Towards a Universal Definition of the Caesura

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1. Introduction

As a first approximation, the caesura can be conceived of as a distinguished word boundary (in short: WB) whose location in the verse instance depends on the underlying pattern of the verse design. Let us consider, e.g., the case of the French Alexandrine:

(1) xxxxxX xxxxxX

Each verse instance that corresponds to the underlying pattern (1) contains two «subverses» ending with a «break syllable». If lines (2-3) instantiate (1), they will respectively divide as follows:

(2)(a) Je suis comme le ROI # d’un pays pluvieUX
(b) Je suis comme la REI-ne # d’un pays lointain

This allows us to define the notion of a caesura in straightforward terms:¹

(3) WB #₁ is a caesura (in the verse instance under consideration) if, and only if: (i) #₁ follows the nucleus N of a non-final break syllable; (ii) #₁ is not separated from N by any other WB.

In the analyses given under (2), the caesura is represented by a double cross. We will call «hemistich» any sequence of words which is delimited either by one caesura and the verse beginning or end, or by two caesuras.²

Obviously, subverses and hemistichs do not necessarily coincide. In order to capture the various relations that may hold between them, we need further refinements. As a first step, we will characterize the conditions under which a WB is «associated with» a given metrical syllable in a verse instance:

(4) WB #₁ is «associated with» metrical syllable σ (in the verse instance under consideration) if, and only if: (i) #₁ follows the nucleus N of σ; (ii) #₁ is not separated from N by any other WB; (iii) #₁ is not separated from N by the nucleus of any other metrical syllable.³

¹ For the sake of simplicity, we will neglect the intricate problems raised by word groups that include clitics or appositives (see e.g. Devine & Stephens 1994).
² Thus, contrary to what is suggested by etymology, a verse instance may contain more than two «hemistichs».
³ Under certain conditions, contacts between word-final and word-initial vowels give rise either to metrical elision (i.e. to the erasure of the first vowel: V#V → Ø#V) or to metrical prodelision (i.e. to the erasure of the second vowel: V#V
Notice that, for a WB to be associated with a syllable, it is not required that this WB should follow the whole syllable. For example, in this dactylic hexameter:

\[(5) \quad \omega \, \text{πάτερ} \ \hat{\eta} \mu \epsilon \tau epe \ \iota \rho \nu \ omega \ \iota \mu a\tau e \ \kappa r e i \omega n \tau o\nu \quad \text{(HOM. II. VIII, 31)}\]

WBs \#1, \#2 and \#4 are respectively associated with the syllables /\omega/, /\epsilon\tau e/ and /\iota\omega e/; as for WBs \#3 and \#5, they follow the final nucleus /\epsilon/ of \hat{\eta} \mu \epsilon \tau epe or \iota\mu a\tau e while being associated with the syllable /\kappa r e i\omega n\omega/ or /\kappa r e i\omega n\tau o\nu/ by virtue of regressive resyllabification (Allen 1973: 210-220; Devine & Stephens 1994: 39, 243-251; Dominicy 2002: 332-334). Consequently, it is possible for a caesura to be associated with a syllable, i.e. to follow a given nucleus, without necessarily following the whole syllable under consideration; as we will see below, WB \#3 is the («penthemimeral») caesura of line (5). This is the reason why clause (i) of definition (4) has been formulated so as not to rule out such configurations.

Definition (4) allows us to distinguish between two types of caesuras: a caesura is «synthetical» if, and only if, it is associated with the corresponding break syllable; otherwise, it is «analytical». For example, we have a synthetical caesura in (2a) but an analytical caesura in (2b) (Dominicy & Nasta 1993).

2. The Caesura in the Dactylic Hexameter and the Iambic Trimeter

This approach runs into serious difficulties when applied to the metrical forms of Latin and Ancient Greek. Let us consider, e.g., the two major verse designs of Ancient Greek, viz. the dactylic hexameter of the Homeric corpus and the iambic trimeter of drama (tragedy or comedy). Each of them contain six feet consisting of two (metrical) positions. A position surfaces, in the verse instance, either as one syllable — heavy (–) or light (∪) — or as a «pyrrhic» sequence of two sub-positions, i.e. two light syllables (∪∪). The possible locations of the caesura are indicated in (6-8) by double crosses whose different sizes figure the relative frequencies of the various configurations available (positions are numbered from 1 to 12, and subpositions by adding the letter «a», resp. «b», to the number of the corresponding position):
Dactylic Hexameter (Homer)

1  2a2b  3  4a4b  5  6a  6b  7  8a8b  9  10a10b  11  12
-   UU  -   UU  -   #  U#  U  -   #  UU  -   UU  -   -
-   #  -   #  -   #  -   #

(a) λυσόμενος τε θύγατρα # φέρων τ’ ἀπερείας ἀποινα (HOM. II. I, 13 ; ± 52%)
-   UU  -   U  -   U  -   #  U  -   UU  -   U  -   U

(b) ἀλλὰ κακῶς ἀφίει, # κρατερόν δ’ ἐπὶ μόδων ἔτελλε (HOM. II. I, 25 ; ± 46%)
-   U  -   UU  -   #  U  -   UU  -   UU  -   U  -

(c) ιοίσιν τε πτυσκόμενοι # λάεσσι τ’ ἕβαλλον (HOM. II. III, 80 ; ± 2%)
-   #  -   #  -   #  -   #  -   #  -   #

Iambic Trimeter (Tragedy)

1a1b  2  3  4  5  6  7  8  9  10  11  12
UU  -   U  -   UU  -   U  -   U#UU  -   U#UU  -   UU  -   U  -
-   UU  -   U  -   UU  -   U  -   U

(a) μοίρας δολώσας· # ἰνέσαν δὲ μοι θεαί (E. Alc. 12 ; ± 70%)
-   -   -   #  -   -   U  -   U  -

(b) τί δ’ ἔστιν; ὡς ἀθυμος # εἰσελήψατος (S. OT 319 ; ± 30%)
U  -   U  -   UU  -   U  -   U  -   U  -

Iambic Trimeter (Comedy)

1a1b  2  3a3b  4  5a5b  6  7a7b  8  9a9b  10  11  12
UU  -   UU  -   UU  -   #  UU  -   UU  -   U  -
-   UU  -   UU  -   UU  -   UU  -   UU  -
-   UU  -   UU  -   UU  -

(a) λέγε νυν ἐμοὶ θαρρῶν· # ἐγὼ γάρ οὕτως (AR. Nu. 141 ; ± 13%)
U  -   UU  -   -   #  -   U  -   UU  -   UU  -   UU  -   UU  -

In order to rely on a precise terminology, we first have to determine the conditions under which a WB will to said to be «associated with» a given (sub)position — in short : (s)P — of the verse :

WB #i is «associated with» (sub)position (s)P (in the verse instance under consideration) if, and only if, #i is associated with the last syllable which (partially or totally) fills (s)P.

The caesura of the dactylic hexameter is associated with P5 («penthemimeral» caesura), P7 («hephthemimeral» caesura) or sP5a («trochaic» caesura). In the tragic trimeter, the

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5 We consider (contra van Raalte 1986 : 82) that the hephthemimeral caesura, though very infrequent, was and remained easily identifiable owing to its repeated use in such specific contexts as Homeric formulaic lines (Lehrs 1882 : 387-413), oracular poems (Parke & Wormell 1956) and Orphic Hymns (Quandt 1955).
«penthemimeral» caesura is associated with P5 and the «hephthemimeral» caesura with P7; in the comic trimeter, there is a third possibility, viz. the medial caesura associated with P6.

In spite of such surface variations, some data suggest that speakers perceived both the dactylic hexameter and the iambic trimeter as instantiating a complex verse design where each subverse consists of three (dactylic or iambic) feet, i.e. of three pairs SW or WS consisting of a strong and a weak position. Aristotle (Metaph. 1093a) reports that Pythagoreans analyzed the dactylic hexameter according to a 9:8 ratio, i.e. as three dactyls followed by two dactyls and a dissyllabic foot. Bassett (1916 ; 1919 : 347) correctly pointed out that this segmentation, which does not match any sensible division into surface hemistichs, cannot provide evidence in favour of standard views on the caesura. But if we assume that Pythagoreans referred to each underlying foot through its prototypical or compulsory surface realization (see 3.2, 4.1.1), we can interpret their analysis as an approximate description of an underlying verse design. Quintilian relied on the same abstract approach when he attempted to relate so-called «Sotadean» verses to dactylic hexameters or iambic trimeters with a penthemimeral caesura (Dominicy 2001 : 81-82 ; see also Dominicy 1999 : 354-355).

3. The Metrical Structure of the Dactylic Hexameter and the Iambic Trimeter

These intuitions agree with Prince’s (1989) hypothesis that the caesura may not fall more than one (metrical) position from the «center» of the line. However, his theory fails to provide a clear or satisfactory account for several relevant data.

3.1. Positions and subpositions

Schemes (7) and (8) indicate that, in the iambic trimeter, P6 can be filled with a pyrrhic sequence. One may wonder, then, why iambic trimeters do not allow the trochaic caesura. Prince puts forward two different explanations for this phenomenon.

The first one, which goes back to Devine and Stephens (1975 : 414), relies on the tree structures assigned to the two verse designs in hand. In the dactylic hexameter, each weak position dominates two subpositions, so that each underlying foot (in short : F) includes three terminal nodes (10a); by contrast, the positions of the iambic trimeter are terminal nodes, so that subpositions do not appear in the underlying foot structure (10b):

(10) (a) F
     /\    |
    S W   |
   /\    |
  S W
(b) F
    /\  |
   W S
  /\  |
 S W
The default principle of a one-to-one mapping between (sub)positions and metrical syllables is defeated in two cases: when a heavy syllable corresponds to a weak position of the dactylic hexameter (« contraction ») and when a pyrrhic sequence of two light syllables corresponds to a position of the iambic trimeter (« resolution »). If the different caesura locations are defined with respect to the underlying terminal nodes, the absence of the trochaic caesura in the iambic trimeter simply results from the fact that no terminal node corresponds to the first or second light syllable of a pyrrhic sequence.

Yet Prince (1989 : 63) also claims that, in the iambic trimeter, « caesura cannot divide the S-position immediately preceding the center because of the general restriction on the lexical integrity of resolutions ». It is true that « split resolution » (in short : SR) is strictly avoided in both comedy and tragedy (van Raalte 1986 : 232-236). However, in order to test the relevance of this general avoidance to the location of the caesura, one must take into account another deviant configuration, viz. the symmetric case where the caesura would be associated with the first light syllable (in sP7a) of a pyrrhic sequence corresponding to P7. As far as we know, if a resolved pyrrhic sequence occurs in P6 after a light syllable filling P5, one of the standard caesuras (penthemimeral, medial or hephthemimeral) should be present. This is surely due to the fact that a splitting caesura would induce a trochaic interpretation of F3 ; for the same constraint applies to F4 (see Descroix 1931 : 164-169). The comic corpus contains a few examples where a SR in P6 or P7 appears in a line that is (or seems to be) devoid of any standard caesura (see Arnott 1957 : 191 ; Descroix 1931 : 183-194, 210-221) :

(11)  Position 6 (selection)
(a)  περί τῆς πόλεως ἤμτιν’ ἐκέτοιν σωτηρίαιν
    # UU—U—U#U U—---—U—
    (AR. Ra. 1436)
(b)  ἀξίου ἰδείν. ἀλλὰ # τί φέρω νῦν εἰς μέσον
    —UU—U—U#U U—---—U—
    (MEN. Pk. 522)

(12)  Position 7
    τῶν ξυμποτῶν κλέψαντα; # ποίαν αὐλητρίδα
    --- U---U#U---U—
    (AR. V. 1369)

If the impossibility of a caesura associated with sP6a or sP7a is due to the general avoidance of SR, one expects SR to create a splitting caesura under the conditions that allow SR in other places. This prediction is amply confirmed by examples (11a-b), since the words that fill (sub)positions 5-6a are disyllabic nonlexicals that typically appear in a line-initial foot with SR in P2. Furthermore, in most lines of this kind, the nonlexical is morphologically analyzable into two monosyllabic elements, so that a penthemimeral caesura remains latent (see Descroix 1931 : 188-194 ; Devine & Stephens 1983 ;
1994: 281-282, 315-318, 342). As for verse (12), it is so irregular that we had better consider it as a «ternary» line that lacks a caesura but has WBS associated with P4 and P8. Other examples in Aristophanes are given by Descroix (1931: 259-276) and van Raalte (1986: 204). A caesura associated with sP7a would probably have favoured the perception of an unmetrical trochaic intruder (Descroix 1931: 223-224).

We conclude that the prohibition of splitting caesuras in the iambic trimeter is due to the general avoidance of SR, and that no evidence supports Prince’s hypothesis of a different (terminal or non-terminal) status of subpositions in metrical trees. In other words, we claim that to every metrical light syllable of a verse instance should correspond a terminal node of the tree.

3.2. The Foot: Resolution and Contraction

In order to define resolution and contraction in a framework where no difference is made, in terms of constituency, between the (syllabic) subpositions of iambs and dactyls, we need a theory which explicitly relates each underlying foot F to the various surface feet (in short: f) which may realize it in a verse instance (Dominicy 2002). We will assume that a binary foot is a sequence WS] or [SW. A strong position is heavy (in short: H), while a weak position may be heavy or light (in short: L). H positions are filled with heavy syllables (–) or pyrrhic sequences of two light syllables (∪∪), except in line-final positions, where pyrrhics are forbidden and any type (heavy or light) of syllables allowed (see 4.1.1). As far as we know, no metrical convention may require a weak position to be light; so that the weight of the weak positions will either remain unspecified («anceps» or «indifferent»; in short: X), which gives an iamb or a trochee, or be specified as heavy, which gives an anapaest or a dactyl. Relying on the principles that govern the realization of specified (heavy) and unspecified (heavy or light) positions, we can list twenty surface forms:

<table>
<thead>
<tr>
<th>Underlying Foot F</th>
<th>Surface Foot f</th>
<th>Value</th>
<th>Type of Realization</th>
</tr>
</thead>
<tbody>
<tr>
<td>XH] IAMB</td>
<td>[∪ – ]</td>
<td>iamb 2</td>
<td>harmonic (prototypical)</td>
</tr>
<tr>
<td>[∪∪ – ]</td>
<td>anapaest 1</td>
<td></td>
<td>harmonic</td>
</tr>
<tr>
<td>[∪ –∪]</td>
<td>tribrach 1</td>
<td></td>
<td>harmonic</td>
</tr>
<tr>
<td>– –</td>
<td>spondee 0</td>
<td></td>
<td>neutral</td>
</tr>
<tr>
<td>[∪∪ ∪∪]</td>
<td>proceleusmatic 0</td>
<td></td>
<td>neutral</td>
</tr>
<tr>
<td>– ∪∪</td>
<td>dactyl -1</td>
<td></td>
<td>dysharmonic</td>
</tr>
<tr>
<td>HH] ANAPAEST</td>
<td>[∪∪ – ]</td>
<td>anapaest 1</td>
<td>harmonic (prototypical)</td>
</tr>
<tr>
<td>[∩ – ]</td>
<td>spondee 0</td>
<td></td>
<td>neutral</td>
</tr>
<tr>
<td>[∪∪ ∪∪]</td>
<td>proceleusmatic 0</td>
<td></td>
<td>neutral</td>
</tr>
<tr>
<td>∩ ∪∪</td>
<td>dactyl -1</td>
<td></td>
<td>dysharmonic</td>
</tr>
<tr>
<td>[XH TROCHEE</td>
<td>[– ∪ ]</td>
<td>trochee 2</td>
<td>harmonic (prototypical)</td>
</tr>
<tr>
<td>[– ∪∪</td>
<td>dactyl 1</td>
<td></td>
<td>harmonic</td>
</tr>
<tr>
<td>[∪∪ ∪</td>
<td>tribrach 1</td>
<td></td>
<td>harmonic</td>
</tr>
</tbody>
</table>
We conventionally assign value 3 to the heavy syllable (–), value 2 to the pyrrhic sequence (∪∪) and value 1 to the light syllable (∪), so that the value of a binary surface foot f — in short: \( \text{val}(f) \) — can be defined as the difference between the values respectively assigned to its strong and its weak position. A foot f is «harmonic» if, it only if, \( \text{val}(f) > 0 \); «neutral» if, only if, \( \text{val}(f) = 0 \); and «dysharmonic» if, and only if, \( \text{val}(f) < 0 \). For each underlying Foot F, there exists one and only one (harmonic) foot f with a maximum value; this is the «prototypical» surface realization of F.

Resolution occurs when, and only when, a pyrrhic sequence fills a position that is filled with one syllable in the prototypical realization of the foot; in (13), resolution pyrrhics are underlined (∪∪). Contraction occurs when, and only when, a heavy syllable fills a position that is filled with two syllables in the prototypical realization of the foot; we indicate contraction in (13) by putting the heavy syllable under an arch (∩). This definition of resolution and contraction captures the common binary structure of the anapaest (resp. the dactyl) and the iamb (resp. the trochee), while avoiding two ad hoc features of Prince’s approach: the non-terminal status of resolution light syllables in iambics and trochees and the (otherwise unmotivated) WS or SW contrast between the subpositions of the prototypical anapaest or dactyl.

Our typology of surface feet makes it possible to describe the various «modes of realizations» which may be linked to a given verse design in general or within some particular tradition. It is rather frequent for a suprasyllabic unit (position, foot, etc.) to only accept the «syllabic» mode of realization where all admissible surface forms have to contain the same number of (metrical) syllables. For instance, the strong positions of the dactylic hexameter and the (non-initial) weak positions of the tragic trimeter only accept a syllabic realization. Since no mode of realization may rule out the prototypical realization of a foot, it follows that, if the syllabic mode of realization applies to a binary foot, we will only find three-syllable surface forms for an anapaest or a dactyl, and two-syllable surface forms for an iamb or a trochee. Furthermore, in the dactylic hexameter and the iambic trimeter, no underlying foot may surface as a proceleusmatic, i.e. with a non-syllabic realization of its two positions, in spite of the fact that some comic trimeters contain adjacent resolutions (Descroix 1931: 224-232; Stephens 1988).

\[\begin{array}{ccc}
\text{– –} & \text{spondee} & 0 \quad \text{neutral} \\
\text{∪∪ ∪∪} & \text{proceleusmatic} & 0 \quad \text{neutral} \\
\text{∪∪ ∪} & \text{anapaest} & -1 \quad \text{dysharmonic} \\
\end{array}\]

\[\text{HH DACTYL} \begin{array}{ccc}
\text{– ∪} & \text{dactyl} & 1 \quad \text{harmonic (prototypical)} \\
\text{∪ ∪} & \text{spondee} & 0 \quad \text{neutral} \\
\text{∪ ∪} & \text{proceleusmatic} & 0 \quad \text{neutral} \\
\text{∪ ∪} & \text{anapaest} & -1 \quad \text{dysharmonic} \\
\end{array}\]

\[\text{–} \begin{array}{ccc}
\text{–} & \text{–} & \text{–} \\
\text{∪ ∪} & \text{∪ ∪} & \text{∪ ∪} \\
\text{∪ ∪} & \text{∪ ∪} & \text{∪ ∪} \\
\end{array}\]

\[\text{–} \begin{array}{ccc}
\text{–} & \text{–} & \text{–} \\
\text{∪ ∪} & \text{∪ ∪} & \text{∪ ∪} \\
\text{∪ ∪} & \text{∪ ∪} & \text{∪ ∪} \\
\end{array}\]

\[\text{–} \begin{array}{ccc}
\text{–} & \text{–} & \text{–} \\
\text{∪ ∪} & \text{∪ ∪} & \text{∪ ∪} \\
\text{∪ ∪} & \text{∪ ∪} & \text{∪ ∪} \\
\end{array}\]

Notice that, in schemes (7-9), the underlining of a pyrrhic sequence indicates that it may be replaced with a heavy syllable. In the bracketed representations of chart (13), only those underlined pyrrhics that realize a strong position should meet this constraint.
According to Prince (1989: 65), the various locations of the caesura in Greek and Latin spoken (« stichic ») verse conform to the principle that it « must occur within one M[etrical] P[osition] of the hierarchical center of the line ». Unfortunately, the very notion of a « hierarchical center » remains unclear. Up to now, we have identified the center in strictly serial terms, without making any reference to the prominence hierarchy of the successive positions. This approach does not agree with the traditional (and well-established) hypothesis that the iambic trimeter contains three « metra » (in short: M) – each metron consisting, in Prince’s view, of a weak and a strong foot in that order (the optional subposition level is omitted):

(14) Metron
    Foot
    Position

(15) Foot
    Position

Notice, however, that (14) fails to assign a complete tree structure to the line, so that it does not allow us to locate the « center » in hierarchical terms. The situation proves even worse for the dactylic hexameter, since the pattern provided by Prince (1989: 65) does not include any level superior to the foot:

In the following, we will assume that dimeters are WS pairs of metra, that trimeters are WS pairs of a dimetric expansion and a monometric clausula, and that tetrameters are WS pairs of a dimetric expansion and a dimetric clausula. Consequently, the iambic trimeter will be assigned tree structure (16). We will apply the same hypothesis to the dactylic hexameter:
Admittedly the Metron level is deemed irrelevant to the analysis of the dactylic hexameter by the mainstream tradition — otherwise, the line would have been called a « trimeter ». But some data point to the fact that the dactylic hexameter and the iambic trimeter share a basic underlying structure. The two lines are combined in archaic jocular texts like « Nestor’s cup » and the Margites (Schein 1979: 6-16). Furthermore, some Roman metrists viewed the dactylic hexameter as a trimeter, and this analysis may have favoured the development of the Medieval « ternary dactylics » where the second foot rhymes with the fourth one (Dominicy 1999: 353-354). However, the major evidence supporting our approach comes from the « contour constrasts » that oppose to each other the two first metra of the dactylic hexameter (see 4.2).

4. The Contour Contrasts of the Dactylic Hexameter and the Iambic Trimeter

Classicists have frequently emphasized the fact that, in the « spoken » (stichic) verses of Greek and Latin, the location of the caesura holds systematic relationships with the distribution of WBs within the whole line (see e.g. O’Neill 1942). In our view, the rules or regularities at work can be conceived
of as « contour principles » that govern a series of (obligatory or preferred) contrasts between suprasyllabic units at all levels (Expansion vs Clausula, Metron, Foot, Position).

In order to substantiate our claim, we will have to make reference to the way a foot may be divided or left undivided by a WB. Let us take as an example the following verse in Homer:

\[(18) \quad \Lambda\nu\tau\omicron\omicron\varsigma \kappa\alpha\iota \Delta\omicron\omicron\varsigma \upsilon\omicron\varsigma, \quad \dot{o} \gamma\dot{a}r \beta\alpha\sigma\iota\lambda\omicron\eta i \chi\omicron\omicron\omega\beta\omicron\epsilon\iota\varsigma \quad \text{(Hom. II. I, 9)}\]

According to definition (19):

\[(19) \quad \text{A surface foot } f \text{ exhibits a « division » if, and only if, there is at least one WB associated with a non-final syllable of } f.\]

the second, third, fourth and fifth feet of (18) exhibit a division. According to definition (20):

\[(20) \quad \text{Given a « divided » surface foot } f \text{ with an initial heavy syllable, } f \text{ exhibits a « masculine division » if, and only if there is a WB associated with that syllable.}\]

the second and the fourth feet of (18) exhibit a masculine division. According to definition (21):

\[(21) \quad \text{Given a « divided » surface foot } f \text{ with an initial heavy syllable followed by a light syllable, } f \text{ exhibits a « trochaic division » (a « feminine division ») if, and only if: (i) there is no WB associated with the initial syllable of } f; \text{ (ii) there is a WB associated with the second syllable of } f.}\]

the third and the fifth feet of (18) exhibit a trochaic division. Finally, according to definition (22):

\[(22) \quad \text{Given a surface foot } f, \text{ there is a « diairesis » associated with } f \text{ if, and only if: (i) there is a WB associated with the final syllable of } f; \text{ (ii) there is no WB associated with a non-final syllable of } f.\]

there is a diairesis associated with the first foot of (18).

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7 The trimetric structure is indicated by brackets of a larger size.
4.1. Contour Contrasts between the Clausula and the Expansion

4.1.1. In the dactylic hexameter, the clausula — traditionally called «adonean», «adonic» or «adonius» — never contains a prototypical dactyl as its second foot. The metrical tradition correctly accounts for this restriction by invoking the prosodic rule that prevents any resyllabification between adjacent verses while (presumably) producing lengthened allophones of short vowels in final open syllables (Dominicy 2002 : 332). The same mechanism explains the prohibition of resolved final positions in the trimeter; in both cases, the final (linguistically) light syllable would fill an additional heavy position (Prince 1989 : 63). On this ground, some metrists claim that the final dissyllabic foot of the hexameter derives from a prototypical dactyl by virtue of «catalexis», i.e. by erasure of the final light subposition (see e.g. Snell 1982 : 13 ; Devine & Stephens 1975 : 420), while others (e.g. van Raalte 1986 : 29 ; Prince 1989 : 57) prefer to assume a contraction of the pyrrhic sequence. We think (contra Allen 1973 : 301-303) that the catalectic analysis goes wrong. First, for all we know about the prehistory of Greek meter, no restriction barring heavy syllables from the final position was ever at work. As a well-documented synchronic phenomenon, catalexis always involves two designs which are entirely similar, except that nothing corresponds, in the catalectic form, to the last position of the acatalectic line (West 1982b : 282-283 ; Dominicy 2002 : 336-337). Although the contraction hypothesis proves more satisfactory from an historical viewpoint, it does not agree with the evidence provided by the numerous (stichic or lyric) meters where the adonean precedes a line-final trochaic foot or metron (Dominicy 2002 : 338-339). In such lines, the first foot of the adonean always surfaces as a dactyl, and the second foot is always dissyllabic; furthermore, the spondaic realization remains very infrequent. These data lead us to assume that the second foot of the adonic clausula is an underlying trochee.

4.1.2. In both the dactylic hexameter and the iambic trimeter, the clausula (absolutely or strongly) avoids non-prototypical foot realizations that are allowed in the expansion.

The final surface foot of the clausula is always prototypical. This partly results from the prosoding constraints bearing on the last syllable (see 4.1.1) and from the contrast between weak and strong feet in the trimeter (see 4.3); but it should be noted that, even in comedy, where resolution is available for all non-final weak positions, no resolution ever appears in P11.8

In the Homeric hexameter, F5 shows the lowest percentage of spondaic realizations (±5%), in contrast with what happens in the extension: ±40% in F1 and F2, ±16% in F3 and ±32% in F4 (see De Neubourg 1986 : 164 ; van Raalte 1986 : 51 ; the singularities of F3 and F4 will be accounted for in 4.1.4 and 4.4). Quite remarkably, as soon as F5 surfaced as a spondee, the whole line was called «spondaic», even when all remaining non-final feet were dactylic.

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8 The only two exceptions (AR. Ra. 1203, 1231) are deliberately ill-formed (van Raalte 1986 : 139).
In the trimeter, weak positions of weak feet accept both the light and the heavy syllabic realization (see 4.3). In the tragic corpus, heavy realizations massively outnumber light realizations in P1 and P5, but not in P9, where one observes the reverse distribution, though with a reduced difference. In the comic corpus, no such contrast appears between the clausula and the expansion; however, the relative frequency of heavy realizations is somewhat lower in P9 (see van Raalte 1986: 113).

In the tragic trimeter, the non-syllabic realizations of F5 remain exceptional, even when one takes into account the few (unmetrical) resolutions of P9 in proper names (Descroix 1931: 112-121; van Raalte 1986: 134-138; see 4.1.3). In the comic trimeter, P10 has the lowest percentage of resolutions among non-final strong positions, while P5 and P9 clearly disfavour resolution, in contrast to the other weak positions, viz. P1, P3 and P7 (van Raalte 1986: 134). The small proportion of resolutions in P5 surely follows from the joint effect of the frequency of the penthemimeral caesura and the strong avoidance of word-final resolution (see e.g. van Raalte 1986: 237-247). But in P9 and P10, it creates a contour contrast between the clausula and the expansion.

4.1.3. In accordance with a general feature of meter, the first foot of both the dactylic hexameter and the iambic trimeter admits of realizations that are (more or less strongly) avoided in the following feet, and especially in the initial foot of the clausula. Many authors (see e.g. O’Neill 1942; Allen 1973: 284-292) have observed that, in the hexameter, only F1 freely accepts a diaeresis associated with a spondaic realization, as in line (18); this configuration is absolutely excluded for F5, where apparent counterexamples are easily accounted for (Allen 1973: 286; Chantraine 1973: 18, 45, 54). In the tragic trimeter, F1 allows both an unmetrical «choriambic» (–∪∪–) realization (Descroix 1931: 223-224; van Raalte 1986: 156) and a resolution of the weak position when no proper name is involved (see 4.1.2); again, the following feet, and in particular the initial foot of the clausula, disallow such configurations.

4.1.4. In the clausulas, the division of the final foot is a marked feature (subject to prosodic restrictions for the adonean; see Hoenigswald 1991), while it is unmarked, and even favoured (in case of a penthemimeral caesura) for the final foot of the expansion (de Groot 1935: 153-154; van Raalte 1986: 88-89, 218-220). Moreover, in the dactylic hexameter, «Naeke’s bridge» strongly disfavours diaeresis when it is associated with a spondaic realization of F4 (Allen 1973: 291; van Raalte 1986: 99-101). Taken together, both constraints create a massively repeated contrast between the expansion and the adonic clausula.

4.1.5. In the tragic trimeter, the configuration where the initial foot of the clausula is divided by a WB associated with P9 is avoided, while it is allowed (and even favoured) for all other non-final weak feet (see e.g. Descroix 1931; Schein 1979; Devine & Stephens 1984: 36-38; van Raalte 1986: 248-
Furthermore, each time such a marked division occurs in F5, P9 exhibits a light realization unless it is filled with a nonlexical word which is both monosyllabic and non-postpositive or with the final syllable of a lexical word followed by a monosyllabic postpositive in P10. This conditional prohibition of a masculine division of F5 is traditionally called «Porson’s bridge» (see, in particular, de Groot 1935; Allen 1973: 304-312; Devine & Stephens 1984). Porson’s bridge, and a fortiori the more general avoidance of a WB associated with the weak position, do not apply to F1 nor (obviously) to F3. We interpret the strong avoidance of a WB associated with P9 as a contour contrast that disfavours clausulas of the form \( \cup \# - \] \( \cup \) \(-\]\) or \( \# - \] \( \cup \) \(-\]\), i.e. clausulas similar to the ending of the expansion in lines with a penthemimeral caesura. Contrary to Devine & Stephens (1984: 13-21), we will account for Porson’s bridge in similar terms. If one compares the two sequences \( \cup \# - \] \( \cup \) \( -\] \) and \( -\] \( \cup \) \(-\] \) independently of their location in the line, one notices that the configuration forbidden in the last metron \( -\] \( \cup \) \(-\] \) cannot realize a strong and a weak foot in that order (viz. F2 and F3, or F4 and F5), while the other configuration \( \cup \# - \] \( \cup \) \(-\] \) is clearly allowed at such places (van Raalte 1986: 259). Furthermore, the frequency of heavy realizations in P5 (see 4.1.2), the strong avoidance of F2 diaeresis and the frequency of F4 diaeresis (see 4.2) most probably caused the sequence \( -\] \( \cup \) \(-\] \) to be cognitively identified as the ending of an expansion; so that line-final sequences of the shape \( -\] \( \cup \) \(-\] \) had every chance to reduce the overall contrast between expansions and clausulas in an excessive way. Interestingly enough, our hypothesis also explains why Porson’s bridge and the more general avoidance of a WB associated with P9 do not rule out monosyllabic prepositives in P9. Except when they follow another non-postpositive monosyllable (or dissyllable if P4 is resolved), such items are strongly avoided in P5 in lines with a penthemimeral caesura, so that that their occurrence in P9 significantly mitigates the awkward similarity of the clausula with a prototypical expansion ending (Devine & Stephens 1978; 1984: 136-137; 1994: 281-282, 308-310, 321-322; van Raalte 1986: 203-204, 427-428).

Porson’s bridge and the more general avoidance of a WB associated with P9 are no longer operative in comedy. Since the comic trimeter also relaxes the prohibitions bearing on F2 and F3 diaeresis (see 4.2 and 4.4), one may surmise that the increasing frequency of verses with a «ternary» structure and/or a medial caesura (see 3.1 and 4.4) led the hearers to perceive the line-final sequence \( \cup \# - \] \( \cup \) \(-\] \) or \( -\] \( \cup \) \(-\] \) as an acceptable metron, rather than as a prototypical expansion ending.

4.2. Contour Contrasts between Metron 1 and Metron 2

In the dactylic hexameter (resp. the tragic trimeter), M1 strongly rejects a diaeresis associated with the weak (resp. strong) foot, while M2 allows it and even favours it (van Raalte 1986: 83-87, 207-214).

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9 The low percentages for WBs associated with P1 are due to independent statistical restrictions on the use of monosyllables (van Raalte 1986: 216-225, 259-261).
In the hexameter, where the so-called « bucolic » diairesis normally requires F4 to surface as a dactyl (see 4.1.4), this constraint proves especially restrictive for spondaic realizations of F2 (« Hilberg’s bridge » ; O’Neill 1942 ; Devine & Stephens 1976 : 149-150 ; 1984 : 12). On the other hand, Naeke’s bridge and the allowance vs avoidance of a diairesis associated with the weak foot jointly create a major contrast between the metra of the expansion: while it is extremely frequent for a dactylically-ending word to conclude the expansion (see Parry 1971: 42-50, 64-67 ; Nagy 1974 : 68-69), the same configuration remains highly exceptional at the end of M1 (O’Neill 1942 ; Allen 1973 : 291-292 ; Devine & Stephens 1984 : 39-40 ; van Raalte 1986 : 94-96 ; Nasta 2001 : 263-265).

The prohibition of F2 diairesis no longer applies to the comic trimeter (van Raalte 1986 : 214); this favours a « ternary » perception of the line (see 3.1 and 4.4).

4.3. Contour contrasts between Strong and Weak Feet

In the iambic trimeter, non-harmonic realizations of the strong feet (F2, F4, F6) are absolutely prohibited, while weak feet (F1, F3, F5) allow them, except for the proceleusmatic (see 3.2).

In the hexameter, the weak feet (F2, F4 and obviously F6) strongly or absolutely disallow a trochaic division, while the strong feet (F1, F3, F5) accept it without any restriction. This constraint applies more restrictively to F4 (« Hermann’s bridge »). In Homer, a (marked) trochaic division of F2 is generally followed by a trochaic caesura (van Raalte 1986 : 96-99 ; Nasta 2001: 263-264). This results from the fact that the sequence [– ∪ # ∪ [– # frequently appears in F3 and F4, in lines with a trochaic caesura, where the sequence [– ∪ # ∪ [– ∪ # is ruled out by Hermann’s bridge ; so that the succession of a trochaic division of F2 and a penthemimeral caesura blurs the contrast between weak and strong feet in a more severe way.

Taken together, Hilberg’s bridge (see 4.2) and the avoidance of the trochaic division strongly favour the masculine division of F2, which many authors improperly identify as a « trithemimeral caesura ». Indeed, the only way to escape from this division without producing a very marked line is to use a « molossic » word of three heavy syllables or a word of a larger shape, i.e. items of a relatively low frequency (O’Neill 1942). In lines with a masculine division of F2 and a hephthemimeral caesura, the sequence – ∪∪ – # may occur both in P1-2-3 and P5-6-7; this parallelism probably induced the perception of a « ternary » structure that should not be confused with the segmentation resulting from the cooccurrence of F2 and F4 diairesis (see 4.2).

4.4. Contour Contrasts between Strong Feet (Hexameter) or Weak Feet (Trimeter)

In the dactylic hexameter (resp. the tragic trimeter), diairesis is absolutely (resp. almost absolutely) prohibited for F3, but allowed for F1 and F5 (van Raalte 1986 : 207-215); recall that F5 diairesis requires a dactylic realization (see 4.1.3). All hexametric lines which exhibit an unmetrical F3
diairesis\textsuperscript{10} are either corrupt and/or produced by incompetent poets; in the tragic trimeter, F3 diairesis seems to be mitigated by metrical prodelision (de Groot 1935 : 98-99; Allen 1973: 121-122; West 1982a : 83; see footnote 3). For both meters, this prohibition creates a neat contrast between F3 (with respect to which the caesura is constrained at the Foot level; see section 5) and F6. Similarly, F3 clearly favours those realizations that cannot appear in F6, viz. the dactylic one in the hexameter and the spondaic one in the tragic trimeter (see 4.1.2).

F3 diairesis is allowed in the comic trimeter; hence the development of the medial caesura. It should be pointed out, however, that in both the tragic and the comic trimeter, verse instances with a medial caesura frequently exhibit a WB associated with P4 (Descroix 1931 : 259-261, 276; van Raalte 1986 : 196-199). Given that F4 diairesis is allowed (see 4.2), numerous lines with a medial caesura seem to oscillate between a «binary» and a «(semi-)ternary» segmentation. The same remark applies to the Medieval «ternary dactylics» we have already mentioned in 3.3.

4.5. Contour Contrasts between Strong and Weak Positions

In the dactylic hexameter, strong positions only accept a syllabic realization, while non-final weak positions are not unconditionally constrained in this respect. In the tragic trimeter, non-initial weak positions only accept a syllabic realization, while non-final strong positions are not unconditionally constrained in this respect; in the comic trimeter, all weak positions, except P11, accept a non-syllabic realization (see 4.1.2, 4.1.3).

5. The Location of the Caesura

5.1. Synthetical and Analytical Caesuras

The location of the caesura is always constrained with respect to the most prominent non-final metron, viz. M2. In order to account for the different locations observed, we will first generalize definition (9) in the following way:

\begin{equation}
\text{(23) } \text{WB} \#_i \text{ is «associated with» suprasyllabic unit } U \text{ (in the verse instance under consideration) if, and only if } \#_i \text{ is associated with the last syllable which (partially or totally) fills } U.
\end{equation}

Given this generalization, we can formulate definition (24) and our crucial hypothesis (25):

\begin{equation}
\text{(24) } \text{If, in the verse instance under consideration, the location of a caesura } \#_i \text{ is constrained with respect to suprasyllabic unit } U_j \text{ of level } n, \text{ then:}
\end{equation}

(a) \( \#_i \text{ is synthetical (in short: Synth) if, and only if, it is associated with } U_j \);
(b) $\#_i$ is progressively analytical (in short : PA) if, and only if, it is constrained with respect to the first sub-unit (of level $n+1$) of the unit $U_{j+1}$ (of level $n$) that follows $U_j$;

(c) $\#_i$ is regressively analytical (in short : RA) if, and only if, it is constrained with respect to the first sub-unit (of level $n+1$) of $U_j$.

(25) If, in the verse instance under consideration, WB $\#_i$ is a caesura whose location is constrained with respect to suprasyllabic unit $U_j$ of level $n$, then :

(i) $\#_i$ follows the nucleus N of the first metrical syllable which (partially or totally) fills $U_j$;

(ii) at level $n$, $\#_i$ should be synthetical (in short : Synth), progressively analytical (in short : PA) or regressively analytical (in short : RA).

The three caesura types distinguished in (24) differ from the caesuras of modern syllabo-accenual verse in several aspects. It should be emphasized, in the first place, that the location of the caesura in a verse instance may be constrained in very divergent ways with respect to the various relevant suprasyllabic units. In our framework, a dactylic hexameter like (6a), with a trochaic caesura, will be described as in (26):

(6a) λυσόμενος τε δύνατρα # φέρων τ’ ἀπερείσι ἀπολιμα
[[− UU − U U] [− U # U [− UU [− UU [−]]]]]

(HOM. II. I, 13)

(26) Level | Unit | Constraint | Location
--- | --- | --- | ---
Metron | M2 | RA | 
Foot | F3 (first sub-unit of M2) | RA | 
Position | P5 (first sub-unit of F3) | PA | 
Syllable | 6a (first sub-unit of P6) | Association with 6a |

In such an approach, we can arrive at a tentative definition of the universal notion of caesura syntheticity : indeed, all synthetical caesuras have to be associated with the final syllable (partially or totally) filling some metrical unit. Similarly, progressive analyticity, which some classicists call « forward dovetailing » (see e.g. Nagy 1974 : 279-302), is universally characterized by the fact that the caesura « jumps forwards » over a sub-unit that belongs to the following metrical unit. In contrast to modern verse, Greek and Latin meters also make use of regressive analyticity (or « backward dovetailing »). It is conceivable that this divergence stems from the fact that the prosody of Greek and Latin lines frequently involves regressive syllabification (see 1). In a case of regressive resyllabification, the caesura may « jump backwards » over a (segmental) sub-unit of a given (syllabic) unit, in the same way as it « jumps backwards » over a (syllabic or suprasyllabic) sub-unit of a given metrical unit when regressive analyticity is at work.

5.2. The Caesura and the Verse Design

In order to integrate the possible locations(s) of the caesura within the description of each complex verse design, we will formulate the following hypothesis :
If, in the verse design under consideration, the location of the caesura is constrained with respect to a suprasyllabic unit $U$ of level $n$, then it may be negatively specified for any property (Synth, PA, RA) or disjunction of two properties (Synth-or-PA, Synth-or-RA, PA-or-RA), which means that the remaining disjunction or property is allowed; if it is non-specified, then the three properties are allowed.

We give under (28-30) the full descriptions of the possible caesura locations for the three verse designs we have been considering here:

(28) *Iambic Trimeter (Tragedy)*

<table>
<thead>
<tr>
<th>Level</th>
<th>Unit</th>
<th>Constraint</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metron</td>
<td>M2</td>
<td>Non-(Synth-or-PA)</td>
<td></td>
</tr>
<tr>
<td>Foot</td>
<td>F3 (first sub-unit of M2)</td>
<td>Non-Synth</td>
<td></td>
</tr>
<tr>
<td>Position Syllable</td>
<td>P7 (first sub-unit of F4)</td>
<td>Non-(PA-or-RA)</td>
<td>Association with 7(b)</td>
</tr>
<tr>
<td>Syllable</td>
<td>7(b)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Position Syllable</td>
<td>P5 (first sub-unit of F3)</td>
<td>Non-(PA-or-RA)</td>
<td>Association with 5(b)</td>
</tr>
<tr>
<td>Syllable</td>
<td>5(b)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(29) *Iambic Trimeter (Comedy)*

<table>
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<th>Constraint</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metron</td>
<td>M2</td>
<td>Non-(Synth-or-PA)</td>
<td></td>
</tr>
<tr>
<td>Foot</td>
<td>F3 (first sub-unit of M2)</td>
<td>Non-Synth</td>
<td></td>
</tr>
<tr>
<td>Position Syllable</td>
<td>P6 (first sub-unit of F3)</td>
<td>Non-(PA-or-RA)</td>
<td>Association with 6(b)</td>
</tr>
<tr>
<td>Syllable</td>
<td>6(b)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Position Syllable</td>
<td>P7 (first sub-unit of F4)</td>
<td>Non-(PA-or-RA)</td>
<td>Association with 7(b)</td>
</tr>
<tr>
<td>Syllable</td>
<td>7(b)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Position Syllable</td>
<td>P5 (first sub-unit of F3)</td>
<td>Non-(PA-or-RA)</td>
<td>(Aristophanes)</td>
</tr>
<tr>
<td>Syllable</td>
<td>5(b)</td>
<td></td>
<td>(Menander)</td>
</tr>
<tr>
<td>Syllable</td>
<td>6a (first sub-unit of P6)</td>
<td>Association with 6a</td>
<td>(Menander)</td>
</tr>
<tr>
<td>Syllable</td>
<td>5(b)</td>
<td>Association with 5(b)</td>
<td>(Aristophanes, Menander)</td>
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</tbody>
</table>
(30) *Dactylic Hexameter*

<table>
<thead>
<tr>
<th>Level</th>
<th>Unit</th>
<th>Constraint</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metron</td>
<td>M2</td>
<td>Non-(Synth-or-PA)</td>
<td></td>
</tr>
<tr>
<td>Foot</td>
<td>F3 (first sub-unit of M2)</td>
<td>Non-Synth</td>
<td></td>
</tr>
<tr>
<td>Position</td>
<td>P7 (first sub-unit of F4)</td>
<td>Non-PA (no resolution allowed)</td>
<td></td>
</tr>
<tr>
<td>Syllable</td>
<td>7</td>
<td>Association with 7</td>
<td></td>
</tr>
<tr>
<td>Position</td>
<td>P5 (first sub-unit of F3)</td>
<td>(no resolution allowed)</td>
<td></td>
</tr>
<tr>
<td>Syllable</td>
<td>5</td>
<td>Association with 5</td>
<td></td>
</tr>
<tr>
<td>Syllable</td>
<td>6a (first sub-unit of P6)</td>
<td>Association with 6a</td>
<td></td>
</tr>
</tbody>
</table>

Notice that the location of the caesura is always constrained with respect to F3 at the Foot level. This accounts for the binary division that speakers intuitively projected when they treated the dactylic hexameter or the iambic trimeter as a sequence of feet (see 2). Furthermore, our model provides an elegant explanation for the development of medial caesura in the comic trimeter (a phenomenon neglected by Prince 1989: 63); this evolution simply amounts to the disappearance of any constraint at the Foot level. Similarly, the development of splitting caesuras in P6 in Menander’s comic trimeter amounts to the relaxation of the constraint at the Position level: non-(PA-or-RA) is replaced with non-RA.

So far, we have not formulated any rule that would univocally identify the caesura in all possible configurations. Prince (1989: 66) assumes that «the preferred position is the earlier one, in all cases.» In our framework, this preference principle can be rephrased as (31):

(31) \( WB \#_i \) is a caesura (in the verse instance under consideration) if, and only if \( \#_i \) is the first WB from the left to be licensed as a possible caesura by the constraints of the corresponding verse design.

The comic trimeter provides a clear counterexample to such a simple generalization, since the hephthemimeral caesura is often preferred to the medial caesura. Similarly, in the post-classical tradition of French versification, the medial caesura of the Alexandrine, which is constrained with respect to syllable 6, is often preferred to a caesura constrained with respect to syllable 4, even in the favourable case where a correlated caesura, constrained with respect to syllable 8, would be allowed. Principles like (31) not only prove insufficient whenever the statistical distribution of caesuras clearly conflicts with their linear ordering, but they also neglect the possible impact of metrical ambivalence on the aesthetic reception of poetic texts.
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