PHONOLOGICAL MOVEMENT IN CLASSICAL GREEK

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We show that Classical Greek HYPERBATON involves pervasive phonological movement. Hyperbaton moves prosodic constituents to prosodic positions, subject to prosodic boundaries and to prosodic conditions on well-formedness. Syntactic analyses of hyperbaton fail insofar as they require the movement of heads, phrases, and nonconstituents to positions that are difficult to define syntactically. Furthermore, hyperbaton disobeys anti-locality constraints and a host of well-studied syntactic island conditions. We propose that phonological movement arises as the result of constraint interaction in the phonological component, subsequent to the interface between syntax and phonology.*

Keywords: Classical Greek, discontinuous constituents, hyperbaton, PF movement, prosodic constituents, syntax-phonology interface

1. INTRODUCTION. Classical Greek is well known for its wide range of word-order possibilities. Major constituents of the sentence appear in all possible orders, so that SVO, SOV, VSO, VOS, OSV, and OVS are attested even in unexceptional prose texts. The following examples, for instance, all occur within a few pages of each other in Hippocrates's medical treatise *On headwounds*. This variation is typical of the Greek prose of the fifth to fourth centuries BC, which is the focus of our article.[1]

(1) SVO

 spasmòs   epilambánei toùs   pleístous tà

 spasm.M.NM.SG seize.3SG the.M.AC.PL most.M.AC.PL the.N.AC.PL

  epì tʰátera   tóu   sṓmatos

  at other.M.AC.SG the.M.GN.SG body.M.GN.SG

 'spasm seizes mostly the parts on the other side of the body'

                (*Headwounds* 19.21)

(2) SOV

 tà   dè toiáùta tôn   helkéōn

 the.N.AC.PL and such.N.AC.PL the.N.GN.PL wounds.N.GN.PL

  tomês   déìtai

  incision.F.GN.SG require.3SG

 'and such kinds of wounds require incision'   (*Headwounds* 13.35)

(3) OSV

 tà   epì deksià ho   spasmòs epilambánei

 the.N.AC.PL on right.N.AC.PL the.M.NM.SG spasm.M.NM.SG seizes.3SG

  'the spasm seizes the (parts) on the right'   (*Headwounds* 13.48)

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[1] Abbreviations in glosses are as follows: M: masculine, F: feminine, N: neuter; NM: nominative, GN: genitive, AC: accusative, DT: dative; SG: singular, PL: plural; 1: first person, 2: second person, 3: third person; PASS: passive, OPT: optative, IMP: imperative, PF: perfect, PLUP: pluperfect.

(4) VOS

sunkléptousi gàr tền   gnṓmēn   kaì tền
deceive.3PL for the.F.AC.SG mind.F.AC.SG and the.F.AC.SG
    ópsin   tóu   hiatróu   autaì
    eye.F.AC.SG the.M.GN.SG doctor.M.GN.SG themselves.F.NM.PL
    hai   hrapʰaí
    the.F.NM.PL sutures.F.NM.PL
    'for the sutures themselves deceive the mind and the eye of the doctor'

(*Headwounds* 12.29)

(5) VSO

periékʰei   gàr hē   kepʰalề   hē   állē
surround.3SG for the.F.NM.SG head.F.NM.SG the.F.NM.SG rest.F.NM.SG
    tò   métōpon   pân
    the.N.AC.SG forehead.N.AC.SG all.N.AC.SG
    'for the rest of the head surrounds the whole forehead'   (*Headwounds* 13.11)

(6) OVS

tề   hédrē   prosgénētai   rʰḗksis   kaì
the.F.DT.SG   hedra.F.DT.SG accompany.3PL fissure.F.NM.SG and
    pʰlásis
    contusion.F.NM.SG
    'fissure and contusion accompany the hedra'   (*Headwounds* 14.30)

    Such freedom gives the impression that the language is NONCONFIGURATIONAL (see
e.g. Hale 1983 for Warlpiri). This idea is explored in some detail by Devine and
Stephens (2000), who hypothesize that such freedom represents 'the historical residue
of a much earlier stage when the syntax had a more pronounced non-configurational
character than it has in the classical period' (p. 142). The focus of their work, and of
ours here, is on a word-ordering phenomenon known in classical scholarship as HYPER-
BATON (Quintilian 8.6.62), in which phrasal or subphrasal material occurs displaced
from its base order, often creating discontinuous constituents. Some examples are given
below, where italicized words form discontinuous constituents split up by fronting ma-
terial (*es tằs állās*, etc.) around a verbal head.

(7) *es tằs   állās*   épempe *summakʰíās*
    to the.F.AC.PL other.F.AC.PL sent.3SG allies.F.AC.PL
    'he sent (messengers) to the other allies'   (Herodotus 1.82)

(8) *katà   toùs   tóu*   *patròs*   epitáttonti
    according the.M.AC.PL the.M.GN.SG father.M.GN.SG ordering.M.DT.SG
    nómous
    laws.M.AC.PL
    'ordering (things) according to the laws of the father'   (Plato, *Critias* 120b)

(9) *hypò taútēs*   agómenoi   *tềs*   *élpidos*
    by   this.F.GN.SG inspired.M.NM.PL the.F.GN.SG hope.F.GN.SG
    'inspired by this hope'   (Plato, *Phaedo* 68a)

    The hyperbaton shown here is quite local, in the sense that material appears fronted
just to the left of its base position, not all the way to the left periphery of the clause. A
fuller context for 8, for instance, shows how far the fronted portion of the italicized PP
is from the left edge ('[') of the embedded infinitival clause.

(10) [mēdè   árksein mēdè árkʰonti   peísestʰai plền
    neither to.rule nor   ruler.M.DT.SG to.obey   unless

> katà   toùs   tóù   patròs   epitáttonti
> according the.M.AC.PL the.M.GN.SG father.M.GN.SG ordering.M.DT.SG
>> nómous]
>> laws.M.AC.PL
>> 'neither to rule nor to obey a ruler unless ordering things according to the
>> laws of the father'   (Plato, *Critias* 120b)

In such cases the elements fronted by hyperbaton show up one word to the left of where we would normally expect them; such displacement leads Devine and Stephens (2000, hereafter D&S) to analyze hyperbaton as very local syntactic movement from the complement of a given head to its specifier position.[2]

Hyperbaton is not always local in this sense, though, as we see in 11 (D&S 2000:19).

(11) *táùta*   es toùs   *pántas*   *héllēnas*   apérripse
     these.N.AC.PL to the.M.AC.PL all.M.AC.PL Greek.M.AC.PL directed.3SG
>> ho   kûros *tà*   *épea*
>> the.M.NM.SG Cyrus the.N.AC.PL words.N.AC.PL
>> 'Cyrus directed these words to all the Greeks'   (Herodotus 1.153)

Here the verb's direct object *táùta tà épea* 'these words' spans the entire clause, with its left branch (*táùta* 'these') far to the left of *apérripse*, the verb that governs it, and farther yet from the rest of the complement (*tà épea* 'the words'). Given a syntactic analysis like that of D&S, we can imagine that the extremely local specifier position acts as an 'escape hatch' through which material from the complement can escape to higher positions in the clause.[3] Cases of such long hyperbaton split up all sorts of phrases, including APs.

(12) *hoútō* tis   érōs   *deinós*
     so   a.M.NM.SG passion.M.NM.SG terrible.M.NM.SG
>> 'a passion so terrible'   (Plato, *Thaeatetus* 169c)

(13) *polù* gàr tôn   híppōn   étrek^hon *t^hátton*
     much for the.M.GN.PL horses.M.GN.PL ran.3PL   faster
>> 'for they ran much faster than the horses'   (Xenophon, *Anabasis* 1.5.2)

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[2] Discontinuous constituency is well attested synchronically (e.g. Baker 1996, Hale 1983, Jelinek 1984), as it is in Classical Greek. Devine and Stephens (1994:483) observe that such cases of extremely local hyperbaton around a verb accounted for 29% of the occurrences of verb + complement constructions within a sample from a single text (the *Troades*). This percentage is almost equal to the respective individual frequencies of cases within the sample where the verb's complement is entirely following or preceding the verb. According to them, '[u]se of interrupted constituents is a typical feature of verse word order and is also well attested in classical prose … [I]nterrupted constituents are found in texts, which, whatever degree of literary pretension they may have, are unlikely to use stilted or otherwise artificial word order ... So it is probably safe to assume that this typical feature of verse word order has a basis in ordinary speech' (1994:483). Throughout our article, examples come only from nonfiction prose, so as to minimize any intrusion of 'poetic syntax', if such exists. See D&S 2000 for more discussion, including many examples from poetry and references to earlier patterns from Homeric Greek.

[3] Although such cases exhibit hyperbaton at a greater distance, hyperbaton in prose is always bounded by an intonational phrase. D&S (2000) suggest that the greater distance between the various parts of the discontinuous complement in such cases is responsible for the lower frequency of occurrence in texts of so-called long hyperbaton. Referring to the left branch (*táùta*) in 11 as Y_1 and to the rest of the complement (*tà épea*) as Y_2, they propose that:

> the distance from Y_1 to Y_2 may also be a factor entering into the calculus and lowering the frequency of higher domain hyperbaton. In movement theories, longer movements are said to be less economical and so less favoured. Presumably the further away Y_2 is from Y_1, the more difficult the sentence is to decode and consequently the less frequently distant landing sites are used. Y_1 has to be held in limbo until the utterance reaches Y_2 for the sentence to be construed with more than contextual guesswork. (2000:19)

(14) *polù* sùn pʰronḗmati   *meízdoni*
      far with confidence.N.DT.SG greater.N.DT.SG
      'with far greater confidence'   (Xenophon, *Anabasis* 3.1.22)

The full context for 14 shows again that hyperbaton does not always front material to
the beginning of the clause.

(15) hṓste ekséinaí moi   dokéi   iénai epì tòn   agôna
      so   to.go.out me.DT.SG seems.3SG to.go into the.M.AC.SG fray.M.AC.SG
      polù sùn pʰronḗmati   *meízdoni*   ḕ   toútois
      far   with confidence.N.DT.SG greater.N.DT.SG than them.M.DT.PL
      'so it seems to me we can go out to go into the fray with far greater confi-
      dence than is (available) to them'   (Xenophon, *Anabasis* 3.1.22)

Nominal phrases can be split up too, with their left branches (*pâsin*, *mónais taútais*)
fronted.

(16) *pâsin*   éreske   táuta   *tóis*   *állois*
      all.M.DT.PL pleased.3SG these.N.AC.PL the.M.DT.PL other.M.DT.PL
      présbesin
      ambassadors.M.DT.PL
      'these things pleased all the other ambassadors'   (Demosthenes 19.157)

(17) *mónais*   *taútais*   apagoreúousin hoi   nómoi
      alone.F.DT.PL these.F.DT.PL forbid.3PL   the.M.NM.PL laws.M.NM.PL
      táis   *gunaiksí*
      the.F.DT.PL women.F.DT.PL
      'the laws forbid these women alone'   (Demosthenes 59.86)

Split PPs are also common, even when the intervening material is quite large.

(18) moi   *katà taútēn*   prosêke   krínestʰai   *tḕn*
      me.DT.SG on this.F.AC.SG is.right.3SG to.be.judged.PASS the.F.AC.SG
      grapʰḗn
      charge.F.AC.SG
      'it would be right for me to be judged on this charge'   (Isaeus 11.35)

(19) *apò* *tôn*   *humetérōn* hūmîn   polemêi *summákʰōn*
      from the.M.GN.PL your.M.GN.PL you.DT.PL battles.3SG allies.M.GN.PL
      'from your own allies he battles with you'   (Demosthenes 4.34)

(20) *hypʰ' henòs*   toiáuta   pepóntʰen hē   hellàs
      from one.M.GN.SG such.N.AC.PL suffered.3SG the.F.NM.SG Greece.F.NM.SG
      antʰrṓpou
      man.M.GN.SG
      'from one man Greece suffered such things'   (Demosthenes 4.34)

Multiple occurrences of hyperbaton can be found within a single sentence. Consider
the following case around the complementizer *ei* 'if'.

(21) *állos*   eí *tis*   boúloito   *tôn*   *hoplopʰórōn*
      other.M.NM.SG if some.M.NM.SG wish.3SG.OPT the.M.GN.PL hoplite.M.GN.PL
      prosístastʰai
      to.approach
      'if some other of the hoplites should wish to approach'

                                                      (Xenophon, *Cyropaedia* 6.2.13)

Here the subject *állos tis tôn hoplopʰórōn* 'some other of the hoplites' is split twice:
állos 'other' occurs in front of the complementizer *eí*, and *boúloito* 'should wish' occurs

in front of the rest of the subject *tôn hoplopʰórōn*. D&S (2000:119) discuss a particularly jarring case where two NPs, *gunáika gametền* 'wedded woman' and *anền* 'man', have stranded the indefinite articles *tiná* 'a.F.AC.SG' and *tis* 'a.M.NM.SG'.

(22) *gunáika*   dè *gametền*   eàn *anền*   di' orgền
    woman.F.AC.SG and wedded.F.AC.SG if   man.M.NM.SG in anger.F.AC.SG
      kteínei *tiná*   *tis*
      kills.3SG a.F.AC.SG a.M.NM.SG
     'and if a man kills a wedded woman in anger'   (Plato, *Laws* 868d)

Also possible are cases where hyperbaton interleaves words from different XPs.

(23) *tôn*   tis   *dokímōn*   állos   *mḗdōn*
    the.M.GN.PL an.M.NM.SG notable.M.GN.PL other.M.NM.SG Medians.M.GN.PL
    'another of the notable Medians'   (Herodotus 1.124)

(24) *ékʰei* *gunáikās*   hekástos   *pollā́s*
    has.3SG women.F.AC.PL each.M.NM.SG many.F.AC.PL
    'each (man) has many women'   (Herodotus 5.5)

Hyperbaton is often associated with focus on the fronted material, and this, in part, leads D&S to argue that it involves syntactic movement from the complement to the specifier position of a local head. In this article, we explore the nature of hyperbaton in Classical Greek prose from a different perspective. While we concur that movement is involved in hyperbaton, we argue that the movement is phonological rather than syntactic.

We propose that hyperbaton involves moving prosodic constituents in the phonological component rather than syntactic constituents in the syntactic component. Hyberbaton is thus a species of 'PF-movement' as discussed by Kidwai (1999), Embick and Noyer (2001), Sauerland and Elbourne (2002), and others, though none of these approaches actually posits moving phonological constituents. We are driven to our analysis by two surprising facts about hyperbaton. First, hyperbaton disregards a number of otherwise robust syntactic conditions: it moves strings that are not constituents in the syntax, moves heads and phrases to the same position, moves them to extremely local positions, and disobeys a host of syntactic island conditions in the process. Second, hyperbaton respects a number of phonological conditions we would expect syntactic movement to ignore: it moves phonological constituents, it moves them to phonologically defined positions, and it fails to move them if the result would violate prosodic constraints on words and phrases. The irrelevance of syntax and relevance of phonology force us to conclude that hyperbaton is PHONOLOGICAL MOVEMENT.

To establish that movement is phonological, we propose that two conditions be met. First, it must ignore syntax, including syntactic constituency and syntactic islands, as well as semantic conditions that rely on syntactic relations, such as binding. Second, it must be sensitive to phonology, including phonological constituency and prosodic constraints. We show that Classical Greek hyperbaton meets both conditions and is therefore a good candidate for phonological movement. We ultimately propose that phonological movement arises as the result of constraint interaction in the phonological component, subsequent to the interface between syntax and phonology. An ancillary idea we develop is that the left-right order of words in a sentence is derived phonologically rather than syntactically, by alignment constraints rather than by parameters on headedness.

We begin with a presentation of the data and a discussion of extant analyses that fall short of explaining Classical Greek hyperbaton. We then propose an analysis of hyper-

baton in which phonological constituents are moved without reference to syntactic structure.

2. DATA AND GENERALIZATIONS. The free order of major constituents in exx. 1–6 is mirrored at lower levels in Classical Greek (CG). Precise generalizations emerge most clearly at the phrase level, so that is where we focus our attention, beginning with prepositions.

Head-initial order (25a) is pragmatically neutral, which we take as evidence that this is the base order. Material from the complement may also show up to the left of the preposition and commonly does so when focused, topicalized, or foregrounded. The fronted material may be the full complement, in which case the head shows up as a postposition (25b), or a subconstituent from inside the complement (25c), or the left branch of the complement (25d), or even part of the complement that does not form a syntactic constituent (25e).[4]

(25) Hyperbaton around prepositions

    a. perì pántōn tôn kalôn
      about all.F.GN.PL the.F.GN.PL beautiful.F.GN.PL
        ‘about all the beautiful things’   (Plato, *Meno* 80c4)

    b. *prákseōs*   *tinos*   péri
      business.F.GN.SG some.F.GN.SG about
        ‘about some business’   (Plato, *Euthyphro* 8e6)

    c. *brṓseōs*   péri *anankaíās*
      food.F.GN.SG by need.F.AC.PL
        ‘by their need for food’   (Thucydides 2.70.1)

    d. *pántōn*   péri *tôn*   *állōn*
      all.N.GN.PL about the.N.GN.PL other.N.GN.PL
        ‘about all the other things’   (Plato, *Republic* 353b)

    e. *tôn*   *állōn*   péri *noméōn*
      the.M.GN.PL other.M.GN.PL about herdsmen.M.GN.PL
        ‘about the other herdsmen’   (Plato, *Statesman* 268b)

The broader context for 25c shows that the material fronted by hyperbaton can show up far from the beginning of the clause.

(26) kaì álla   te pollà   epegegénēto   autóthi ḗdē
    and other.N.AC.PL and many.N.AC.PL happened.3SG.PLUP there already
        brṓseōs   péri *anankaíās*
        food.F.GN.SG due.to need.F.AC.PL
      ‘and many other things had already happened there due to the need for food’
             (Thucydides 2.70.1)

Hyperbaton fronts material one word to the left in these cases, just past the preposition. The extreme locality of the movement is clear from the following examples, where the fronted material appears between the determiner *tḕn* and its noun (*dóksan*, *khreían*).

(27) tḕn   *tôn*   *pollôn*   dóksan   *anthrṓpōn*
    the.F.AC.SG the.M.GN.PL many.M.GN.PL opinion.F.AC.SG people.M.GN.PL
      ‘the opinion of the many people’   (Plato, *Protagoras* 353a)

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[4] Prepositional phrases of types (b)–(e) are much less common in prose than in poetry (D&S 2000:213–14) and are generally restricted to the prepositions *péri* ‘about’ and *héneka* ‘on account of’.

(28) tḕn   *tôn*   *oikiôn*   kaì tês   gês
the.F.AC.SG the.M.GN.PL houses.M.GN.PL and the.F.GN.SG land.F.GN.SG

    kʰreían
    use.F.AC.SG

    'the use of the houses and the land'   (Thucydides 2.62.3)

Such data show that the fronted material ends up very close to the phrasal head, that is, the preposition in 25–26 and the head noun in 27–28.

Adjectives surface in the same five patterns.

(29) Hyperbaton around adjectives

    a. aítios   tôn   pragmátōn
    responsible.M.NM.SG the.N.GN.PL affairs.N.GN.PL

      'responsible for the affairs'   (Xenophon, *Hellenica* 3.4.25)

    b. *toútōn*   *tôn*   *pragmátōn* aítios
    these.N.GN.PL the.N.GN.PL affairs.N.GN.PL responsible.M.NM.SG

      'responsible for these affairs'   (Isocrates, *In Callimachum* 37.6)

    c. *agatʰóù*   *tinos*   àn aítios   tê
    good.M.GN.SG some.M.GN.SG PRT responsible.M.NM.SG the.F.DT.SG

      stratiê
      army.F.DT.SG

      'responsible for some good to the army'   (Xenophon, *Anabasis* 6.1.20)

    d. *pántōn*   aítion   *toútōn*
    all.N.GN.PL responsible.M.AC.SG these.N.GN.PL

      'responsible for all these things'   (Demosthenes 3.30.1)

    e. *állōn*   *pollôn*   aítios   *kakôn*
    other.N.GN.PL many.N.GN.PL responsible.M.NM.SG disasters.N.GN.PL

      'responsible for many other disasters'   (Lysias, *Areopagiticus* 6.2)

Case (a) is head-initial; (b) is head-final. In (c), the adjective is preceded by a subconstituent of its complement and in (d) it is preceded by the left branch of the complement, a head. In (e) it is preceded by material from the complement that does not form a syntactic constituent.

The same patterns are found around verbs (30) and nouns (31).

(30) Hyperbaton around verbs

    a. apoktéinantes mou   tòn   pàida
    killing.M.NM.PL my.GN.SG the.M.AC.SG child.M.AC.SG

      'killing my child'   (Antiphon, *Tetralogia* 3.7.1)

    b. *toùs*   *paróntas*   *mónon* apoktêinai
    the.M.AC.PL present.M.AC.PL only to.kill

      'to kill only those present'   (Thucydides 3.36.2)

    c. *aiginḗas*   dè apoktêinai *pántas*
    Aeginetan.M.AC.PL and to.kill   all.M.AC.PL

      'and to kill all the Aeginetans'   (Thucydides 4.57.4)

    d. *polloùs*   apoktêinai *tôn*   *polemíōn*
    many.M.AC.PL to.kill   the.M.GN.PL enemy.M.GN.PL

      'to kill many of the enemy'   (Isocrates, *ad Archidamum* 9.5.2)

    e. *toùs*   dè *állous*   apékteine *pántas*
    the.M.AC.PL and other.M.AC.PL killed.3SG all.M.AC.PL

      'and he killed all the others'   (Thucydides 3.119.7)

(31) Hyperbaton around nouns
  a. plê̂tʰos   tô̂n   ō̂ōn
      mass.N.NM.SG the.M.GN.PL eggs.M.GN.PL
        'mass of eggs'   (Aristotle, *de Generatione Animalium* 755a28)
  b. *tô̂n*   *tópōn*   plê̂tʰos
      the.M.GN.PL place.M.GN.PL mass.N.NM.SG
        'mass of places'   (Aristotle, *de Generatione Animalium* 771b29)
  c. *dermátōn*   plê̂tʰos   *ōmoboeíōn*
      hides.M.GN.PL mass.N.NM.SG raw.M.GN.PL
        'mass of raw hides'   (Xenophon, *Anabasis* 4.7.26)
  d. *toútōn*   plê̂tʰos   tô̂n   ō̂ōn
      these.M.GN.PL mass.N.NM.SG the.M.GN.PL eggs.M.GN.PL
        'mass of these eggs'   (Aristotle, *de Generatione Animalium* 755b27)
  e. *tô̂n*   *epipolaksóntōn* génesis   *muô̂n*
      the.M.GN.PL common.M.GN.PL source.F.NM.SG muscle.M.GN.PL
        'source of the common muscles'   (Aristotle, *Historia Animalium* 580b14)

  With minor variation, the same patterns that occur with lexical heads also occur with functional heads. The complementizer *ei* 'if', for instance, appears in all cases except for (b), where it would follow its entire complement.[5]

(32) Hyperbaton around complementizers
  a. ei mḕ siōpḗseien
      if not be.silent.3SG.OPT
        'if he should not be silent'   (Xenophon, *Hellenica* 2.3)
  b. **mḕ siōpḗseien* ei   (construct)
  c. *tḕn*   *pólin*   ei mḕ *parédomen*
      the.F.AC.SG city.F.AC.SG if not surrendered.1PL
        'if we had not surrendered our town' (Thucydides 3.57.3)
  d. *állos*   eí *tis*   *boúloito*   tô̂n
      other.M.NM.SG if some.M.NM.SG wish.3SG.OPT the.M.GN.PL
            hoplopʰórōn   *prosístastʰai*
            hoplite.M.GN.PL to.approach
        'if some other of the hoplites should wish to approach'
                                          (Xenophon, *Cyropaedia* 6.2.13)
  e. *tò*   *méntoi megálōn* *péri legoménōn* *nómōn*
      the.N.AC.SG PRT great.M.GN.PL of spoken.M.GN.PL laws.M.GN.PL
            kaì smikrô̂n   ei *homoíōs prōimiázdestʰai prostáttoimen*
            and small.M.GN.PL if equal   to.preface   require.1PL.OPT
        'if we required the (*tò*) equal prefacing of laws called great and small'
                                          (Plato, *Laws* 723c7)

Case (e) requires a little explanation: the article *tò* goes with the infinitive *prōimiázdestʰai* to form what classicists refer to as an articular infinitive, which we have translated here as 'the prefacing'; the separation of *tò* plus the complement of *prōimiázdestʰai* on the one hand from *prōimiázdestʰai* itself on the other is what yields the discontinuous constituent. Exactly the same set of patterns is found with the definite article.

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[5] We know of no such cases and have found none in a search of the large electronic Greek corpus *Thesaurus Linguae Graecae* (TLG).

(33) Hyperbaton around the definite article

    a. tḕn   génesin   tôn   arith*môn*

        the.F.AC.SG origin.F.AC.SG the.M.GN.PL numbers.M.GN.PL

          'the origin of numbers'   (Aristotle, *Metaphysics* 1091a29)

    b. **génesin tôn arithmôn tḕn*[6]   (construct)

    c. *tôn*   *arithmôn*   *tôn*   *toioútōn* ...   tḕn

        the.M.GN.PL number.M.GN.PL the.M.GN.PL such.M.GN.PL the.F.AC.SG

          génesin

          origin.F.AC.SG

          'the origin of such numbers'   (Aristotle, *Metaphysics* 1091a22)

    d. *pántōn*   hē   *p^húsis*   *ekeínōn*   *tôn*

        all.N.GN.PL the.F.NM.SG nature.F.NM.SG those.N.GN.PL the.N.GN.PL

          stereôn

          solid.N.GN.PL

          'the nature of all those solids' (Aristotle, *On Generation and Corruption* 326a30)

    e. *dṓdeka náus*   tā̀s   *árista pleoúsās*[7]

        twelve ships.F.AC.PL the.F.AC.PL best   sailing.F.AC.PL

          'the twelve best-sailing ships'   (Xenophon, *Hellenica* 5.1.27)

Thus, neither the complementizer nor the article can appear word-finally (b), despite the fact that each can otherwise occur after material fronted from its complement (c, d, e). The traditional understanding of this is that such words are PREPOSITIVE and cannot occur phrase-finally for prosodic reasons (Dover 1960).

    Our final functional heads are the conjunctions *kaí* and *dé*. *Kaí* is placed before the last conjunct, or, in emphatic cases, before every conjunct.

(34) kaì egṑ   kaì sù   kaì hoi   álloi   ánt^hrōpoi

     and I.NM.SG and you.NM.SG and the.M.NM.PL other.M.NM.PL people.M.NM.PL

       pántes

       all.M.NM.PL

      'I and you and all other people'   (Plato, *Euthyphro* 7d5)

We assume that *kaí* is a conjunctive head that takes a complement to its right (Munn 1993, Johannessen 1998, Zoerner 1999). This head-initial analysis is supported by the fact that 'and NP and NP' structures (as in 34) occur only in languages where lexical XPs are head-initial as well (Kayne 1994).[8] Thus, coordinate structures have the same head-initial base order as NP, VP, AP, PP, CP, and DP in CG. So it comes as a surprise that the postpositive conjunction *dé* never occurs before its complement.

(35) Hyperbaton around second-position conjunction *dé* 'and'

    a. **dé ouk^h hyp' erastóu*   (construct)

    b. *ouk^h hyp' erastóu*   dé

       not   by   lover.M.GN.SG and

       'and not by a lover'   (Plato, *Phaedrus* 227c)

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[6] Again, we know of no such cases and have found none in the TLG corpus.

[7] A simpler example, with indefinite *tôi* 'some.M.DT.SG', is seen in (i).

  (i) *tôn*   *állōn*   tôi   *ksénōn*

     the.M.GN.PL other.M.GN.PL some.M.DT.SG alien.M.GN.PL

     'to some other of the aliens'   (Plato, *Laws* 915b5)

Generally, 'the distribution of modifiers in indefinite phrases is parallel to that of the definites' (D&S 2000:241).

[8] Our claim that coordinators like *kaí* and *dé* project a phrase goes against the notion that particles (function words) do not project phrases in the way lexical heads do in Classical Greek (D&S 2000:211ff.).

c. *epì* *tê̂*   *kepʰalê̂*   dè kránē   skútina
   upon the.F.DT.SG head.F.DT.SG and helmet.F.NM.SG leather.F.NM.SG
   'and a leather helmet upon the head'   (Xenophon, *Anabasis* 5.4.13)

d. *tà*   dè *algḗmata* espíptei hypò pʰlégmatos
   the.N.AC.PL and pain.N.AC.PL attack.3SG by   phlegm.N.GN.SG
   'and the pains attack because of phlegm'   (Hippocrates, *Affections* 2.11)

e. *kaì* *tô̂n*   *par'* *heautô̂*   dè *barbárōn*
   even the.M.GN.PL around himself.M.DT.SG and barbarians.M.GN.PL
        epemeléito
        took.care.of.3SG
   'and he took care even of the barbarians around him'

                                                 (Xenophon, *Anabasis* 1.1.5)

Thus *dé* shows the reverse pattern of complementizers and articles: it is postpositive and
occurs anywhere but before its complement (Dover 1960).[9] Where there is no preceding
word to host the postpositive, the structure is ungrammatical (a). The same pattern oc-
curs with the clitic conjunction *te* 'both/and'.

(36) Hyperbaton with clitic conjunction *te* 'and'
   a. *te apò tô̂n idíōn   (construct)
   b. *apò* *tô̂n*   *idíōn*   te
      from the.M.GN.PL own.M.GN.PL and
      'and from their own'   (Thucydides 1.141.4)
   c. *tề̀n*   *díkēn*   te *pâ̂san*
      the.F.AC.SG trial.F.AC.SG and whole.F.AC.SG
      'and the whole trial'   (Demosthenes, *Against Meidias* 21.176)
   d. *én* te *tô̂*   *mésô̂*
      in and the.M.DT.SG middle.M.DT.SG
      'and in the middle'   (Plato, *Parmenides* 165b2)
   e. *perì* *poiētô̂n*   te *allô̂n*   *kaì perì* *homḗrou*
      about poets.M.GN.PL and other.M.GN.PL and about Homer.M.GN.SG
      'both about other poets and about Homer'   (Plato, *Hippias Minor* 363c)

In 37 we summarize the head-complement orders we have seen so far, using Y$_{1-3}$ to
indicate elements of the complement.

(37) Relative location of head (X) and complement (YP)
   a. head-initial   X   [$_{YP}$ Y$_1$ [Y$_2$ Y$_3$]]
   b. head-final   [$_{YP}$ Y$_1$ [Y$_2$ Y$_3$]] X
   c. subconstituent   [Y$_2$ Y$_3$]   X   [$_{YP}$ Y$_1$]
   d. left branch   Y$_1$ X   [$_{YP}$ [Y$_2$ Y$_3$]]
   e. nonconstituent   Y$_1$ Y$_2$ X   [$_{YP}$ [Y$_3$]]

We show below that it is very difficult to uniformly characterize the fronted material in
37 syntactically, though it is possible to do so prosodically, which we take as strong ev-
idence that the movement involved is phonological rather than syntactic.

  Though our focus in this article is on the mechanism of hyperbaton, it is important to
discuss its effects on interpretation as well. Hyperbaton is semantically neutral sensu
stricto and never affects grammatical relationships or logical entailments. Rather, it has
what Chomsky (2001) calls 'surface interpretive effects' including focus, topic, and
foregrounding, all of which are highly dependent on word order in CG (Dover 1960,

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[9] Similar behavior is exhibited by clitics in, for example, Serbo-Croatian (Bošković 2001).

Dik 1995, D&S 2000, Matić 2003). Hyperbaton often lacks even these interpetive effects, as is shown very clearly with postpositives (35–36), where the fronted material must be interpreted in situ rather than in the position where hyperbaton displaces them. The conjunction in these cases clearly has scope over its entire complement, which occurs either to its left (case b) or on both sides of it (cases c–e): second-position conjunctions must be interpreted as if hyperbaton had not taken place.

Hyperbaton is semantically vacuous for anaphor binding as well, which is dependent on purely syntactic relations like c-command (Chomsky 1981, 1982, and much subsequent work).[10] Consider 38 and 39, where fronted reflexives and reciprocals are interpreted as if they were in situ, following their antecedents.[11]

(38) Fronted reflexives

    a. ei dé ge mēdamóù *heautòn$_i$*   apokrúptoito   [ho
       if and PRT never   himself.M.AC.SG conceal.3SG.OPT the.M.NM.SG
         poiētḗs]$_i$
         poet.M.NM.SG
       'and if the poet should never conceal himself'   (Plato, *Republic* 393c11)

    b. hōs dè *pròs heautòn$_i$*   ékʰei [ho   spoudâios]$_i$
       as   and toward himself.M.AC.SG holds the.M.NM.SG earnest.M.NM.SG
       'and as the earnest man is toward himself'

                                     (Aristotle, *Nicomachean Ethics* 1170b5)

(39) Fronted reciprocals

    a. *allḗlous$_i$*   epilopʰronḗsanto [kʰeirísopʰos   kaì
       each.other.M.AC.PL greeted.3.PLUP   Cheirisophos.M.NM.SG and
         ksenopʰôn]$_i$
         Xenophon.M.NM.SG
       'Cheirisophos and Xenophon greeted each other'
                                     (Xenophon, *Anabasis* 4.5.34)

    b. eidétēn *allḗlous$_i$*   [hē   gunḕ   kaì ho
       saw.3DU each.other.M.AC.PL the.F.NM.SG woman.F.NM.SG and the.M.NM.SG
         abradátas]$_i$
         Abradatas.M.NM.SG
       'the woman and Abradatas saw each other'   (Xenophon, *Anabasis* 4.5.34)

Hyperbaton ignores syntactic islands as well. The most surprising cases involve extraction out of coordinate structures, which contravenes Ross's (1967) COORDINATE STRUCTURE CONSTRAINT (CSC).

(40) Conjunct hyperbaton around a preposition

    a. *aukʰmôn*   *te* péri *kaì epombríās*
       drought.M.GN.PL both about and heavy.rain.F.GN.SG
       'about both drought and heavy rain'   (Aristotle, *Meteorology* 361b9)

    b. *aretês*   péri *kaì kakíās*
       virtue.F.GN.SG about and vice.F.GN.SG
       'about virtue and vice'   (Plato, *Republic* 365a5)

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[10] This is similar to what has been observed in Japanese. Certain types of (long-distance) scrambling are semantically vacuous and exhibit an 'undoing' or radical reconstruction effect at Logical Form (Saito 1989), but they also exhibit surface interpretive effects of focus or foregrounding (Miyagawa 1997).

[11] Dobrov (1988:287) argues that Classical Greek used its anaphors logophorically (Hagège 1974) in 'reportive contexts that transmit the words or thoughts of an individual other than the speaker or narrator'. The examples here are not in reported speech and thus cannot be explained as logophors.

   c. *polémou*   péri *kaì aspʰaleíās*
     war.M.GN.SG about and safety.F.GN.SG
      'about war and safety'   (Thucydides 5.11.4)

   d. *kaì toútōn*   péri *kaì tône͂n*   ge *pròs toùs*
     and these.N.GN.PL about and the.N.GN.PL PRT to   the.M.AC.PL
       oikeíous
       relatives.M.AC.PL
      'about both these things and those concerning our relatives'
                        (Plato, *Republic* 329d2)

Conjunct hyperbaton does not usually involve strong focus, since 'at best it involves the fronting of the more salient of two foci' (D&S 2000:141). Multiple frontings can also occur, as in 41, where the left conjunct *euprepeías* 'propriety' is fronted past the preposition *péri*, while the complement to the conjoined nouns (*grapʰê͂s* 'writing') is fronted as well.

  (41) *euprepeías*   dè͂ *grapʰê͂s*   péri *kaì aprepeías*
     propriety.F.GN.SG PRT writing.F.GN.SG about and impropriety.F.GN.SG
      'about the propriety and impropriety of writing'   (Plato, *Phaedrus* 274b6)

Hyperbaton occurs with disjunctions like *è͂* 'or' as well.

  (42) Disjunct hyperbaton around a preposition
    a. *hygieíās*   péri *è͂ rʰó͂mēs*
      health.F.GN.SG about or strength.M.GN.SG
       'about health or strength'   (Xenophon, *Cyropaedia* 1.6.12)
    b. *aretê͂s*   péri *è͂ psógou*
      virtue.F.GN.SG about or fault.M.GN.SG
       'about virtue or blame'   (Thucydides 2.45.2)
    c. *iskʰúos*   péri *è͂ astʰeneíās*
      strength.F.GN.SG about or weakness.F.GN.SG
       'about strength or weakness'   (Thucydides 2.51.3.2)
    d. *oikodomíās*   péri *è͂ tô͂n*   *állōn*   *tekʰnô͂n*
      construction.F.GN.SG about or the.F.GN.PL other.F.GN.PL arts.F.GN.PL
       'about construction or the other arts'   (Plato, *Gorgias* 520d11)

Local conjunct hyperbaton is found in a variety of environments.

  (43) Conjunct hyperbaton around an adjective
    a. *trupʰê͂s*   mestoì *kaì anepiplēksíās*
      luxury.F.GN.SG full.M.NM.PL and impunity.F.GN.SG
       'full of luxury and impunity'   (Plato, *Laws* 3.695b)
    b. *tarakʰê͂s*   mestà *kaì pollê͂s*   *epimeleíās*
      trouble.F.GN.SG full.F.NM.SG and much.F.GN.SG care.F.GN.SG
       'full of trouble and much care'   (Isocrates, *Nicocles* 31.4)
  (44) Conjunct hyperbaton around a verb
    a. *autoùs*   bláptei *kaì tà*   *tékna*   *autô͂n*
      them.M.AC.PL injured.3SG and the.N.AC.PL children.N.AC.PL their.M.GN.PL
       'injured them and their children'   (Aristotle, *Historia Animalium* 609b11)
    b. *álpʰita*   ágon *kaì hierêia*   *kaì oînon*
      barleymeal.N.AC.PL bringing.3SG and holy.one.N.AC.PL and wine.N.AC.SG
       'bringing barleymeal, cattle, and wine'   (Xenophon, *Anabasis* 6.5.2)

(45) Conjunct hyperbaton around a noun

    a. tḕn   *tóù*   *pantòs*   génesin   *kaì tô̂n*
       the.F.AC.SG the.M.GN.SG whole.M.GN.SG origin.F.AC.SG and the.N.GN.PL
          moríōn
          parts.N.GN.PL
       'the origin of the whole and the parts'   (Aristotle, *Meteorology* 356b35)

    b. *nosê̂*   dè tò   énteron   *kaì ksúetai kaì*
       ails.3SG and the.N.NM.SG intestine.N.NM.SG and dries.3SG and
          helkóutai
          ulcerates.3SG
       'the intestine ails, dries, and ulcerates'   (Hippocrates, *Affections* 23.15)

We know of no examples where the second conjunct alone is fronted and attribute this to the prosodic dependence of *kaí* on the word that follows it, that is, to the fact that it is prepositive and cannot end a phonological phrase (Dover 1960, Fränkel 1960:142, Devine & Stephens 1978, 1981, 1983). Thus, hyperbaton does not strand prosodically weak conjunctions just as it does not strand prosodically weak complementizers and determiners. D&S suggest that *kaí* may not be a pure coordinator but rather an element that marks an adjunct at the phrase or clause level. If they are right, left-conjunct hyperbaton could be argued to involve either a base-generated structure or a form of local extraction that does not involve movement out of an island. But hyperbaton also takes place out of coordinate structures headed by the clitic conjunction *te*, which does not have an adverbial interpretation and functions as a pure coordinating conjunction (Denniston 1966:535ff.).

(46) *antʰrṓpōn*   *te pollô̂n*   árkʰomen *pásēs*   *te tê̂s*
    people.M.GN.PL both many.M.GN.PL rule.1PL   all.F.GN.SG and the.F.GN.SG
      asíēs
      Asia.F.GN.SG
    'we rule both many people and all of Asia'   (Herodotus 9.122)

The pied-piping of the conjunction follows naturally from its prosodic dependence on the preceding word. In addition to these cases of extraction of the first conjunct, there are cases of extraction out of the first conjunct (contravening another part of the CSC as originally formulated by Ross).

(47) *hoplítas*   ékʰōn   *kʰilíous*   *kaì peltastàs*   *pentakosíous*
    hoplites.M.AC.PL having 1000.M.AC.PL and peltasts.M.AC.PL 500.M.AC.PL
      'having 1000 hoplites and 500 peltasts'   (Xenophon, *Anabasis* 1.2.6.2)

Such cases confirm that hyperbaton is insensitive to the CSC generally.

Extraction of 'left-branch' elements from nominal phrases is widely attested in CG. This suggests that hyperbaton is insensitive to the LEFT-BRANCH CONDITION (LBC, Ross 1967), which was originally proposed to prohibit movement of left-branch elements that strand their complements. Insensitivity to the LBC is exemplified in many of the examples of hyperbaton already given (e.g. 25d, 29–31d). The same is seen with WH-words, which can be fronted alone (48) or with the rest of the DP pied-piped (49).

(48) *tína*   ékʰei   *dúnamin*
    what.F.AC.SG has.3SG power.F.AC.SG
      'What power does it have?'   (Plato, *Republic* 358b)

(49) *tína   dúnamin   ékʰei*
    what.F.AC.SG power.F.AC.SG has.3SG
      'What power does it have?'   (Plato, *Laws* 643a)

So-called freezing islands are also disobeyed in hyperbaton. Freezing islands are observed in English, for example, where an element may not be A-bar extracted out of an already A-bar-extracted phrase (Lasnik & Saito 1992).

(50) *Which athletes$_i$ did you wonder [which pictures of t_i]$_j$ Mary bought t_j?

Parallel examples in CG, however, are attested and grammatical.

(51) *hósois*   ántʰrōpoi   *sítoisin*   *è̀* *potóisin*
    whatever.M.DT.PL people.M.NM.PL food.M.DT.PL or drink.M.DT.PL
      hugiaínontes   es díaitan   kʰrô̂ntai
      being.well.M.NM.PL in diet.F.AC.SG use.3PL
        'whatever food or drink healthy people use in their diets'

                                 (Hippocrates, *Affections* 39.1)

Here, the WH-element *hósois* 'whatever' is extracted from *hósois sítoisin è̀ potóisin* 'whatever food or drink', which has itself been fronted out of the object position of the verb *kʰrô̂ntai*. If both movements are the result of hyperbaton, hyperbaton is insensitive to the syntactic constraint that blocks cases such as 50.

Finally, fronting is insensitive to the ADJUNCT CONDITION (Huang 1982, Chomsky 1986, Takahashi 1993), which prohibits movement out of an adjunct.

(52) Insensitivity to the adjunct condition
    a. *eks   állēs*   eltʰónta *kómmēs*
      from another.F.GN.SG coming village.F.GN.SG
       'coming from another village'   (Herodotus 1.196)
    b. *en tóis*   *pʰonikóìs*   gégraptai *nómois*
      in the.M.DT.PL homicidal.M.DT.PL is.written.3SG laws.M.DT.PL
       'is written in the homicide laws'   (Demosthenes 9.44)

In 52a, the preposition and left branch of its complement are fronted out of a PP that is not a complement to the verb. Example 52b shows the same with a preposition, determiner, and adjective (*en tóìs pʰonikóìs* 'in the homicidal'), another nonconstituent in the syntax.

Hyperbaton has some limitations that can be captured pragmatically or prosodically (D&S 2000:272ff.). D&S suggest that hyperbaton is more or less clause-bounded (p. 84), though they note that it can front material from a clause to the left of a complementizer like *ei* 'if' or *eán* 'if'.

(53) *tô̂n*   *ekʰtʰrô̂n*   eí *tina*   láboien   apékteinon
    the.M.GN.PL enemy.M.GN.PL if one.M.AC.SG capture.3SG.OPT kill.3.IMP
      'if he captures one of the enemy, may he kill (him)'   (Thucydides 3.81.2)

Hyperbaton is not clause-bounded in the syntactic sense. The left edge of the clause is the complementizer *ei*, which we assume does not license a specifier position. Instead, hyperbaton seems to be bounded by the left edge of an intonational phrase, ι. Prosodically, the complementizer *ei* 'if' forms an intonational phrase with its complement.

(54) (eí láboien   tina   tô̂n   ekʰtʰrô̂n)$_ι$ (apékteinon)$_ι$
    if capture.3SG.OPT one.M.AC.SG the.M.GN.PL enemy.M.GN.PL kill.3.IMP
      'if he captures one of the enemy, may he kill (him)'   (Thucydides 3.81.2)

Here, hyperbaton fronts *tô̂n ekʰtʰrô̂n* 'the enemy' to the left edge of the intonational phrase in which it occurs. The syntactic clause boundary seems to be irrelevant.

D&S (2000:272–89) also observe that focus hyperbaton is found out of the sole object of a transitive verb (55) but not out of the subject of a transitive verb (56), unless its object is pronominal.

(55) mónais   taútais   apagoreúousin hoi   nómoi
      alone.F.DT.PL these.F.DT.PL forbid.3PL   the.M.NM.PL laws.M.NM.PL

      tâis   gunáiksin
      the.F.DT.PL women.F.DT.PL

      'the laws forbid these women alone'   (Demosthenes 59.86)

(56) *mónoi   hóùtoi   apagoreúousi tâis   gunáiksin
      alone.M.NM.PL these.M.NM.PL forbid.3PL   the.F.DT.PL women.F.DT.PL

      hoi   nómoi
      the.M.NM.PL laws.M.NM.PL

      'only these laws forbid women'   (construct)

They further suggest that the apparent nonexistence of cases like 56 in prose is due to syntactic considerations that make it difficult to extract a lower-ranked argument past a higher-ranked argument under focus. While this is a likely constraint on what can be focused, it is clearly not a constraint on what can undergo hyperbaton. Hyperbaton may occur out of the subject of a transitive verb with a full NP object, so long as it is not correlated with focus. Example 57 shows hyperbaton from a subject to keep postpositive *gár* from initial position.

(57) ho   gàr *legómenos*   *aitʰḕr*   palaiàn eílēpʰe
      the.M.NM.SG for called.M.NM.SG ether.M.NM.SG long.ago take.3SG.PF

      tḕn   prosēgorían
      the.F.AC.SG name.F.AC.SG

      'The so-called ether has taken the name long ago.'

                                              (Aristotle, *Meteorologica* 339b22)

This kind of hyperbaton is common and also insensitive to constraints like the CSC, as 58 shows, where the first half of a conjoined subject (*ho kʰrónos kaì hē empeiría*) of a transitive verb (*didáskei*) with two full NP objects is moved to the left of the second-position particle *gár*.

(58) ho   kʰrónos   gàr *kaì hē   empeiría*
      the.M.NM.SG time.M.NM.SG for and the.F.NM.SG experience.F.NM.SG

      tà   mḕ kalôs ékʰonta   didáskei toùs
      the.N.AC.PL not well   having.N.AC.PL teach.3SG the.M.AC.PL

      antʰrṓpous
      people.M.AC.PL

      'For time and experience teach people what is not good.'

                                              (Antiphon, *Choreutes* 2.5)

Since hyperbaton is found in such environments, it seems likely that the asymmetry in 55–56 comes from a restriction on focus marking rather than a restriction on movement per se.

   Hyperbaton is blocked if its output would bring together homophonous function words (Golston 1995). This seems to be an instantiation of the OBLIGATORY CONTOUR PRINCIPLE (OCP, Leben 1973, more broadly considered in Walter 2007), whose phrasal role is discussed more generally by Yip (1993) under the rubric *ECHO. Consider the case of possessor DPs, which canonically follow the nouns they possess.

(59) hē   tólma   tôn   legóntōn
      the.F.NM.SG courage.F.NM.SG the.M.GN.PL speaking.M.GN.PL

      'the courage of the (ones) speaking'   (Lysias 12.41)

(60) tê̂s   ark^hê̂s   tê̂s   póleōs
     the.F.GN.SG dominion.F.GN.SG the.F.GN.SG city.F.GN.SG
       'of the dominion of the city'   (Plato, *Statesman* 275a)

A possessor can also be fronted, in which case it occurs just before the possessed noun (D&S 2000:103ff.).

(61) tḕn   *tóù*   *prosṓpou*   p^húsin
     the.F.AC.SG the.M.GN.SG face.M.GN.SG nature.F.AC.SG
       'the nature of the face'   (Plato, *Statesman* 257d)

(62) tḕn   *tô̂n*   *Gergit^híōn*   pólin
     the.F.AC.SG the.M.GN.PL Gergithian.M.GN.PL city.F.AC.SG
       'the city of the Gergithians'   (Xenophon, *Hellenica* 3.1.22)

(63) tê̂s   *tô̂n*   *ik^ht^úōn*   genéseōs
     the.F.GN.SG the.F.GN.PL fish.F.GN.PL birth.F.GN.SG
       'the birth of the fishes'   (Aristotle, *De generatione animalium* 757a14)

(64) tḕn   *tô̂n*   *Persô̂n*   dúnamin
     the.F.AC.SG the.M.GN.PL Persian.M.GN.PL force.F.AC.SG
       'the force of the Persians'   (Isocrates, *Nicocles* 23.2)

Multiple possessors can be fronted as well, resulting in doubly center-embedded structures.[12]

(65) tò   *tê̂s*   *tóù*   *ksaínontos*   *ték^hnê̂s*
     the.N.NM.SG the.F.GN.SG the.M.GN.SG carder.M.GN.SG art.F.GN.SG
       érgon
       work.N.NM.SG
       'the work of the art of the (wool)carder'   (Plato, *Statesman* 281a)

(66) tà   *tê̂s*   *tô̂n*   *pollô̂n*   *psuk^hê̂s*   ómmata
     the.N.NM.PL the.F.GN.SG the.M.GN.PL many.M.GN.PL soul.F.GN.SG eyes.N.NM.PL
       'the eyes of the soul of the many'   (Plato, *Sophist* 254a)

Such possessor fronting is blocked if it results in homophonous articles within the same prosodic word (ω).[13]

(67) *(tê̂s   tê̂s   póleōs)_ω   (ark^hê̂s)_ω
      the.F.GN.SG the.F.GN.SG city.F.GN.SG dominion.F.GN.SG
       'of the dominion of the city'   (construct)

Instead, the possessor surfaces to the left of the entire DP.

(68) (tô̂n   *t^heô̂n*)_ω   (tôn   onomátōn)_ω
     the.M.GN.PL gods.M.GN.PL the.N.GN.PL names.N.GN.PL
       'of the names of the gods'   (Plato, *Cratylus* 400d)

  Following a suggestion from a referee, we have sought and have been unable to find a single instance of homophonous articles separated by postpositive particles like *dé* 'and' or *gár* 'for', although cases like 69, where the articles are not homophonous, are quite common.[14]

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[12] This suggests that restrictions on center-embedding are grammar-specific and located in the syntax (contra Chomsky & Miller 1963, Miller & Chomsky 1963; see Hudson 1996).

[13] The lack of this pattern was confirmed by a computerized search of the ancient Greek corpus made possible via the TLG, which yielded zero results for instances of homophonous adjacent function words (with a single orthographically ambiguous case in Aristotle—see Golston 1995 for discussion). Note that an utterance in Classical Greek has as many prosodic words as it has lexical heads (N, V, A) and the right edge of every lexical head is coterminus with the right edge of a prosodic word (Golston 1995, based on Selkirk 1986).

[14] An electronic search of the TLG yielded a single case from Vettius Valens, a second century AD astronomer, but it is mistranscribed and should read *tóùde tóù k^hrónou* 'this time'.

(69) (tês   dè   tôn   állōn)ω   (douleíās)ω
    the.F.GN.SG and the.M.GN.PL others.M.GN.PL slavery.F.GN.SG
   'and of the slavery of the others'   (Isocrates, *Plataicus* 19.7)

That is, we found nothing like the following, despite an extensive corpus search.

(70) *(tês   dè   tês   állês)ω   (douleíās)ω
    the.F.GN.SG and the.F.GN.SG other.F.GN.SG slavery.F.GN.SG
    'and of the slavery of the other'   (construct)

Thus it looks like the constraint put forth in Golston 1995 is too narrow. Golston claims there that ADJACENT homophones are prohibited within ω; it appears now that homophones are prohibited within a ω whether adjacent (67) or not (70).

3. EXTANT ANALYSES. Current published analyses of hyperbaton fall into two broad groups. The first group includes prosodically based analyses that treat a subset of the data in terms of phonological clitics with special syntactic behavior (Golston 1988; see also Halpern 1995, Hock 1996, and Taylor 1996 for similar second-position-clitic analyses). D&S (2000:215–22) have shown quite clearly that Golston's 1988 proposal is factually incorrect for PPs and could not in any case be extended to cover AP, NP, and VP. If all of the local hyperbaton cases are to be accounted for under a cliticization theory, then one is forced to say that adjectives, nouns, and verbs in the language are phonological clitics, which is clearly wrong. Their critique extends with equal force to any clitic-based account of hyperbaton in CG.

D&S provide a purely syntactic analysis that base-generates the head-initial order and derives the other orders by extracting part or all of the complement. Mathieu (2004), Mathieu and Sitaridou (2005), and Ntelitheos (2004) elaborate their work on CG, and similar analyses for similar data in Latin appear in Sayeed & Szpakowicz 2004, Sayeed 2005, and Devine & Stephens 2006. D&S (2000) propose that hyperbaton in CG arises when material in the left branch of the complement moves to the specifier of the selecting lexical head. This is shown schematically in 71, where X ranges over lexical heads, and Y is all or part of the complement ZP.

(71)
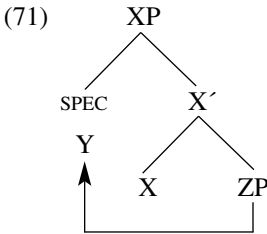
Their analysis allows for a unified account of hyperbaton and interrogative left-branch extractions. We show, however, that it cannot be maintained in the face of several important facts, and the critique that we offer here is applicable to any syntactic-movement analysis of the phenomenon. In §2 we already noted some salient properties of hyperbaton that are problematic for a syntactic analysis: island insensitivity, semantic vacuity, and direct interaction with phonological conditions like *ECHO and second-position placement. In the following sections we explore other aspects of hyperbaton that are problematic for syntactic movement.

3.1. EXTREME LOCALITY. D&S argue that hyperbaton moves material to the specifier position of the immediate governing head (2000:81ff.).[15] A referee notes, however, that

[15] D&S (2000) leave open the possibility of movement to a higher Focus Phrase immediately dominating the lexical projection, a possibility that they recently pursue in their analysis of hyperbaton in Latin (Devine

extremely local movement of this type is prohibited in many languages (Grohmann 2002, Abels 2003, Kayne 2005) and is thus problematic for any analysis that treats hyperbaton syntactically (D&S 2000, Mathieu 2004, Ntelitheos 2004, Mathieu & Sitaridou 2005).

Grohmann (2002) argues that movement that targets a position within the same domain as the extraction site is generally barred because the movement is too short; here the relevant domain is within the projection of a particular lexical XP. Abels (2003) further argues that if the movement originates from the complement, movement to the specifier position of the same head is ruled out because the movement is too short (cf. Kayne 2005). This case in particular is exemplified by the inability to strand a complementizer by fronting its complement clause or Tense Phrase (Abels 2003:117).[16]

(72) a.   Nobody believes [$_{CP}$ that [$_{TP}$ anything will happen]]
     b.   [$_{CP}$ That anything will happen], nobody believes *t*
     c.   *[$_{TP}$ Anything will happen], nobody believes [$_{CP}$ *t* [$_{C'}$ that *t*]]

Abels argues that in order to strand the complementizer, the complement clause must first use the specifier of CP as an escape hatch (given assumptions on locality in the phase-based theory). But the clause cannot be extracted (72c), which suggests that it cannot use CP as an escape hatch, and thus that the specifier of CP position is 'too close' to be a landing site for the clause.

Anti-locality is problematic for D&S's 2000 analysis of hyperbaton because all or part of the complement of X is moved to form a specifier of X. In later work on hyperbaton in Latin, Devine and Stephens (2006) posit separate Focus projections for each lexical level—FocVP, FocAP, FocVP, and FocPP. Under their Latin analysis, hyperbaton moves material to the specifier position of FocXP, which avoids the issue of anti-locality, but at a cost: they show elsewhere for both Greek and Latin that hyperbaton does not always result in a focus reading, making their extra structure give the wrong interpretation in many cases. In any case, the additional structure fails to address many other problems, which we now turn to.

3.2. HEAD MOVEMENT. Hyperbaton, as we have seen, moves a variety of things. Sometimes the entire complement is fronted past the head (37b), or a subconstituent of the complement is so fronted (37c). Such cases fit well with D&S's idea that hyperbaton moves material to a specifier position, typically the landing site for XP movement or the point at which the root structure is extended via movement of an XP. Hyperbaton can also affect a syntactic head, however, as we saw in the (d) cases above (25, 29, 30–33, 35–36) involving left-branch extraction, where hyperbaton seems to put material in the same extremely local position (Mathieu 2004).[17] If syntactic heads uniformly undergo head-to-head movement, then these cases of hyperbaton do not fall under D&S's movement-to-specifier analysis of hyperbaton.

& Stephens 2006). We argue below that many types of hyperbaton canot be treated as syntactic movement to a specifier position.

[16] In Abel's proposal, the anti-locality constraint holds of Phase heads (C and *v*), though see Grohmann 2002 for a more generalized, domain-based approach.

[17] One could argue that DP rightward extracts out of the QP in each case, after which QP (containing just the quantifier head) undergoes remnant movement to the left. In §3.3, however, we present arguments against a remnant-movement analysis of hyperbaton that exclude this possibility.

3.3. NONCONSTITUENT MOVEMENT. A problem facing any syntactic analysis of hyperbaton is that nonconstituent strings are fronted (37e). Consider another case of nonconstituent hyperbaton.

(73) *tôn   megístōn   péri   kindū́nōn*
    the.M.GN.PL greatest.M.GN.PL about dangers.M.GN.PL
       'about the greatest dangers'   (Thucydides 1.75.5)

Syntactic extraction would target a determiner (*tôn*) and an adjective (*megístōn*) that do not form a syntactic constituent.

(74) [[PP péri [DP *tôn* [*megístōn* kindū́nōn]]]]

It is important to note here that the fronted article + adjective string is not itself a syntactic constituent. Adjectival modifiers do not appear with articles on their own except in cases where the adjective appears postnominally, in which case the determiner is doubled (Smyth 1920:293).

(75) ho   anề̄r   ho   sopʰós
    the.M.NM.SG man.M.NM.SG the.M.NM.SG wise.M.NM.SG
       'the man, the wise (one)'

We argue that such structures do not involve an AP reanalyzed as a DP. Rather, they appear to be appositional in nature, suggesting that the NP on the right is headed by *pro*.

(76) [[DP ho anề̄r] [DP ho sopʰós *pro*]]

In cases where the adjective is fronted with the determiner, the determiner is not doubled on the stranded noun, unlike the appositional structure above, where the adjective crucially appears postnominally. This suggests that the sole determiner has pied-piped with the adjective, forming a nonconstituent string. Furthermore, there is a pragmatic difference: in the fronting cases, the adjective is often focused or foregrounded, where it is not, as Smyth (1920:293) notes, in the postnominal cases. This suggests a different derivational source for the two surface orders.

If we allow the adjective *megístōn* 'greatest' in 73 to incorporate into the determiner, the problem merely shifts: this would involve moving a head once again to a Spec position, which gives rise to the problems discussed in the previous section. Nor can we appeal to remnant movement of DP to the edge of PP following extraposition out of NP (see Kayne 1994, 1998, Müller 1998, and Lee 2000). The nominal *kindū́nōn* 'dangers', which is under the scope of the focused material, must be within the c-command domain of the material to the left of PP. Extraposition of *kindū́nōn* would place it outside of the scope of the focus-bearing material. Thus, remnant movement of DP cannot solve the general problem of nonconstituent extraction.

Example 77 involves fronting a quantifier, demonstrative, definite article, and adjective past a verb (D&S 2000:60), providing another clear case of moving a syntactic nonconstituent.

(77) *pánta   táùta   tà   kalà   légousi*
    all.N.AC.PL these.N.AC.PL the.N.AC.PL beautiful.N.AC.PL compose.3PL
       poiḗmata
       poems.N.AC.PL
       'they compose all these beautiful poems'   (Plato, *Ion* 533e)
(78) [[VP légousi [QP *pánta* [DemP *táuta* [DP *tà* [NP *kalà* poiḗmata]]]]]]

In 79 a preposition, article, and attributive adjective are locally fronted.

(79) *en tóìs   pʰonikóìs   gégraptai nómois*
    in the.M.DT.PL homicidal.M.DT.PL written.3SG laws.M.DT.PL
      'it is written in the homicide laws'   (Demosthenes 9.44)

(80) [[VP gégraptai [PP *en* [DP *tóìs* [*pʰonikóìs* nómois]]]]

Again, the string that moves (*en tóìs pʰonikóìs*) is not a syntactic constituent. This case and others like it do involve movement of a phonological constituent, however, and we discuss this point in greater detail in §4.5.

   Nonconstituent fronting is attested synchronically in some Slavic languages with 'split' PPs (Franks & Progovac 1994, Bašić 2004, Bošković 2005). The facts are dissimilar enough though that the analyses proposed for Slavic will not extend to CG. An example from Serbo-Croatian is given in 81.

(81) *u veliku* on ude   *sobu*
    in big   he entered room
      'He entered the big room.'   (Bošković 2005)

Franks and Progovac (1994) propose that the NP (*sobu*) is first postposed, followed by remnant fronting of the PP (*u veliku* t) to yield the surface order. Bašić (2004) proposes a similar analysis in which the NP undergoes leftward movement to the clausal middle field, followed by remnant PP movement to the clausal periphery. Crucial for these approaches is the impossibility of fronting just the NP, stranding the preposition and adjective.

(82) *sobu on ude   *u veliku*
    room he entered in big

This is attested, however, in CG.

(83) *astrȏn   dè   péri pántōn*
    stars.M.GN.PL indeed about all.M.GN.PL
      'about all stars'   (Plato, *Laws* 899b)

Bašić's analysis does not extend to CG either, since in the extremely local cases there is no intermediate syntactic position ('middle field') where fronted material can land. The same problem confronts scattered-deletion analyses (Ćavar & Fanselow 2000, Nunes 2004), which must rely on multiple feature-checking positions for moved constituents whose material is discontinuously spelled out at these different positions. In a scattered-deletion analysis, the pattern of discontinuously spelling out material is determined by phonological conditions on the expression of copies in multiple checking positions. These conditions require upper copies to be discontinuously spelled out, and the lowest copy in the base position to undergo full deletion. Thus, a scattered-deletion approach as such will not extend to extremely local cases of hyperbaton, in which there is only a single, local landing site that arguably does not involve feature checking, and where part of the constituent in the base position is realized phonetically.

   Bošković (2005) claims that the adjective in 81 undergoes movement to a position c-commanding the preposition, which then cliticizes onto the adjective and moves with it when the adjective moves further leftward. Crucially for the cliticization analysis, the adjective may not extract alone, stranding the preposition and noun (84), nor may the preposition and noun front, stranding the adjective (85).

(84) *veliku on ude   *u sobu*
    big   he entered in room

(85) *u sobu on ude   veliku
    in room he entered big

Both types are attested in CG, however. Example 86 shows the adjective extracting alone and 87 shows just the preposition and noun fronting.[18]

(86) *automátou*   péri *bíou*
    spontaneous.M.GN.SG about life.M.GN.SG
      'about spontaneous life'   (Plato, *Statesman* 271e)

(87) *ep'*   *ándras*   strateuómeth^{h}a *agat^{h}oús*
    against men.M.AC.PL fight.1PL   noble.M.GN.SG
      'we are fighting against noble men'   (Herodotus 7.53)

Perhaps the strongest argument against a cliticization theory of PP-splitting in CG comes from the point made by D&S: the same patterns that are found with clitic prepositions are found with (nonclitic) verbs, nouns, and adjectives—so the clitic status of the preposition is clearly not what is responsible for hyperbaton.

Finally, there is a large body of literature on discontinuous constituency created by LEFT-BRANCH EXTRACTION (LBE) from nominal phrases to clause-peripheral position in a variety of languages (Ross 1967, Abney 1987, Corver 1992, Franks & Progovac 1994, Szabolcsi 1994, Zlatic 1997, Bašić 2004, Bošković 2005). It is tempting to extend the analyses proposed for this phenomenon to the patterns exhibited in CG. As discussed in §2, though, the 'left-branch extraction' pattern is just one of four distinct extraction patterns found with hyperbaton; this extraction pattern is part of a more general phenomenon that affects a wider range of elements than LBE alone, which usually extracts only quantifiers and adjectives out of nominal phrases. Even when only left-branch material out of a nominal is extracted, there are important differences between CG hyperbaton and 'true LBE' in the well-studied modern cases.

For example, consider the most basic cases of adjectival and demonstrative LBE in Serbo-Croatian. The following examples show that Serbo-Croatian focus fronting and CG hyperbaton exhibit the same type of extraction possibility.

(88) Serbo-Croatian
    a. *visoke* je   on video *devojke*
       tall   AUX he seen girls
        'Tall girls, he saw.'   (Bašić 2004:76)
    b. *ta* je   vidio *kola*
       that AUX seen car
        'That car, he saw.'   (Bošković 2005:2)

(89) Classical Greek
    a. *tēlikoútōn*   héneka ...   *tekmēríōn*
       so.great.N.GN.PL for.the.sake.of evidence.N.GN.PL
        'for the sake of such great evidence'   (Demosthenes 57.64)
    b. *toútōn*   plê̂t^{h}os   *tô̂n*   *ō̂ô̂n*
       these.M.GN.PL mass.N.NM.SG the.M.GN.PL eggs.M.GN.PL
        'mass of these eggs'   (Aristotle, *de Generatione Animalium* 755b27)

There are, however, some important differences. In Serbo-Croatian, it is impossible to front two left-branch modifiers under focus fronting (90), but this is possible in CG (91).

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[18] D&S (2000:112) note that cases of the form Y_1 V Prep Y_2 (where Y_1 is an adjectival modifier of Y_2) occur in verse, but not in prose. Example 86, however, shows that the adjective may front past the preposition in prose in the extremely local cases. What is important here is that at least in these local cases the adjective may strand the preposition, which is unexpected under the cliticization analysis. As for the absence of the Y_1 V Prep Y_2 pattern in prose, we propose that it violates the preferred phonological parsing in which (Prep + Y1) form a phonological constituent together (a phonological phrase), which is the target of fronting. In verse, this constraint is relaxed.

(90) *visoke lepe   on gleda   devojke
     tall   beautiful he watches girls   (Bašić 2004:77)

(91) hoi   korubantiôntes   ekeínou   mónou
     the.M.NM.PL Corybantians.M.NM.PL that.M.GN.SG sole.M.GN.SG
         aistʰánontai tóù   mélōs   okséōs
         hear.3PL   the.M.GN.SG song.M.GN.SG clearly
         'the Corybantians hear that sole song clearly'   (Plato, *Ion* 536c)

Furthermore, in Serbo-Croatian, the noun cannot front if it leaves behind prenominal modifying elements (92), though this is possible in CG (93).

(92) *sobu on ude   u *veliku*
     room he entered in big   (Bošković 2005:31)

(93) *astrôn*   dè̀   péri *pántōn*
     stars.M.GN.PL indeed about all.M.GN.PL
         'about all stars'   (Plato, *Laws* 899b)

Note that 93 is a case of the 'subconstituent' extraction pattern (which D&S call 'Y2 hyperbaton', as opposed to the 'Y1 hyperbaton' type with left-branch extraction).

One could argue that these fronting patterns in CG are not formed by movement at all, but by base generation. A particularly well-articulated analysis of this sort for free-word-order phenomena is Bošković and Takahashi's (1998) analysis of Japanese scrambling, which posits external merge of the fronted material, with subsequent LF lowering into the regular constituent position for purposes of interpretation. Such an analysis may be compatible with the obligatory LF undoing effect of hyperbaton, which is also a property of (certain types of) scrambling in Japanese (Saito 1985, 1989) in which a nominal obligatorily lowers from its base-generated 'scrambled' position for theta-assignment purposes. It is not clear, however, what the motivation for LF lowering would be in cases of hyperbaton in CG, where theta assignment is not relevant, such as cases in which quantifiers, demonstratives, adjectives, and nonconstituent strings like Dem/Det + Adj or Prep + Det + Adj are fronted. In these cases, there is no interpretive property that requires lowering into the regular constituent position. Perhaps most problematic for a base-generation and lowering analysis of hyperbaton are cases of nonconstituent-string fronting such as the PP-splitting case, in which a preposition and part of the left branch of the complement NP undergo fronting. It is not clear why the elements in a nonconstituent string such as Prep + Det + Adj would be assembled together from a lexical array in the first place, then base-generated in a fronted position in syntax, then lowered for LF interpretation.

Finally, if hyperbaton is syntactic, it should be difficult for phonology to block it, as this would require severe look-ahead in a model of grammar where the syntax is usually taken to feed the phonology (but see Bošković 2001 and Nunes 2004), contravening the principle of PHONOLOGY-FREE SYNTAX (Zwicky & Pullum 1986a,b).[19]

3.4. THE PRAGMATICS OF HYPERBATON. D&S (2000) argue carefully that hyperbaton is often triggered by the pragmatic function of marking focus. This is what makes them later analyze Latin hyperbaton in their 2006 book in terms of multiple Focus projections

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[19] Indeed, if hyperbaton is a syntactic operation and is blocked by phonological constraints, it argues against Golston's (1995) claim that syntax outranks phonology (in optimality-theoretic terms). If hyperbaton is a syntactic operation, then its sensitivity to the OCP is consistent with Harford and Demuth's (1999) conception of grammar in which the phonology can outrank syntax, though note that this still contravenes the theory of phonology-free syntax (as would the co-present syntax and phonology approach of Inkelas & Zec 1990).

(FocVP, FocAP, FocNP, FocPP), as discussed above. It is difficult, however, to pinpoint a specific pragmatic trigger for hyperbaton in CG.

Szendrői (2001) has proposed that the trigger for focus movement in Hungarian is the assignment of prominent stress for the focused constituent in a syntactically defined position. We should note, however, that it is uncertain what role stress may have played in the assignment of focus in CG. Furthermore, as we noted earlier, such a phonological trigger for syntactic movement would force us to abandon the idea of phonology-free syntax.

Most importantly, focus is not the only pragmatic effect associated with hyperbaton, which is also associated with topicalization and foregrounding. As D&S note about their treatment of hyperbaton:

> [S]trong focus movement was just an explanation for one type of hyperbaton. It could not be a general theory of hyperbaton, because other types of hyperbaton involved other pragmatic structures ... . So we are left looking for an explanation to cover these other types of hyperbaton which did not involve strong focus. (2000:141)

Again, we refer the reader to D&S's detailed discussion of the pragmatics of hyperbaton.

4. HYPERBATON AS PHONOLOGICAL MOVEMENT. We argue here that only the hierarchical structure of sentences is derived syntactically and that the output of the syntax has no linear-precedence relations defined on it: the output of the syntax is neither head-initial nor head-final, something that is decided only later, in the mapping to phonological form. The phonological component is where left/right order is decided, and, we argue, where hyperbaton takes place.

For the sake of concreteness, we assume a fairly traditional three-part serial model of grammar with syntax feeding an interface module that feeds the (postlexical) phonology, as in 94.

(94) Assumed model of syntax/phonology interface

| Syntax | $[\text{ék}^h\text{ei}_V, [\text{pũr}_N]_{NP}]_{VP}$ (immediate dominance) |

⇓

| Interface | $((\text{ék}^h\text{ei}_\omega)(\text{pũr}_\omega)_\phi)_\phi$ (linear precedence) |

⇓

| Phonology | $((\text{pũr}_\omega)_\phi(\text{ék}^h\text{ei}_\omega))_\phi$ (hyperbaton) |
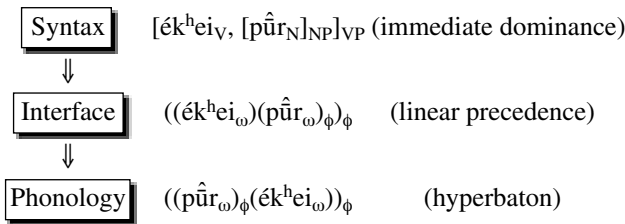
We assume that the syntax determines all immediate dominance (sisterhood) relations but has no stake or say in linear-precedence relations (left/right order): it determines that *ék^hei* 'has' and *pũr* 'fire' are sisters within VP but it does not determine whether the verb or its object comes first, an issue that the phonology decides. The syntax feeds the interface component, which creates prosodic constituency and simultaneously determines linear-precedence relations. The interface determines that *ék^hei* and *pũr* are each a prosodic word (ω), that the XPs headed by *ék^hei* and *pũr* are each a phonological phrase (φ), and that the linear order is *ék^hei pũr* rather than *pũr ék^hei* (see below). The output of the interface component $((\text{ék}^h\text{ei}_\omega)(\text{pũr}_\omega)_\phi)_\phi$ is the input to the phonology, where hyperbaton occurs if lexical or pragmatic considerations force phonological movement.

4.1. THE INTERFACE. Translating syntactic structure into prosodic structure involves a number of well-studied constraints, but their effects have been underappreciated in the literature. We show here that the same constraints that determine how to phrase syntactic constituents have the power to provide the linear order of heads and complements.

Most syntactic information and constituency are irrelevant for prosodic phrasing, which is built according to its own principles (Selkirk 1984, 1986). Following Selkirk 1995, we assume that LAYEREDNESS and HEADEDNESS are universally undominated and thus inviolable in the mapping from syntax to prosody.

(95) Universally undominated constraints
LAYEREDNESS: No C^i dominates a C^j, $j > i$ (e.g. no σ dominates a foot).
HEADEDNESS: Any C^i must dominate a C^{i+1} (e.g. a ω must dominate a foot).

For the sake of exposition we limit ourselves in what follows to candidates that respect these constraints. The crucial constraints for determining word order in XPs with lexical heads are those in 96 (cf. Selkirk 1995).

(96) ALIGNR(X^0,ω): The right edge of every lexical X^0 is aligned with that of a ω.
ALIGNR(ω,X^0): The right edge of every ω is aligned with that of a lexical X^0.
ALIGNR(XP,φ): The right edge of every lexical XP is aligned with that of a φ.

Again, we assume that the output of the syntax is the input to the interface component and that the former has no linear-precedence relations or prosodic constituency, both of which are supplied by the alignment constraints above, as in 97.

(97) Lexical XP: *ékʰei pûr* 'has fire'

[ékʰei$_V$, pûr$_{NP}$]$_{VP}$	ALIGNR(X^0,ω)	ALIGNR(ω,X^0)	ALIGNR(XP,φ)
☞ a. (ékʰei$_\omega$ pûr$_\omega$)$_\phi$			
b. (pûr$_\omega$ ékʰei$_\omega$)$_\phi$			*!
c. (ékʰei$_\omega$ pûr$_\sigma$)$_\phi$	*!		
d. (pûr$_\sigma$ ékʰei$_\omega$)$_\phi$	*!		*
e. (ékʰei$_\sigma$ pûr$_\omega$)$_\phi$	*!		
f. (pûr$_\omega$ ékʰei$_\sigma$)$_\phi$	*!		*
g. (ékʰei$_\sigma$ pûr)$_\phi$	*!*		
h. (pûr$_\sigma$ ékʰei)$_\phi$	*!*		*

Note the comma in the input: we assume that the syntax decides that *ékʰei* and *pûr* are sisters but does not decide which of them linearly precedes the other. AlignR(X^0,ω) requires every lexical head (here, both *ékʰei* 'has' and *pûr* 'fire') to right-align with a prosodic word boundary, as is the case in (a–b) but not in (c–h), where one or both of the words is fatally parsed as a syllable. ALIGNR(ω,X^0) plays no crucial role here (but see below), but ALIGNR(XP,φ) is responsible for the head-initial case (a) being selected over the head-final case (b). We propose that this prosodic alignment, independently needed to derive the prosodic phrasing, is what derives head-complement order in the language generally: the interface component takes the immediate dominance relations created by the syntax and defines upon them prosodic constituency and linear-precedence relations simultaneously, via the alignment constraints above.
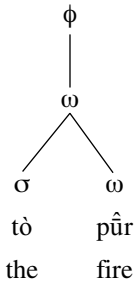
Functional heads and their complements work much the same way, with [D NP], [C TP], [T VP], and so on, and for the same reason: the phrasal complement to a functional head is right-aligned with φ. The only difference is that functional heads are not prosodic words in CG, but mere syllables (and feet). This is because functional heads like complementizers, auxiliaries, and determiners are invisible in the mapping of syntax to prosody that creates prosodic words (Selkirk 1984, 1986, 1995). Their prosodic dependence on adjacent lexical items is well documented in CG and has led to the classification of functional items as a whole in CG as PRE- or POSTPOSITIVES (Dover 1960).

Evidence for the phonological dependence of functional heads in CG comes from a number of areas, including place assimilation, apocope (Buck 1933:159ff.), and vowel coalescence (de Haas 1988), all of which occur most frequently within prosodic words consisting of one lexical and one or more preceding function words. As discussed in Golston 1995, the phonological changes that take place between functional heads and the lexical heads they form prosodic words with are the same as those that take place within morphologically complex nouns, verbs, and adjectives. Additional evidence that functional heads are not themselves prosodic words comes from the position of bridges and caesurae in CG meter (Bulloch 1970, Devine & Stephens 1978, 1981, 1983), where it is clear that function words form tighter phonological constituents with lexical items than the latter form with each other. For definitive discussion of the dependence of function words on adjacent content words, see Devine & Stephens 1994:285–375. Following Selkirk 1995, we treat CG functional heads as affixal clitics, items that are both sisters and daughters to prosodic words.

(98) Affixal clitics   (Selkirk 1995)

$$
\begin{array}{c}
\phi \\
| \\
\omega \\
\diagdown\diagup \\
\sigma \qquad \omega \\
\text{tò} \qquad \text{pûr} \\
\text{the} \qquad \text{fire}
\end{array}
$$

Such a structure requires that lexical heads like 'fire' align with prosodic word boundaries on both the left and the right, shutting out functional heads like 'the' from this inner level of structure. The alignment of prosodic words to lexical heads is a little looser: the right edge of every prosodic word has to align with a lexical head (as it does above), but the left edge need not, with the result that functional heads are tucked into prosodic words, somewhat like prefixes are. The constraints do this as in 99.

(99) Functional XP: *tò pûr* 'the fire'

$[\text{tò}_D, \text{pûr}_{NP}]_{VP}$	ALIGNR(ω,X^0)	ALIGNR(X^0,ω)	ALIGNR(XP,ϕ)
☞ a. $((\text{tò}_\sigma\ \text{pûr}_\omega)_\omega)_\phi$			
b. $((\text{pûr}_\omega\ \text{tò}_\sigma)_\omega)_\phi$			*!
c. $((\text{pûr}_\sigma\ \text{tò}_\sigma)_\omega)_\phi$		*!	*
d. $((\text{tò}_\sigma\ \text{pûr}_\sigma)_\omega)_\phi$		*!	
e. $((\text{tò}_\omega\ \text{pûr}_\omega)_\omega)_\phi$	*!		
f. $((\text{pûr}_\omega\ \text{tò}_\omega)_\omega)_\phi$	*!		*
g. $((\text{tò}_\omega\ \text{pûr}_\sigma)_\omega)_\phi$	*!	*	
h. $((\text{pûr}_\sigma\ \text{tò}_\omega)_\omega)_\phi$	*!	*	*

ALIGNR(ω,X^0) dispenses with candidates (e–f), where the determiner is treated as a prosodic word; ALIGNR(X^0,ω) dispenses with (c–d) because the lexical head *pûr* 'fire' is not treated as a prosodic word. This leaves (a) and (b). ALIGNR(XP,ϕ) eliminates (b) because the lexical XP *pûr* is not right-aligned with ϕ. Thus, the same alignment constraints that give us head-initial lexical XPs give us head-initial functional XPs.

This does not yet derive the relative order of subject and predicate, both of which are phonological phrases. Following Costa 1997 and Gouskova 2000 we assume a constraint that aligns topics (including subjects) at the left edge of a sentence or clause. Evidence for initial topics in CG can be found in Dik 1995, an in-depth study of Herodotus that argues that clauses are structured [Topic [Focus [V ...]]].

If a sentence involves no phonological movement, like 1 above, the surface order is identical to the output of the interface component.

(100) SVO
spasmòs   epilambánei toùs   pleístous   tà   epì
spasm.M.NM.SG seizes.3SG the.M.AC.PL most.M.AC.PL the.N.AC.PL at
  tʰátera   tóù   sṓmatos
  others.N.AC.PL the.M.GN.SG body.M.GN.SG
'spasm seizes mostly the parts on the other side of the body'

(*Headwounds* 19.21)

Because nothing of the syntactic representation survives the translation to prosodic structure, the postlexical phonology makes no direct reference to syntactic labeling, constituency, conditions, and so forth. The postlexical phonology converts one prosodic representation into another, by accommodating the phonological requirements of postpositives and spelling out things like focus intonation.

To keep the output of the postlexical phonology similar to the input, we propose three faithfulness constraints, given in 101.

(101) STAYω: No daughter of ω moves.
STAYφ: No daughter of φ moves.
STAYι: No daughter of ι moves.

To see how these constraints prohibit phonological movement, take a phrase like 30a above, repeated in 102 with the prosodic structure and linear order defined by the interface constraints.

(102) (apoktéinantes_ω (mou   tòn   páìda)_ω)_φ
       killing.M.NM.PL my.M.GN.SG the.M.AC.SG child.M.AC.SG
        'killing my child'   (Antiphon, *Tetralogia* 3.7.1)

Again, the output of the interface, above, is the input to the postlexical phonology, where identity constraints maintain faithfulness to the input. We assume that an item incurs one * for every element it precedes in the output.

(103)

((apoktéinantes)_ω (mou_σ tòn_σ páìda_ω)_ω)_φ	STAYω	STAYφ
☞ a. ((apoktéinantes)_ω (mou_σ tòn_σ páìda_ω)_ω)_φ		
b. ((*mou_σ tòn_σ páìda_ω)_ω (apoktéinantes)_ω)_φ		*!
c. ((apoktéinantes)_ω (mou_σ *páìda_ω tòn_σ)_ω)_φ	*!	
d. ((apoktéinantes)_ω (*páìda_ω mou_σ tòn_σ)_ω)_φ	*!*	

In candidate (a) nothing moves and no constraints are violated. Candidate (b) violates STAYφ because *mou tòn páìda*, a daughter of φ, has moved leftward. Candidate (c) violates STAYω because *páìda*, a daughter of ω, has moved across one element to the left; in (d) it has moved across two elements to the left.

4.2. SHORT HYPERBATON. To account for the many cases where pragmatic prominence (focus, topic, foregrounding) causes hyperbaton we propose the constraint in 104.

(104) PROML: Prominent material occurs to the left of its interface position.

PROML may well have been triggered in CG by the alignment of some kind of focal pitch accent (cf. Szendrői 2001) as it is in Modern Greek (Keller & Alexopoulou 2001).[20] Unfortunately, the orthography and known phonetics of CG do not indicate either way whether such an accent was present: two and a half thousand years later we can see only the movement, not any phonological trigger for it.

Consider now a clause like 2, repeated below, where the direct object *tomês* is focused and slides just past the verb that precedes it.

(105) SOV

tà   dè toiáùta   tôn   helkéōn
the.N.AC.PL and such.N.AC.PL the.N.GN.PL wounds.N.GN.PL
tomês   deîtai
incision.F.GN.SG require.3PL
'and such kinds of wounds require incision' (Hippocrates, *Headwounds* 13.35)

Ignoring the linear order of *tà* and *dè* for the moment, we see that *tomês* is moved due to prominence.

(106)

... (((tôn_σ helkéōn_ω)_ω)_φ (deîtai_ω tomês_ω)_φ)_ι	STAYω	PROML	STAYφ
☞ a. ... (((tôn_σ helkéōn_ω)_ω)_φ (tomês_ω deîtai_ω)_φ)_ι			*
b. ... (((tomês_ω (tôn_σ helkéōn_ω)_ω)_φ (deîtai_ω)_φ)_ι			**!*
c. ... (((tôn_σ helkéōn_ω)_ω)_φ (deîtai_ω tomês_ω)_φ)_ι		*!	

Candidate (a) violates only low-ranked STAYφ and does so minimally, by moving *tomês* across one element to the left; (b) violates it gratuitously by moving it further to the left than it needs to be to satisfy PROML; and (c) fatally violates PROML because *tomês* is in situ. SOV order is derived here without any syntactic movement.

4.3. LONG HYPERBATON. Maximally prominent material (double-underlined) appears at the left edge of an intonational phrase. We saw this in 3 above, where the object is moved not just past the verb but past the subject as well.

(107) OSV

tà   epì deksià   ho   spasmòs
the.N.AC.PL on right.N.AC.PL the.M.NM.SG spasm.M.NM.SG
epilambánei
seize.3SG
'the spasm seizes the (parts) on the right' (Hippocrates, *Headwounds* 13.48)

Such 'long hyperbaton' is subject to its own constraint, which is violated once for every element between the prominent item and the left edge of the intonational phrase.

(108) ιPROM: Maximally prominent material is initial in ι.

(109)

(((ho_σ spasmòs_ω)_ω)_φ (epilambánei)_ω ((tà_σ epì_σ deksià_ω)_ω)_φ)_ι	STAYω	ιPROM	STAYφ
☞ a. (((tà_σ epì_σ deksià_ω)_ω)_φ ((ho_σ spasmòs_ω)_ω)_φ (epilambánei)_ω)_ι		**	*
b. (((ho_σ spasmòs_ω)_ω)_φ ((tà_σ epì_σ deksià_ω)_ω (epilambánei)_ω)_φ)_ι		***!*	
c. (((ho_σ spasmòs_ω)_ω)_φ ((epilambánei)_ω (tà_σ epì_σ deksià_ω)_ω)_φ)_ι		***!**	
d. ((deksià_ω)_φ ((ho_σ spasmòs_ω)_ω)_φ ((epilambánei)_ω (tà_σ epì_σ)_ω)_φ)_ι	*!		*

---

[20] See also Truckenbrodt 1995, Rooth 1996, Zubizarreta 1998, Selkirk 2002, Calhoun 2006, and Féry & Samek-Lodovici 2006 for some recent discussion on the phonological encoding of 'prominence' through phrasal stress and pitch accent.

Candidate (a) has prominent *deksiá* as far to the left as it can be without moving anything within its prosodic word; (b, c) lose out to (a) because the prominent material is further from the left edge of ι; and (d) loses out because a daughter of *deksiá*, a daughter of ω, has been moved.

If maximal prominence appears on the entire VP, the phonological phrase that contains it is fronted and we get VOS order (4 above); maximal prominence on just the prosodic word that contains the verb gives us VSO order (5); maximal prominence on the φ that contains the object and minimal prominence on the ω that contains the verb gives OVS order (6). Thus, the various permutations of S, V, and O in 1–6 are just the result of prosodic constraints on faithfulness and alignment. The rest of the data discussed above receive the same analysis: minimally prominent material is moved just across a prosodic word (7–10, 25–31), and maximally prominent material is moved to the beginning of its ι (16–24).

4.4. POSTPOSITIVES. We have shown that phonological movement is sometimes required by the idiosyncratic requirements of postpositives, function words that cannot occur at the beginning of the phrases they head. Recall that postpositives like *dé*, *te*, and *gár* can occur after all or part of their complement but never BEFORE it (35–36, 55). We do not know what is responsible for this (see below) and simply stipulate 110, following Dover 1960.[21]

(110) POSTPOS: No postpositive is initial in its φ.

The effects of this constraint are seen in 111, which exemplifies the postpositive nature of *gár*.

(111) SVO
       spasmòs   gàr epilambánei tòn   tmēthénta
       spasm.M.NM.SG for seizes.3SG   the.M.AC.SG incised.M.AC.SG
          'for spasm seizes the incised (patient)'   (Hippocrates, *Headwounds* 13.47)

POSTPOS penalizes candidate 112c because =*gár* occurs phrase-initially.

(112)

(((=gàr$_\sigma$ *spasmòs$_\omega$*)$_\omega$)$_\phi$ (epilambánei$_\omega$ (tòn$_\sigma$ tmēthénta$_\omega$)$_\omega$)$_\phi$)$_\iota$	POSTPOS	STAYω
☞ a. (((*spasmòs$_\omega$*=gàr$_\sigma$)$_\omega$)$_\phi$ (epilambánei$_\omega$ (tòn$_\sigma$ tmēthénta$_\omega$)$_\omega$)$_\phi$)$_\iota$		*
b. (((*epilambánei$_\omega$*=gàr$_\sigma$)$_\omega$)$_\phi$ (spasmòs$_\omega$ (tòn$_\sigma$ tmēthénta$_\omega$)$_\omega$)$_\phi$)$_\iota$		**!
c. (((=gàr$_\sigma$*spasmòs$_\omega$*)$_\omega$)$_\phi$ (epilambánei$_\omega$ (tòn$_\sigma$ tmēthénta$_\omega$)$_\omega$)$_\phi$)$_\iota$	*!	

Candidates (a) and (b) respect POSTPOS by fronting something to the left of =*gár*: the fronting in (a) is the minimal fronting necessary (*spasmós* moving one space to the left), while the fronting in (b) has gratuitous and thus fatal fronting (*epilambánei* moving across two elements to the left).

Postpositive =*te* provides an analogous case where the surface order is hard to reconcile with the semantics.

(113) *tền*   te *pâsan*   *pólin*
       the.F.AC.SG and whole.F.AC.SG city.F.AC.SG
          'and the whole city'   (Thucydides 2.41.1)

---

[21] Greg Carlson (p.c.) points out that the notion POSTPOSITIVE might well be considered a morphological specification, as it is a property of specific lexical items. Still, what we see in general is that fronting in CG is limited only by prosodic factors, whether they are general ones of alignment and containment, or more specific ones introduced by individual lexical items.

The conjunction has logical scope over *tḕn* and the rest of the conjunct and therefore likely originates in a position to the left of it. POSTPOS, however, keeps it from surfacing in the position the syntax and semantics demand.

(114)

((te$_\sigma$ tḕn$_\sigma$ pâsan$_\omega$)$_\omega$ pólin$_\omega$)$_\phi$	POSTPOS	STAYω
☞ a. ((tḕn$_\sigma$ te pâsan$_\omega$)$_\omega$ pólin$_\omega$)$_\phi$		**
b. ((tḕn$_\sigma$ pâsan$_\omega$ te$_\sigma$)$_\omega$ pólin$_\omega$)$_\phi$		***!
c. ((te$_\sigma$ tḕn$_\sigma$ pâsan$_\omega$)$_\omega$ pólin$_\omega$)$_\phi$	*!	

Candidate (c) fatally violates undominated POSTPOS with phrase-initial *te*, leaving (a) and (b). Of these, (a) has one violation of STAY, since *tḕn* has moved across one element to the left, while (b) has two, since both *tḕn* and *pâsan* have been moved to the left.

It is sometimes assumed that postpositives are prosodically deficient and that some kind of prosodic dependence on adjacent words is what makes words like *gár* and *te* postpositive. We have not tried to incorporate this into our analysis because it is not supported by the facts. Both prepositives and postpositives range from very light (monomoraic *ho*, *te*) to very heavy (disyllabic *katá*, *ára*). To illustrate, we provide a selective list of prepositives and postpositives in CG.

(115) Prepositives   Postpositives

ho	'the.M.NM.SG'	*te*	'and'	toneless, monomoraic
tó	'the.N.NM.SG'	*dé*	'and/but'	tonal, monomoraic
ei	'if'	*tis*	'some'	toneless, bimoraic
tȭn	'the.M.GN.PL'	*mén*	'as, while'	tonal, bimoraic
katá	'down'	*ára*	'then'	tonal, bimoraic, disyllabic

Postpositives always follow prepositives when the two vie for initial position. We find many cases like *katà dé* where the prepositive is longer (disyllabic) and heavier (bimoraic) than the postpositive (e.g. Xenophon, *Hellenica* 1.2.18); but pairings like *ho ára* are common as well, where the prepositive is shorter (monosyllabic) and lighter (monomoraic) than the postpositive (e.g. Xenophon, *Memorabilia* 4.6.4). Thus the postpositive nature of words cannot be tied to their prosodic brevity or lightness except by fiat. Nor can it be attributed to anything syntactic, since many are syntactically identical, like prepositive *kaí* 'and' and postpositive *te* 'and'; both are conjunctions but only the latter is postpositive. For this reason, we simply stipulate that postpositives cannot be initial in their phrase, just as it must be stipulated that *en-* is a prefix and *-en* a suffix in words like *enlighten* or *embolden*.

4.5. PREPOSITIVES. We have shown that hyperbaton often moves strings that are phonological but not syntactic constituents ((e) cases in 25, 29–33, 35–36).

(116) ((tȭn$_\sigma$ megístōn$_\omega$)$_\omega$ (péri$_\omega$ kindū́nōn$_\omega$)$_\phi$
       the.N.GN.PL greatest.N.GN.PL about dangers.N.GN.PL
       'about the greatest dangers'   (Thucydides 1.75.5)

Suppose the focus here is only on *megístōn*; still, the whole prosodic word that contains it must be fronted in CG. The reason the functional head *tȭn* is fronted, we propose, is that the phonology avoids moving the daughter of a ω that was created in the syntax-phonology interface.

(117)

$((\text{péri})_\omega\ (\text{tôn}_\sigma\ megíst\bar{o}n_\omega)_\omega\ (\text{kind\acute{\bar{u}}n\bar{o}n})_\omega)_\phi$	STAYω	PromL	STAYφ
☞ a. $((\text{tôn}_\sigma\ megíst\bar{o}n_\omega)_\omega\ (\text{péri})_\omega\ (\text{kind\acute{\bar{u}}n\bar{o}n})_\omega)_\phi$			*
b. $((\text{péri})_\omega\ (\text{tôn}_\sigma\ megíst\bar{o}n_\omega)_\omega\ (\text{kind\acute{\bar{u}}n\bar{o}n})_\omega)_\phi$		*!	
c. $((\text{péri})_\omega\ (megíst\bar{o}n_\omega\ \text{tôn}_\sigma)_\omega\ (\text{kind\acute{\bar{u}}n\bar{o}n})_\omega)_\phi$	*!		
d. $(((megíst\bar{o}n_\omega)\ \text{tôn}_\sigma)_\omega\ (\text{péri})_\omega\ (\text{kind\acute{\bar{u}}n\bar{o}n})_\omega)_\phi$	*!		*
e. $((megíst\bar{o}n_\omega)\ (\text{péri})_\omega\ (\text{tôn}_\sigma)_\omega\ (\text{kind\acute{\bar{u}}n\bar{o}n})_\omega)_\phi$	*!		*

Candidates (c–e) fail because they have prosodic words whose daughters have been moved; (b) fails because the prominent item *megístōn* is in its base position. This leaves (a) as the optimal output.

Recall that complementizers and determiners can occur before all or part of their complement but never after it (32–33). We ascribe this to STAYω as well, since the unattested cases (32b, 33b) always involve part of a prosodic word created in the interface.

4.6. THE OCP. The final case we have to consider is the blocking of hyperbaton when it brings together homophonous elements within a prosodic word. Recall that an extensive corpus search brought up no cases like that in 118.

(118) *$(\text{tê}s_\sigma$ $\text{dè}_\sigma\ \text{tê}s_\sigma$ $áll\hat{e}s_\omega)_\omega$ $(douleías_\omega)_\omega$
        the.F.GN.SG and the.F.GN.SG other.F.GN.SG slavery.F.GN.SG
            'and of the slavery of the other'   (construct)

As discussed above, the constraint proposed in Golston 1995 must be generalized to capture the avoidance of nonadjacent homophones within a prosodic word.

(119) *ECHO: No phonologically identical syllables occur within a ω.

Things like [tóù sopʰisˈtóù] 'the wise.M.GN.SG' slip by as grammatical since the final syllable of the lexical item is stressed but the function word *tóù* is not. *ECHO is never violated in CG and thus, we assume, is undominated in the constraint hierarchy.

4.7. COMPLEX HYPERBATON. More finely articulated cases involve multiple movement, as we showed in 21.

(120) _állos_   eí *tis*   boúloito   *tôn*   *hoplopʰórōn*
        other.M.NM.SG if some.M.NM.SG wish.3SG.OPT the.M.GN.PL hoplites.M.GN.PL
            prosístastʰai
            to.approach
        'if some other of the hoplites should wish to approach'

                                                            (Xenophon, *Cyropaedia* 6.2.13)

We assume that the order at the interface is head-initial throughout.

(121) Interface order
        $(((\text{eí tis}$ _állos_$)_\omega$ $(\text{tôn}$ hoplopʰórōn$_\phi)_\phi$
            if some.M.NM.SG other.M.NM.SG the.M.GN.PL hoplites.M.GN.PL
            $(\underline{\text{boúloito}}$ prosístastʰai$))_\phi)_\iota$
             wish.3SG.OPT to.approach

Maximal prominence on *állos* puts it at the left edge of the intonational phrase and minimal prominence on *boúloito* moves it across one φ to the left, deriving 120. Other cases of multiple movement (22–24 above) receive the same analysis.

4.8. IRRELEVANCE OF SYNTAX TO HYPERBATON. We turn now to why syntactic issues like binding, islands, and syntactic constituency are not relevant for hyperbaton. The answer is quite general: hyperbaton is purely phonological and thus blind to syntactic

constituency, syntactic conditions, and semantic restrictions based on syntactic relations. In 38 and 39, for instance, we saw that anaphors moved by hyperbaton can precede the antecedents that bind them. Hyperbaton also fronts all or part of a conjunct (40–47), left-branch material (48–49), material from structures that have already undergone movement (51), and material from adjuncts (52). In addition, it fronts material to positions that are too close (25–31) for normal syntactic operations. Finally, hyperbaton treats syntactic phrases, heads, and syntactic nonconstituents in the same way. All of this is consistent with hyperbaton taking place in the phonology, where syntactic matters are ex hypothesi irrelevant.[22]

The restrictions on hyperbaton are also consistent with its being phonological rather than syntactic. We have just seen how the prosodic dependence of prepositives on lexical heads influences word order and how hyperbaton is blocked if it brings homophones together within a prosodic word. This kind of phonological conditioning is what we expect of phonological movement.

5. IMPLICATIONS AND EXTENSIONS. Before closing, we need to address how our system is similar to and differs from other approaches to 'PF movement'. Under the present proposal, morphology and syntax play no direct role in phonological movement, unlike some PF-movement analyses such as Kidwai 2000 (for XP scrambling) and Embick & Noyer 2001 (for certain morphosyntactic processes). This might suggest either a reanalysis of cases where PF movement has been invoked, or may indicate the existence of distinct postsyntactic operations at different levels. For example, Embick and Noyer's (2001) post Spell-Out MORPHOLOGY component may have operations that apply prior to assignment of phonological constituency—call it the PROSODY component. It is in this latter component that hyperbaton applies.[23]

We hope to test in future work whether our system can be applied to data like PP-splitting in Slavic and stylistic fronting in Scandinavian (Holmberg 2000), which are insensitive to syntactic category, something we now expect to find with phonological movement. It is also possible that some 'scrambling' phenomena may be better analyzed as phonological movement, particularly those instances of 'scrambling' that exhibit obligatory LF undoing effects (Saito 1985, 1989). Another promising candidate is focus movement of syntactic nonconstituents in Japanese, discussed recently in Takano 2002 and Fukui & Sakai 2003 (cf. Koizumi 2000). These latter cases are particularly interesting because, although what is moved is not a syntactic nonconstituent (in this case, clefting of the subject and object, in brackets), closer inspection reveals that what is moved is a phonological constituent—specifically, a phonological phrase.

(122) Mary-ni   ageta no wa [John-ga   hon-o   (nisatsu)] da
      Mary-DT.SG gave NM TOP John-NM.SG book.AC.SG (2.CL)   COP
      lit. 'It is John (two) books that gave to Mary.'   (Takano 2002:244)

Constructions like this are argued to involve movement (Hoji 1987, Takano 2002), and there is strong evidence that the bracketed string undergoes movement (in this case, rightward displacement) as a single unit. Fukui and Sakai (2003) in particular suggest that a PF process may be involved in the formation of such structures, since they are not

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[22] We assume that unlike syntactic movement, phonological movement does not leave a copy. If copies are created to satisfy LF properties (such as theta requirements), but not PF properties, then there is presumably no motivation for phonological movement to leave a copy.

[23] We do not know why lower phonological levels, including segments and features, appear to have no influence on word order. We never see hyperbaton affect just a syllable or foot, and we never see it blocked when it would bring together adjacent identical consonants or vowels.

sensitive to syntactic constituency. Though space considerations prevent us from pursuing a full-fledged analysis, it is tempting to view these constructions in the same light as our analysis for hyperbaton, that is, as phonological movement.

6. CONCLUSION. In the introduction we noted that two conditions must be met to establish that movement is truly phonological: the movement must be insensitive to syntactic constituency and conditions on syntactic movement, and be semantically vacuous for aspects of interpretation that rely on syntactic structure. At the same time the movement must be sensitive to phonological constituency and to general conditions on phonological form. We have attempted to show that CG hyperbaton meets both conditions and is thus a good candidate for phonological movement.

We do not take phonological movement lightly, as it requires a weakening of the arguably more parsimonious conception of grammar in which syntax moves syntactic constituents to syntactic positions and phonology moves nothing. If our understanding is correct, we must either allow syntax to move phonological constituents in accordance with phonologically based conditions and triggers, or we must allow phonology to do so. The latter option has the virtue of maintaining the integrity of the narrow syntactic and phonological components in accordance with the theory of phonology-free syntax (and syntax-free phonology). Future research, however, will have to decide the matter.

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