV(X) clauses</th>
<th>S_contrast</th>
<th>V_contrast</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utterance count</td>
<td>20</td>
<td>3</td>
<td>23</td>
</tr>
</tbody>
</table>

Figure 83. Averaged F0 contours in (No)SV(X) utterances with various types of focus, with each word reduced to three syllables (initial, X₁; penultimate, X₂; final, X₃), smoothed at 0.2

Table 43. Averaged F0 values (Hz) per syllable for the syllable of interest for the comparison of different focus types in (No)SV(X)-clauses.

<table>
<thead>
<tr>
<th>Focus type</th>
<th>Syllable</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>V_contrast</td>
<td>S₁</td>
<td>199 ***</td>
</tr>
<tr>
<td>S_contrast</td>
<td></td>
<td>225</td>
</tr>
</tbody>
</table>
The current clause type, starting with the word *ara* ‘no’, is naturally used in contrastive contexts, and allows for a comparison of two types of contrastive focus in the current dataset, on the subject and on the verb. As you can see in Figure 83, there is a marked difference between these two types of focus, of the already familiar type. Specifically, the context with contrastive focus on the verb is marked by a high final boundary tone on the preceding subject, while in the contrastive subject focus context this boundary is absent. This aligns well with the other instances of preverbal subject focus that we have seen in SV- and SVO-type clauses, in which preverbal narrowly focused subjects also lacked a high final boundary tone.

A statistical model with fixed factors F0_MEAN (of $\sigma_{S1}$) and FOCUS TYPE and random factors SPEAKER, WORD and CLAUSE SUBTYPE, however, revealed no significant difference between the two foci. This is likely attributable to the fact that the F0 curve rises sharply and falls within the final syllable of the subject in the verb focus condition, which brings its mean close to that of the almost flat F0 contour on the final syllable of the subject in the subject focus condition. In order to control for this, a fixed point within the final syllable of the subject (50% in) was selected for comparison instead. In this case, a model with fixed factors F0_50% and FOCUS TYPE and random factors SPEAKER, WORD and CLAUSE SUBTYPE, indeed, revealed a significant different difference between the two focus types ($p<0.001$).

5. **SV(X) & SV(XX)**

The total count of SV(X)-type clauses, with adjuncts trimmed off, broken down by focus type, is provided in Table 44. Averaged F0 curves are shown in Figure 84, and average F0 values for the syllable of interest for the comparison of the focus types are provided in Table 45.

| Table 44. The total count of SV(X)-type clauses with different focus conditions, selected for the comparison of F0 curves. |
|---|---|---|---|---|---|
| **SV(X) clauses** | broad | VP | S | S_contrast | V_contrast | Total |
| Utterance count | 6 | 5 | 22 | 1 | 1 | 35 |
Figure 84. Averaged F0 contours in SV(X)-type utterances with various types of focus, with each word reduced to three syllables (initial, $X_1$; penultimate, $X_2$; final, $X_1$), smoothed at 0.2

Table 45. Averaged F0 values (Hz) per syllable for the syllable of interest for the comparison of different focus types in SV(X)-type clauses

<table>
<thead>
<tr>
<th>Focus type</th>
<th>Syllable $S_1$</th>
</tr>
</thead>
<tbody>
<tr>
<td>broad</td>
<td>219</td>
</tr>
<tr>
<td>V_contrast</td>
<td>207</td>
</tr>
<tr>
<td>S</td>
<td>207</td>
</tr>
<tr>
<td>S_contrast</td>
<td>171</td>
</tr>
<tr>
<td>VP</td>
<td>306 *</td>
</tr>
</tbody>
</table>

The overall picture, as shown in Figure 84, is rather complex. The lowest F0 curve, found in the contrastive subject focus contexts, is expected, given the prosodic behavior of contrastive subject focus that we have seen in SVO- and especially SV- and (No)SV(X)-type clauses. In all of these cases, contrastive subject focus is pronounced with overall low F0, with no high final boundary tone on the subject. Next, the fact that contrastive focus on the verb patterns closely with (non-contrastive) subject focus is unexpected, given that contrastive focus on the verb was characterized by a prominent high final boundary tone on the subject, as was shown in the (No)SV(X) clauses. However, there was only one instance of contrastive verb
focus in the SV(X)-type clauses, and, consequently, the current result may not be representative of this type of focus. Similarly, it is unclear why the final high boundary tone is absent from the broad focus condition, where it is expected, based on the evidence from the other clause types. Finally, the F0 curve found in the VP-focus condition is consistent with those found in the other clause types.

Turning to the statistical analysis, a model with fixed factors F0_MEAN (of σS-1) and FOCUS TYPE and random factors SPEAKER, WORD and CLAUSE SUBTYPE only showed that the VP-focus condition is significantly different from the broad one (p=0.0130) but revealed no other significant differences. It is likely that the small count of some of the focus types, especially those of contrastive verb and contrastive subject focus, contributed to the resulting lack of significance.

3.2.2 Discussion and theoretical implications

To sum up the instrumental results presented in the current Chapter thus far, let us start with the syllable duration data. As was shown in Section 3.2.1.1, the duration of the initial (stressed) syllable is correlated with some focus types, in that the initial syllable is longer in narrowly focused nouns than in nouns found in broad focus contexts. However, this evidence varies depending on the status (object vs. subject) and structural position of the focused constituent in a clause. Notably, the generalization does not apply to narrowly focused objects in the IPrP and to narrow foci in the IPoP. As such, duration of the stressed syllable acts as an acoustic correlate of focus only in a subset of focus types: narrowly focused subjects in the IPrP. These syllable duration results contrast with those reported in Skopeteas & Féry (2016), who found syllable duration to be a reliable correlate of narrow focus for both subjects and objects, in both IPrP and IPoP. It is not immediately clear what this discrepancy may be attributable to.

The durational results presented here also provide support for the findings made in Chapter 2 – namely, that the initial syllable is the locus of word stress in Georgian. The fact that the durational prominence of the stressed syllable increases in (some) narrow focus conditions is not surprising; a similar effect has been
Moving on to F0 contours as correlated with focus types, we have seen that the absence of a final high boundary tone is a reliable indicator of narrow focus on subjects in the IPrP. Specifically, their prosodic realization contrasts sharply with that of broad focus clauses, in which the subject carries a prominent final high boundary tone. This contrast, however, turned out to be harder to capture statistically, in that, in different clause types, it may be better reflected with the F0\_MEAN or F0\_50% fixed factor. In contrast with narrowly focused subjects, narrowly focused objects in the IPrP have a realization closely similar to that of broad focus utterances, with the boundary tone between the focused constituent and the verb weakly implemented. The fact that the realization of narrow focus on the object patterns together with that of broad focus is expected from the point of view of focus percolation/projection literature, as discussed in Section 3.2.1.2 (cf. Culicover & Rochemont 1983 for an overview). Finally, narrowly focused objects in the IPoP have also been found to have a distinct prosodic realization, in line with Skopeteas & Féry (2010), who dubbed this contour ‘superlow’. In the statistical analysis however, the superlow did not turn out to be significantly different from the realization of a non-focused object in the same position.

The F0 results reported here broadly align with those discussed in Skopeteas & Féry (2016), with the two studies providing important validation for each other. Yet, the interpretation of the results in the two investigations differs. In particular, Skopeteas & Féry (2016) take subject foci in the IPrP (e.g., in such contexts as S\_F VO) to be phrased separately from the verb, with the resulting phonological phrasing being (S\_F)(VO). This, however, is hard to motivate given the typical F0 contours in such constructions, in which the prosodic boundary between the narrowly focused constituent in the IPrP and the verb is absent. On the other hand, the authors of both studies agree that preverbal object foci are phrased separately from the following verb, and foci in the IPoP are phrased separately from the preceding material.

Taking the durational and F0 evidence together, the conclusion is that narrowly focused subjects in the IPrP are most reliably marked, both by greater duration of the stressed syllable and by a characteristic F0
contour. As Section 4 of this chapter shows, the same pattern of prosodic phrasing is found between wh-phrases and verbs in wh-questions, thus unifying the two contexts. Narrowly focused objects in the IPrP, in contrast, do not differ from their counterparts in broad focus contexts in either of the parameters. Finally, narrowly focused objects in the IPoP may carry a distinct F0 contour (which, however, was not statistically identifiable in the current dataset) but are not marked by greater duration of the stressed syllable.

Before turning to the results of Experiment 2, dedicated to the prosodic realization of wh-questions, the next section provides a summary of the speakers’ word order preferences for various focus contexts from the Experiment 1.

3.3 Word orders used in focus constructions

The fact that the participants provided their own replies, of course, led to there being considerable variability in the sentence structures employed in the replies, and even some variability in lexical items. For instance, Table 46 lists the verbs that were used by the participants instead of the ones expected or provided in the questions. These examples were also used in the final dataset.

<table>
<thead>
<tr>
<th>Expected verb</th>
<th>Verb used by a participant</th>
</tr>
</thead>
<tbody>
<tr>
<td>a-grov-eb-d-a</td>
<td>kreb-d-a</td>
</tr>
<tr>
<td>‘PRV-pick-SF-SM-IPFV.3SG’</td>
<td>‘gather-SM-IPFV.3SG’</td>
</tr>
<tr>
<td>mo-i-zom-a</td>
<td>mo-i-sinj-a</td>
</tr>
<tr>
<td>‘PRV-VER-try_on-AOR.3SG’</td>
<td>‘PRV-VER-check-AOR.3SG’</td>
</tr>
<tr>
<td>xarš-av-d-a</td>
<td>a-mzad-eb-d-a</td>
</tr>
<tr>
<td>‘cook-SF-SM-IPFV.3SG’</td>
<td>‘PRV-prepare-SF-SM-IPFV.3SG’</td>
</tr>
<tr>
<td>gadmo-var-d-a</td>
<td>čamo-var-d-a</td>
</tr>
<tr>
<td>‘PRV-fall-SM-AOR.3SG’</td>
<td>‘PRV-fall-SM-AOR.3SG’</td>
</tr>
<tr>
<td>ga-gharib-d-a</td>
<td>pul-i da-k’arg-a</td>
</tr>
<tr>
<td>‘PRV-be_poor-SM-IPFV.3SG’</td>
<td>‘money-NOM PRV-lose-AOR.3SG’</td>
</tr>
<tr>
<td>x’t-eb-od-d-a</td>
<td>x’t-un-av-d-a</td>
</tr>
<tr>
<td>‘jump-SF-SM-IPFV.3SG’</td>
<td>‘leap-SF-SM-IPFV.3SG’</td>
</tr>
<tr>
<td>da-x’t-od-d-a</td>
<td>‘PRV-jump-SM-AOR.3SG’</td>
</tr>
</tbody>
</table>
However, the amount of data obtained was large enough to find a sufficient number of instances of syntactically parallel clause types in order to draw robust conclusions about their distributional properties with respect to focus types. To this effect, all the replies obtained were coded for their constituent structure in the following way: $S =$ subject (noun), $SS =$ subject (adjective + noun), $O =$ object (noun), $OO =$ object (adjective + noun), $V =$ verb, $VV =$ verb cluster, $X =$ temporal adjunct (single-word), $XX =$ temporal adjunct (two words), $No =$ no ($ara$), $Neg =$ verbal negation ($ar$), $& =$ and. The list of clause types/word orders that occurred 10 or more times in the final dataset (regardless of focus type) is provided in Table 47:

<table>
<thead>
<tr>
<th>Clause type</th>
<th>Total occurrences</th>
</tr>
</thead>
<tbody>
<tr>
<td>SV</td>
<td>127</td>
</tr>
<tr>
<td>SVO</td>
<td>71</td>
</tr>
<tr>
<td>SOV</td>
<td>46</td>
</tr>
<tr>
<td>XXXSV</td>
<td>39</td>
</tr>
<tr>
<td>XSV</td>
<td>35</td>
</tr>
<tr>
<td>XXXSVO</td>
<td>30</td>
</tr>
<tr>
<td>SXXOV</td>
<td>24</td>
</tr>
<tr>
<td>NoSV</td>
<td>22</td>
</tr>
<tr>
<td>XXSOV</td>
<td>22</td>
</tr>
<tr>
<td>SVX</td>
<td>20</td>
</tr>
<tr>
<td>SXV</td>
<td>19</td>
</tr>
<tr>
<td>SVXX</td>
<td>16</td>
</tr>
<tr>
<td>SSVO</td>
<td>16</td>
</tr>
<tr>
<td>NoSVO</td>
<td>15</td>
</tr>
<tr>
<td>XXXSXX</td>
<td>13</td>
</tr>
<tr>
<td>XXOSV</td>
<td>13</td>
</tr>
<tr>
<td>NoSVX</td>
<td>12</td>
</tr>
<tr>
<td>NoSVXX</td>
<td>12</td>
</tr>
<tr>
<td>SVOXX</td>
<td>11</td>
</tr>
<tr>
<td>SXXV</td>
<td>10</td>
</tr>
<tr>
<td>SSV</td>
<td>10</td>
</tr>
<tr>
<td>SSOV</td>
<td>10</td>
</tr>
</tbody>
</table>

| Total stimuli accounted for | 593 |

In order to make a statistical analysis more feasible, the $X$ and $XX$ categories were lumped together (the $S$ and $SS$ ones, however, were kept separate, since they can have different prosodic properties, with
the noun and adjective either phrased together or separately). The resulting list of structures, broken down by verb type and focus type, is provided in Table 48.

<table>
<thead>
<tr>
<th>Verb type</th>
<th>Clause type</th>
<th>Focus type</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>broad</td>
<td>O</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>160</td>
</tr>
<tr>
<td>transitive</td>
<td>SV</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>SSV</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>XSV</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>NoSV</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SVO</td>
<td>21</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>SSVO</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>SOV</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>SSOV</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>XSVO</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>SXOV</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>XSOV</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>XOSV</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NoSVO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SVOX</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>unaccusative</td>
<td>SV</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>XSV</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>SVX</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>SXV</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>XSVX</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>NoSV</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NoSVX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>unergative</td>
<td>SV</td>
<td>26</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>SSV</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>XSV</td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>SVX</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>SXV</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>XSVX</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>NoSV</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NoSVX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>160</td>
<td>49</td>
<td>148</td>
</tr>
</tbody>
</table>
The summary of the data obtained during Experiment 1, which is provided in Table 48, allows us to make a number of observations and conclusions about the speakers’ preferences for syntactic structures employed in focus constructions. Crucially, they support and provide additional evidence for the conclusions reached in Chapter 3. Below, I take a closer look at some of most informative results.

To start with, narrowly (non-contrastively) focused objects appear preverbally and postverbally with almost equal frequency: 13 narrowly focused objects are found in SVO and SOV clause types, respectively, and 3 in both SSVO and SSOV clause types, respectively. XSVO clauses were used in narrow focus constructions 6 times, and XSOV clauses were used 5 times. The only clause structure that favors preverbal placement of narrowly focused objects and does not have a VO counterpart is SXOV, used 6 times. The picture is markedly different for contrastively focused objects. Here, there is a strong preference for postverbal placement: of the 11 attested replies, 9 are found in a NoSVO clause type, and only 2 – in an SVO clause. Such a skewing in the distribution of contrastively focused direct objects is unexpected. Specifically, as we have seen in elicitation data and literature reports in Chapter 6, there is a slight preference for contrastively focused constituents to appear in the IPrP, as opposed to the IPoP. The experimental data, however, shows a robust trend for postverbal placement of contrastively focused objects.

Narrowly focused subjects behave differently from narrowly focused objects: both contrastive and non-contrastive narrowly focused subjects are found exclusively in the IPrP. While the behavior of contrastively focused subject is more in line with the expected preference for contrastive foci to appear preverbally, it is unclear why postverbal narrowly focused foci did not occur in the current dataset, despite being attested in the elicitation setting, as well as in the literature.

Next, broad focus contexts and VP focus contexts broadly align in their syntactic realization, as expected. A noticeable difference between the two, however, is found with respect to clause types that allow for adjunct material to appear between the subject and the rest of the clause, such as SXOV, SXV and XSXV contexts: these are more commonly found in [VP], contexts, as opposed to broad focus contexts. This also is expected from the point of view of the syntactic account developed in Chapter 3. Namely, in
[VP]<sub>f</sub> contexts the non-focal material undergoes topicalization; subjects in such contexts constitute canonical contrastive topics, while (temporal) adjunct material is likely to be interpreted as an aboutness topic. Since contrastive topics precede aboutness topics, word orders such as SXOV and SXV are expected.

Finally, note that the surprising SOV and SSOV structures that allowed for 3 and 1 subject focus contexts, respectively, all come from the same speaker (F9), and likely constitute an idiolectal trait.

In addition to generalizations based on focus type, there are notable individual preferences with respect to certain constructions. In particular, consider the choice between SVO and SOV. In Table 49, all SVO-based word orders (SVO, SSVO, NoSVO, SVOXX, XXSVO) are subsumed under the label ‘all SVO’, and all SOV-based word orders (SOV, SSOV, XXSOV) are subsumed under ‘all SOV’; both clause types are broken down by focus type. As you can see, speakers F6 and F11 are clear ‘SVO-ers’ (to coin a new descriptive term), while speakers F7 and M3 are clear ‘SOV-ers’. The other four speakers used both SVO and SOV clause types, but most of them, too, favored one or the other clause type. Namely, speakers F8 and F9 used noticeably more SOV clauses than SVO clauses, while speaker F10, on the contrary, preferred SVO structures. The only participant who used SOV and SVO on a par is M4.

It is not immediately clear what the preference for one of the other clause type might be correlated with or stem from. One plausible hypothesis is that Georgian speakers who are more proficient in Russian would use more SVO structures. The current data does not lend support to this hypothesis, however; speakers F6 and F11, the ‘SVO-ers’, do not report using a Russian more than the other participants. And conversely, speaker M4, who has the highest Russian proficiency, does not have a clear preference for SVO. Therefore, the reason is likely not related to the speaker’s proficiency in Russian, though it is likely to have some sociolinguistic significance (recall from Section 5.3 in Chapter 3 that there is a preference for SOV in more formal contexts, and SVO in less formal ones).
Table 49. Individual speaker preferences for SOV or SVO

<table>
<thead>
<tr>
<th>Clause type</th>
<th>Focus type</th>
<th>Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F6</td>
</tr>
<tr>
<td>all SVO</td>
<td>broad</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>VP</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>O</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>O, contrastive</td>
<td>5</td>
</tr>
<tr>
<td>all SOV</td>
<td>broad</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>VP</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>O</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>O, contrastive</td>
<td>2</td>
</tr>
</tbody>
</table>

Now that the conclusions from Experiment 1 have been discussed, the next section is dedicated to Experiment 2.

4. Experiment 2: wh-questions

4.1 Stimuli and design

The aim behind Experiment 2 was to investigate the prosodic properties of wh-questions (WHQs) in Georgian. During the experiment, the participants were presented with the same series of picture prompts that were used in Experiment 1; the picture prompts appeared on a laptop screen as PowerPoint slides. Like in Experiment 1, each prompt was accompanied by a statement introducing the main participant of the event described by it and posed a question about the picture.

When presented with a prompt, the participants were asked to read out the introductory statement and the question they saw on the screen. As in Experiment 1, the participants were instructed to speak clearly, using natural intonation. In order to overcome the unnaturalness of the experimental setting, the experimenter provided replies to the questions that the participants uttered, based on the picture prompt that both the participant and the experimenter were looking at. This was done in order to provide a natural communicative setting for the participant, which facilitates the use of natural question intonation, in contrast to the setting in which the participant reads out a list of questions without being provided answers to them. The replies provided were not recorded.
In terms of stimuli design, recall from Experiment 1 that the full set of questions (150) was based on 30 situational statements, each used in 5 focus type constructions. The 30 situational statements were based on 14 transitive verbs, 9 unergative and 7 unaccusative verbs, listed in Table 21 in Section 3.1 of the current chapter. The 5 focus types included subject, object, VP, broad and contrastive focus. Because the questions aimed at inducing contrastive focus were of the yes-no as opposed to wh-type (e.g. *Did Ilona fall from the roof last summer?*), they were excluded from Experiment 2.

The remaining wh-questions all consisted of a wh-word, a verb and a temporal adjunct, in that order; all wh-words used were monosyllabic: *ra* ‘what.NOM’, *ras* ‘what.DAT’, and *vin* ‘who’, whose case forms are syncretic between nominative and ergative. As in Experiment 1, the temporal adjuncts were trimmed off for the purposes of prosodic analysis. The resulting dataset, therefore, consisted of monosyllabic wh-words followed by verbs of various syllable counts (2-6 syllables). The full list of verbs that the WHQs were based on is provided in Table 50:
Table 50. The verbs that the WHQs in the Experiment 2 were based on, broken down by syllable count.

<table>
<thead>
<tr>
<th>Syllable count in the verb</th>
<th>2σ</th>
<th>3σ</th>
<th>4σ</th>
<th>5σ</th>
<th>6σ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>moxda ‘happened’</td>
<td>xdeboda ‘was happening’</td>
<td>agrovebda ‘was picking’</td>
<td>autoebda ‘was ironing’</td>
<td>učinardeboda ‘was disappearing’</td>
</tr>
<tr>
<td></td>
<td>xaršavda ‘was cooking’</td>
<td>ak’etebda ‘was doing’</td>
<td>nerviolobda ‘was nervous’</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ip’ova ‘found’</td>
<td>ak’etebdnen ‘were doing’</td>
<td>aremont’ebda ‘was fixing’</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>xt’eboda ‘was jumping’</td>
<td>alagebdna ‘were cleaning’</td>
<td>daacemina ‘sneezed’</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>gabrazda ‘got angry’</td>
<td>ašenebdna ‘were nervous’</td>
<td>imalebda ‘was hiding’</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>curavda ‘was swimming’</td>
<td>at’arebda ‘was building’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>iq’ida ‘bought’</td>
<td>brundebdna ‘was returning’</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>daič’ira ‘caught’</td>
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<tr>
<td></td>
<td></td>
<td>gaak’eta ‘did’</td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>gadmovarda ‘fell down’</td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>gagharibda ‘grew poor’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>icinoda ‘laughed’</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>ip’aravda ‘was stealing’</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>loculobda ‘was praying’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>moizoma ‘tried on’</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>mušaobda ‘was working’</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>nadirobdna ‘was hunting’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>sadilobda ‘was dining’</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>seirnobda ‘was going for a walk’</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>tamašobdnen ‘were playing’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>uq’urebdna ‘was watching’</td>
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</tbody>
</table>
Six native speakers of Georgian participated in the study, all female (F1, F4, F5, F8, F10, F11). All speakers are natives of Tbilisi, with a complete or in-progress university degree, with the age range 22-30 y.o, mean age 25.6 y.o. Speakers F8, F10 and F11 were recorded in Tbilisi, Georgia, using a Shure SM10A (head-worn, close-range) microphone and a Zoom H4n recorder. Speakers F1, F4 and F5 were recorded in a sound-proof booth in Cambridge, MA. All data was sampled at a sampling rate of 44.100 Hz and 16 bits per sample.

After eliminating disfluent tokens (due to pauses, errors, etc.), the final dataset consisted of 604 wh-questions. A breakdown of the complete dataset by speaker and syllable count of the verbs is provided in Table 51.

<table>
<thead>
<tr>
<th>speaker</th>
<th>Syllable count per verb</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>8 29 57 6 1</td>
<td>101</td>
</tr>
<tr>
<td>F4</td>
<td>6 29 58 6 1</td>
<td>100</td>
</tr>
<tr>
<td>F5</td>
<td>7 29 57 6 1</td>
<td>100</td>
</tr>
<tr>
<td>F8</td>
<td>8 30 56 7 1</td>
<td>102</td>
</tr>
<tr>
<td>F10</td>
<td>7 30 56 6 1</td>
<td>100</td>
</tr>
<tr>
<td>F11</td>
<td>8 28 58 6 1</td>
<td>101</td>
</tr>
<tr>
<td>Total</td>
<td>44 175 342 37 6</td>
<td>604</td>
</tr>
</tbody>
</table>

4.2 Analysis and results

Before delving into the analysis of the prosodic properties of WHQs, it is worth pointing out some limitations of Experiment 2, which make it more restricted in scope than Experiment 1.

To start with, the durational properties of the stressed initial syllable in wh-phrases are not addressed here, for two reasons. First, all wh-words used in Experiment 2 are monosyllabic, which makes it impossible to compare the duration of the initial syllable to that of the subsequent ones, as was done in the stimuli used in the stress study in Chapter 2 and with the narrow focus examples in Experiment 1 in the current chapter. Second, since wh-phrases in Georgian are inherently focused, they do not have broad focus counterparts that they can be compared to, in order to assess whether the duration of the initial syllable is correlated with
the type of focus. With this in mind, syllable duration was not measured in wh-phrases; instead, only their F0 properties were investigated.

Next, even though there is striking prosodic similarity between narrow foci and WHQs, as the results here show, the setup of the two experiments, Experiment 1 and Experiment 2, does not allow for a direct comparison between preverbal narrow foci and wh-phrases. This stems from the fact that, as already mentioned, all wh-words used in the current study are monosyllabic, while the syllable count of preverbal constituents in the two other contexts is no less than three. Since the initial syllable is also the final one in monosyllables, it is impossible to align them with their polysyllabic counterparts in narrow focus contexts. Moreover, there is no suitable broad focus contexts that WHQs could be compared to.

These limitations notwithstanding, the instrumental results reported in the current section show that there is a non-trivial similarity between the realization of narrow foci and wh-phrases. Specifically, both contexts are characterized by the absence of a final boundary tone on the constituent in the IPrP, be it a wh-phrase or a narrowly focused constituent. This is despite the fact that, as was shown in Chapter 3, these two contexts have completely different syntactic structures: in-situ realization for the former and A-bar movement to Spec, PredP for the latter.

Before proceeding to the results, recall from Chapter 2 that it has been suggested in the literature that wh-phrases, regardless of their length, are prosodically grouped with the verb immediately following them, as was shown in Figure 51 in Chapter 2, repeated below as Figure 85:
Figure 85. In a question 'Which investigator made the beautiful soldier happy?' the whole wh-phrase is prosodically grouped together with the verb (Vicenik & Jun 2014:167)

The grouping is phonetically manifested as a lack of high final boundary tone at the right edge of the wh-phrase. The presence of the high final boundary tone would be expected if the wh-phrase formed a separate Accentual Phrase (AP) and was not prosodically grouped together with the verb following it. Instead, what we see in wh-questions such as the one in Figure 85 is that there is a sharp but short initial rise in F0 on the first syllables of the wh-phrase, followed by a gradual fall that spans the rest of the wh-phrase and the left edge of the verb, before reaching its lowest point on the penultimate syllable of the verb (cf. Borise 2017 on the alignment of this low pitch target). There is no indication that there are any pitch targets at the right edge of the wh-phrase or left edge of the verb. This pitch contour, therefore, closely resembles the one that we have seen in preverbal narrow focus contexts in Section 3.2.1.2 above. Namely, both contexts are characterized by a shallow interpolation between an initial H* pitch accent (or, possibly, L+H*) and a low pitch target at the right edged of the verb, with no pitch targets in between them.

Importantly, though, this assessment of the prosodic properties of wh-questions that is available in the literature (Tevdoradze 2005; Jun, Vicenik & Lofstedt 2007; Vicenik & Jun 2014) is based on the preliminary analysis of individual pitch-tracks. In contrast, the current study allows for making
generalization over a range of controlled data, with examples that only differ from each other in verb syllable counts, which allows to test the alignment of pitch targets within WHQs.

For the purposes of the analysis, the 604 wh-questions that the dataset for Experiment 2 consisted of were grouped by the number of syllables in the verb, as was shown in Table 50 and Table 51. The pitch contours spanning the verb and the preceding wh-word were investigated, with F0 measured at four points per each syllable, as was the case in Experiment 1. The results are shown in Figure 86, where each averaged pitch contour includes a monosyllabic wh-word followed by a verb of a given syllable count. For instance, a disyllabic verb such as moxda ‘happened’, preceded by a monosyllabic wh-word in a WHQ ra moxda? ‘what happened?’ is represented by the red line in Figure 86, which provides an illustration of the pitch contour over all three syllables in the WHQ.

![Averaged pitch contours of wh-words and verbs of various syllable counts (each contour spans a monosyllabic wh-word and a verb of a given syllable count); smoothed at 0.2.](image)

Figure 86. Averaged pitch contours of wh-words and verbs of various syllable counts (each contour spans a monosyllabic wh-word and a verb of a given syllable count); smoothed at 0.2.
As you can see in Figure 86, WHQs with disyllabic verbs, at a first glance, seem to provide evidence against the hypothesis that the realization of wh-questions parallels that of narrow foci. Specifically, the high pitch target at the right edge of the wh-word in these examples, at first sight, looks like a high final boundary tone, the presence of which would signal that the wh-word is phrased separately from the following verb. However, note that in WHQs with trisyllabic verbs the high pitch target is realized on the initial syllable of the verb, as opposed to the wh-word, and in WHQs with even longer verbs it becomes clear that the high pitch target is, in fact, a high pitch plateau that spans the wh-word and the verb. The prosodic pattern obtained in WHQs with longer verbs is clearly different from the F0 pattern that indicates the presence of a final high boundary tone. In particular, in the latter case, the high pitch target is followed by a sharp fall on the initial syllable of the following AP; the plateau-like contour found in WHQs clearly contrasts with that prosodic scenario. Consequently, the lack of a high final boundary tone on the wh-word serves as evidence for prosodic grouping of the two elements together with each other. This, in turn, means that both preverbal (subject) foci and wh-phrases have the same prosodic signature: found in the IPrP, they undergo prosodic grouping with the following verb.

4.3 Discussion and theoretical implications

To recap the current section, we have seen in the experimental results that the F0 contour that spans the wh-word in the IPrP and the verb is consistent across all stimuli, regardless of syllable count in the verb. Moreover, WHQs with longer verbs are particularly illustrative in this respect, since they show that the high pitch target within the contour should not be viewed as a high final boundary tone of the preverbal constituent. Instead, it is likely to be a high pitch accent anchored to the initial syllable of the verb. Most importantly for our purposes, the lack of a boundary tone at the right edge of the wh-word indicates that the wh-word is indeed prosodically grouped together with the verb. The prosody of WHQs, therefore, parallels that of preverbal narrow foci – regardless of the fact that the two types of constituents have different underlying syntactic structures.
In treating wh-words in the same way as narrow foci, Georgian differs from languages such as English, in which wh-words are inherently deaccented (Hirschberg 1992, a.o.), and aligns with languages such as Japanese, in which wh-phrases receive a prosodic realization that closely resembles that of narrow foci (Ishihara 2004, a.o.).

5. Summary and conclusions

Let us recap the evidence discussed the current chapter and the conclusions drawn. In the realm of narrow foci, we have seen that preverbal and postverbal foci have consistently different prosodic realizations, based on two acoustic parameters: type of F0 contour and duration of the initial syllable. Specifically, in terms of F0, preverbal (subject) foci are characterized by a shallow rising-falling contour that spans the focused constituent and the verb (preverbal object foci pattern with broad foci in their prosodic realization, in line with focus percolation/projection accounts). The behavior of preverbal subject foci is indicative of a lack of a final high boundary tone on the focused constituent, which signals that the focused constituent is grouped together with the verb. In contrast, the duration of the stressed syllable is not reliably correlated with focus type: among preverbal foci, the initial syllable increases in duration only in narrowly focused subjects (but not objects). These results show that phrase-level prosodic phenomena, such as prosodic phrasing, play a more important role in marking information structure in Georgian than word-level phenomena such as word stress. Postverbal foci, in line with the existing literature, are characterized by a low and flat contour; no correlation between focus type and duration of the stressed syllable was found in the postverbal domain.

In turn, the prosody that wh-words receive closely resembles that of preverbal (subject) foci. Here, too, the wh-word and the following verb undergo prosodic grouping. The F0 contour that spans the two constituents is characterized by a sharp rise and a gradual fall, with no final boundary tone on the wh-word.

Overall, therefore, the current chapter showed that there is non-trivial parallelism between the prosodic realization of narrow foci and wh-phrases in Georgian, despite the fact that the two types of constructions
have completely different syntactic realizations. The significance of this observation is addressed in Chapter 8.
Chapter 8. Conclusions and wider implications

This concluding chapter serves several purposes. First, I sum up the main findings of the dissertation, discuss the conclusions that can be made based on these findings and outline some further research directions that they identify. After that, I address the implications of the current work for the theoretical approaches to the syntax and prosody of focus and discuss some broader questions about the architecture of grammar that this work gives rise to.

Let us start with the key conclusions of the dissertation and their significance for the analytical approaches to the syntax and prosody of focus – in particular, the expression of focus in languages that have a requirement or a strong preference for narrowly focused constituents/wh-phrases to be adjacent to the verb. There are four such conclusions:

i. Within a single language, linear adjacency between the elements in the IPrP/IPoP and the verb may follow from several underlying syntactic structures.

ii. Immediately preverbal (or postverbal) placement of narrow foci/wh-phrases is not derived and accounted for uniformly across languages.

iii. While the syntactic strategies employed to derive immediately preverbal or postverbal placement of narrow foci/wh-phrases may vary, the prosodic realization of preverbal narrow foci and wh-phrases in Georgian (prosodic grouping with the following verb) share important similarities that differentiate them from broad-focus contexts.
iv. The appropriate F0 contour, spanning the preverbal narrowly focused constituent and the verb, is more consistently correlated with narrow focus contexts in Georgian than the increase in prominence (duration) of the stressed syllable of the narrowly focused constituent.

In the remainder of this section, each of these conclusions is discussed in more detail.

First, the evidence from Georgian shows that the requirement for linear adjacency between the elements in the immediately preverbal (postverbal) position and the verb, in a single language, may follow from several syntactic configurations. In particular, recall from Chapter 1 that there are two main structural mechanisms that may be used to ensure adjacency between narrow focus/wh-phrase and the verb. The first one is a Spec-Head configuration strategy, in which the narrowly focused constituent/wh-phrase and the verb undergo movement to a dedicated projection and, by virtue of this fact, are linearly adjacent to each other. The second one is the in-situ strategy, in which both the narrowly focused constituent/wh-phrase and the verb are found in situ, and their adjacency is achieved via displacement of the intervening material to the left and right peripheries of the clause. Such displacement may either be explicitly motivated by the need to create adjacency between the in-situ constituents (in which case it is ‘altruistic’ in nature) or result from an independent process, such as a requirement for tropicalized constituents to appear in a clause-peripheral position. As I showed in Chapter 5 and Chapter 6, both structural mechanisms are employed in Georgian. This means that the apparent IPrP (and IPoP) is not a uniform syntactic position, and what appears to be a position immediately adjacent to the verb is structurally ambiguous.

Let us recap what allows a constituent to appear in the IPrP. In simple clauses, preverbal narrow foci are interpreted in situ, and their adjacency with the verb is achieved via dislocation of the material that would otherwise intervene between the narrow focus and the verb. Incidentally, the same holds for neg-words, though they abandon their IPrP requirement in the presence of narrow foci and wh-phrases, which allows one to use them as a tool in determining the positions of other constituents. Wh-phrases, in contrast, undergo short A-bar movement to Spec, PredP, accompanied by raising of the verb to Pred0, which also results in adjacency between the two elements, wh-phrase and the verb. The same is obtained for the
respective types of constituents – preverbal narrow foci and wh-phrases – in clauses with participial complements.

In more complex structures, the range of syntactic strategies employed is still more diverse, while the outcome – adjacency with the verb – is the same. Specifically, recall that in constructions with a non-inflecting modal *unda* ‘have to, must’ and a finite verb, preverbal (more specifically, pre-*unda*) placement of narrow foci results from their movement to Spec, PredP, in contrast with preverbal foci in simple clauses, which are interpreted in situ. Similarly, wh-phrases in clauses with *unda* ‘have to, must’ are found in Spec, PredP. Additionally, in the context of a preverbal narrow focus or a wh-phrase, *unda* ‘have to, must’ undergoes movement from Aux⁰, where it is merged, to Pred⁰.

Finally, when either an (argument) wh-word or narrow focus is found in an embedded nominalization, the focus/wh-containing nominalization behaves like the type of the constituent that it embeds: nominalizations containing wh-phrases undergo movement to Spec, PredP, accompanied by movement of the verb to Pred⁰, while nominalizations containing narrow foci are either interpreted in situ. Adjunct wh-phrases undergo movement to Spec, PredP without pied-piping the nominalization with them, since they do not originate in the nominalization.

As this summary shows, both means of achieving adjacency with the verb were discussed in Chapter 1 – a Spec-Head configuration and in-situ interpretation, coupled with displacement of intervening material – are operative in Georgian. The availability of multiple means to the same end – adjacency between narrow foci/wh-phrases and the verb – within a single language provides strong support for the idea that the adjacency is a requirement in and of itself, as opposed to being accidental.

The adjacency between the verb and the elements in the IPoP relies on yet another syntactic strategy: right-adjunction. Recall that in addition to the requirement for the postverbal narrow focus to be adjacent to the preceding verb, there is also a strong preference for it to be the only element in the postverbal domain. This is likely to stem from the interpretational and information-structural properties of the postverbal
domain in a verb-final language. Specifically, the syntactic strategy that is used for postverbal placement of narrow foci – right-adjunction – is also used for other, non-focal elements in Georgian, such as familiarity topics, which may occur in the postverbal domain in other contexts. That is to say, the single strategy that is available in the postverbal domain, right-adjunction, does not discriminate between constituents with different information-structural statuses.

From this perspective, the strong preference for there being no other elements in the postverbal domain if the IPoP is occupied by narrow focus can be explained in the following way. Since there is only one strategy for placing elements in the postverbal domain, right-adjunction, if the postverbal domain hosts several constituents, there is no way to differentiate them from each other in terms of their information structural status. Accordingly, there is no restriction on the number of familiarity topics that can surface postverbally, since they all have the same information-structural status. In contrast, if both a familiarity topic and a narrowly focused constituent were to occur postverbally, there would be no way to tell them apart. Therefore, there is a preference for postverbal focus to be unaccompanied by any other material, since that is what can give a narrowly focused constituent in the IPoP receives a certain degree of prominence, by virtue of the fact that it is the only right-adjointed element in the clause. Coupling postverbal placement with the appropriate prosodic contour (the ‘superlow’) ensures focal (as opposed to topical) interpretation of the postverbal constituent. Crucially, the interpretational (as opposed to syntactic) nature of this limitation explains why the generalization “no other postverbal elements in the presence of postverbal focus” is indeed a preference and not a rule in Georgian.

One of the most important take-aways from the first conclusion, that preverbal foci and wh-phrases in Georgian do not have the same syntax, also means that these two phenomena might not necessarily be as closely related as might be hypothesized. The evidence from Georgian presented here, therefore, falls in line with Cable’s (2008) analysis of wh-phrases and narrow foci in Hungarian, which is built on the insight expressed in Horvath (1986). According to Cable’s approach, the relationship between wh-questions and narrow focus in Hungarian is more indirect than has been argued in the literature; in particular, he shows
that preverbal placement of wh-phrases in Hungarian cannot be triggered by the same feature that ensures preverbal placement of narrow foci. The Georgian data provides further support for the hypothesis that preverbal placement of wh-phrases and narrow foci may not be syntactically uniform.

Turning to the second conclusion, the structural analysis of Georgian narrow foci and wh-questions provides further evidence that the immediately preverbal/postverbal placement of narrow foci/wh-phrases is not derived uniformly in languages that have this requirement/preference. Recall from Chapter 1 that both strategies considered in this dissertation, the Spec-Head configuration and the in-situ interpretation coupled with topicalization/displacement of the intervening material (via movement or base-generation), have been invoked in the literature before. Furthermore, the Spec-Head configuration as underlying preverbal placement of narrow foci and wh-questions has been hypothesized to occur at various heights in the clausal spine, including the CP- (Kashmiri; Bhatt (1999)), TP- (Persian; Karimi (2008), Toosarvandani (2008)) and vP-domains (Malayalam, Jayaseelan (2001)). Further still, for some languages, such as Basque, both types of analyses exist (Ortiz de Urbina 1989; 1994; 2002; Arregi 2002), with hybrid approaches, that integrate the two strategies also available (Elordieta 2001). The analysis of focus and wh-words in Georgian advanced here is thus similar to the analysis of Basque proposed by Elordieta (2001).

Such a variety of theoretical approaches is warranted, given that the wh/focus-verb adjacency has different syntactic properties in different languages. The next question then is: why is that the requirement for wh/focus-verb adjacency is a recurrent theme in verb-final languages, especially if it does not rely on the same syntactic means? This question is brought up again below, in the discussion of more general implications of the current work.

As for the third conclusion, I showed that, regardless of the syntactic strategy employed, the prosodic realizations (F0 contours) of elements in the IPrP share some important similarities, that, at the same time, differentiate them from broad-focus contexts. To recap the facts, let us start with the F0 contours used with preverbal narrow foci. Recall that the particular prosodic contour realized on the preverbal narrowly focused constituent depends on its status (object vs. subject) and structural position in the clause. Specifically,
narrowly focused subjects in the IPrP, together with the verb, receive a shallow rising-falling contour. The lack of a high final boundary tone on the preverbal constituent indicates that this constituent is prosodically grouped together with the verb. This contrasts sharply with preverbal subjects in broad focus conditions, which carry a pronounced high final boundary tone.

Direct objects in the IPrP receive a somewhat different prosodic realization. Specifically, regardless of whether a direct object carries narrow focus or is found in a broad focus context, it shows some evidence of a high final boundary tone (however, it is considerably more weakly implemented than the one found on e.g. preverbal subjects in broad focus conditions). I proposed that the different behavior of objects in this respect stems from the fact that narrow focus on the direct object, as the most deeply embedded constituent, is expected to be prosodically realized in the same way as VP focus or broad focus, based on the focus projection/percolation accounts (Contreras 1976; Culicover & Rochemont 1983; Selkirk 1984; von Stechow & Uhmann 1986; Cinque 1993; Reinhart 1995; Zubizarreta 1998). Recall that, according to focus percolation accounts, prosodically marking the direct object as focused allows for the phrase containing it to be focus-marked as well. Therefore, it is not surprising that the prosodic realizations of the two contexts, narrowly focused objects and objects in broad focus contexts, are parallel in Georgian. Because narrow focus on the object is expected to prosodically pattern together with broad focus, it is not representative of the prosodic realization of narrow foci more generally. On the other hand, the prosodic realization of narrow focus on the subject, which is manifested by prosodic grouping of the subject together with the verb, serves as an example of prototypical narrow focus prosody in Georgian.

Turning to wh-questions, we have seen that wh-phrases are similarly grouped together with the following verb, with a single rising-falling pitch contour spanning both elements. Recall that the presence of an F0 peak on the initial syllable of the verb (likely, a high pitch accent H*) makes the F0 contour in wh-questions reach higher than its counterpart in narrow focus contexts. Nevertheless, it is the lack of a final high boundary tone on the wh-phrase that is a characteristic prosodic feature of such contexts. Furthermore, the absence of a final high boundary tone is what makes the two contexts – preverbal (subject) foci and wh-
phrases – identical from the point of view of prosodic grouping and different from the unmarked contexts, where the preverbal element is separated from the verb by a final boundary tone.

Overall, therefore, preverbal narrow foci and wh-phrases exhibit closely similar prosodic properties, manifested by prosodic grouping with the following verb. To reiterate, this type of behavior contrasts with the ‘default’ prosodic phrasing found in broad focus contexts, where each prosodic word constitutes an Accentual Phrase and carries a final boundary tone.

Following up on these results, the prosodic realization of narrow foci and wh-questions formed on the basis of more complex syntactic structures, such as participial complements, embedded nominalizations and modal constructions should also be considered in future work. The prediction is that the prosodic properties of these contexts should be similar to those observed in Experiment 1 and Experiment 2 discussed in Chapter 7. Specifically, since the differences in underlying syntax do not prevent narrow foci and wh-questions from receiving parallel prosodic realizations in simple clauses, the prediction is that the same should be the case with more complex underlying syntactic structures.

Finally, turning to the fourth conclusion, I demonstrated, based on experimental evidence, that the appropriate F0 contour, spanning the preverbal narrow focus and the verb, is more consistently correlated with narrow focus in Georgian than the increase in prominence (duration) of the stressed syllable of the narrowly focused constituent. Specifically, when it comes to acoustic correlates of narrow focus, particular F0 contours identify narrow focus contexts more consistently than other acoustic means, such as the duration of the initial (stressed) syllable. Let us recap the facts. The F0 contours that are found in narrow focus contexts, discussed above, are systematically different from those found in broad focus contexts (except for narrowly focused preverbal objects, for reasons discussed above). At the same time, only narrowly focused preverbal subjects, but not narrowly focused preverbal objects or postverbal foci, are also consistently marked by greater duration of the stressed syllable, as compared to broad focus contexts. This means that F0 contours signal narrow focus contexts more reliably than other acoustic means, such as the prominence of the stressed syllable.
Bringing together the conclusions outlined above provides strong support for the following generalization: the prosodic contour that characterizes preverbal foci/wh-phrases and ensures prosodic grouping of the focus/wh-phrase and the verb is the most important, defining characteristic of preverbal foci and wh-phrases. The F0 contour in question is required regardless of the underlying syntactic structure that a focus construction or a wh-question relies on. Furthermore, F0 patterns are a more consistent characteristic of focal/wh-contexts in Georgian than the prominence of the stressed initial syllable.

This evidence might be taken to mean that the requirement for prosodic grouping is, in fact, the driving force behind the adjacency requirement. In other words, it might be hypothesized that the syntactic component of the grammar allows for numerous ways to achieve the adjacency between the verb and the constituent with an IPrP/IPoP requirement, because this is needed in order to satisfy the prosodic grouping requirement. This line of reasoning, according to which prosodic requirements can drive or affect syntactic computation, has been used in the literature before, with one prominent example being Richards’ (2016) Contiguity Theory. According to it, the construction of phonological/prosodic structure begins earlier in the derivation than usually thought, and movement operations that take place in the syntactic component of the grammar, such as verb raising and wh-movement, are largely determined by the requirements of phonological/prosodic structure.

Such an approach is not unproblematic from the point of view of the theory of grammar, however. Specifically, according to the Y-model of grammar (Chomsky & Lasnik 1977), its phonological component, which is also in charge of the prosodic realization, applies to the outcome of the syntactic computation, and as such, should not be able to influence the processes that are part of narrow syntax, such as syntactic movement. On the other hand, the Georgian focus & wh-phrase data, in which different syntactic structures receive the same prosody, seems to point in the direction of an analysis that relies on prosodic requirements as the driving force behind particular syntactic configurations. An analytic solution that would allow to capture this intuition without altering our understanding of the architecture of grammar is to approach prosodic requirements, such as the requirement for preverbal foci/wh-phrases and the verb to be phrased
together in Georgian, as a filter on the outcomes of syntactic computation (cf. Chomsky 1965; Chomsky & Lasnik 1977 for the notion of a filter in grammar). Specifically, the requirement for prosodic grouping of preverbal foci/wh-phrases and the verb can be thought of as allowing only those structures that comply with the prosodic requirement, regardless of the syntactic processes employed in order to achieve linear adjacency between preverbal foci/wh-phrases and verbs. Such a theoretical solution would account well for the Georgian focus and wh-question data, and, likely, could also be employed in other languages with the IPrP-placement requirement/preference for narrow foci and wh-phrases.
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