Chapter 7 Classical Chinese verse grammar: coexisting sub-grammars and formal grounding

This chapter echoes Chapter 1 by meeting the two research goals set out there. Section 7.1 unifies the five sub-grammars developed in the previous five chapters into one grammar, crucially via the construct of floating constraints, and argues that this unified grammar, which captures the modern speaker’s scansion of classical Chinese verse lines of all five major genres, in fact represents the coexistence of sub-grammars which are minimally different. In Section 7.2 we propose, on the basis of the discussion of metrical harmony for individual genres, that the native judgment on metrical harmony can be formally grounded in the grammar and thereafter compare the present proposal with earlier attempts of accounting for metrical harmony. Finally, Section 7.3 briefly revisits the additional issue of the meter of classical Chinese verse upon which the study has shed light.

7.1 Classical Chinese verse grammar as coexisting sub-grammars

As stated back in Chapter 1, the grammar entertained by the modern speaker in scanning classical Chinese verse lines from various genres is necessarily restrictive and flexible at the same time in order to both capture the consistency and accommodate the difference underlying his scansion of lines across genres. Below we will show that this dual property is respectively achieved via the common core ‘ranking skeleton’ comprised of the fixed ranking constraints and the mobility of ANCHOR floating along this ranking skeleton.

We first present the five sub-grammars developed in Chapters 2 to 6. The Hasse graph is used for its clarity in expressing constraint interaction.

(1) \( (I) \) *Shijing* sub-grammar

\[
\begin{aligned}
\text{BINMAX} & \quad \text{GOODFTINTERJ} \quad *\text{PHP-FINAL-MONOFT} \quad \text{ANCHOR-}I_{\text{Sh}}O_{\text{php}} \\
\text{BINMIN} & \\
\text{ANCHOR} & \\
\text{ALIGNR} (\text{FT, IP})
\end{aligned}
\]
This juxtaposition clearly presents the inventory of the constraint pool: nine prosodic constraints are operative in the grammar, if we count ANCHOR-OI and ANCHOR-IO as one. Of them, ANCHOR-ISOphy and ANCHOR are faithfulness ones and the others markedness ones. Furthermore, they exhibit a dichotomy regarding their violability as charted below:
Regarding the inviolable constraints, four things are notable from the individual sub-grammars presented above. First, not all of them are relevant in every genre. More specifically, \textsc{GoodFtInterj} is only relevant in those genres containing interjection syllables, i.e. \textsc{Shijing} and \textsc{Guti}, while \textsc{GoodFt'} is relevant only in \textsc{Jiuge}. Second, \textsc{>*PfF-Final-MonoFt} and \textsc{>*PfF-Final-MonoFt}, which are from the same family \textsc{NonFinality} but of different granularity, do not co-occur in a sub-grammar. Third, \textsc{Anchor-I} always co-occurs with \textsc{>*PfF-Final-MonoFt}, which necessitates the explicit identification of PfP boundaries, and is predictably absent when a sub-grammar contains \textsc{>*PfF-Final-MonoFt}. Fourth, these six inviolable constraints do not conflict with each other.

Regarding the violable ones, it is notable that the two \textsc{Anchor} sub-constraints can either stay together or split, and when they do split, \textsc{Anchor-OI} always dominates \textsc{Anchor-IO}.

Given these two camps of constraints, for analytical reasons, the unified grammar is constructed in two parts. The first part consists of the array of non-conflicting inviolable constraints. In view of the mutual exclusion between \textsc{>*PfF-Final-MonoFt} and \textsc{>*PfF-Final-MonoFt}, we propose \textsc{NonFinality (PCat)} where PCat is parametrizable into either PfP or IP\textsuperscript{1}. Thus, this first part of the unified grammar is:

\begin{equation}
\text{BINMAX, GoodFtInterj, GoodFt'}', \text{ Anchor-I}_{\text{SB}O_{\text{PhP}}}, \text{ NonFinality (PCat)}
\end{equation}

It is clear from what was mentioned above that of these five constraints, only \textsc{BinMax} and \textsc{NonFinality (PCat)} are always relevant in all sub-grammars, the other constraints, when not relevant in certain sub-grammars, are vacuously satisfied.

As for the part of the violable ones, we first present the following (incomplete) five rankings:

\begin{equation}
\begin{array}{|c|c|}
\hline
\text{Genre} & \text{Ranking of the violable constraints} \\
\hline
\text{I. Shijing} & \text{BINMIN} >> \text{ANCHOR} >> \text{ALIGNR (FT, IP)} \\
\text{II. Jiuge} & \text{ANCHOR-OI} >> \text{BINMIN} >> \text{ANCHOR-IO} >> \text{ALIGNR (FT, IP)} \\
\text{III. Guti} & \text{BINMIN} >> \text{ANCHOR} >> \text{ALIGNR (FT, IP)} \\
\text{IV. Jinti} & \text{BINMIN} >> \text{ALIGNR (FT, IP)} >> \text{ANCHOR} \\
\text{V. Ci} & \text{ANCHOR-OI} >> \text{BINMIN} >> \text{ANCHOR-IO} >> \text{ALIGNR (FT, IP)} \\
\hline
\end{array}
\end{equation}

The task now is to identify the ‘ranking skeleton’, the floating constraint(s) and its (their) landing sites. A comparison of these five ranking hierarchies reveals that the ranking \textsc{BinMin} >> \textsc{AlignR (FT, IP)} remains fixed across them, as highlighted above, which thus constitutes the ranking skeleton. In contrast, \textsc{Anchor} displays mobility in

\textsuperscript{1} For the feasibility of building parameters into the constraint, see the discussion on the generalized alignment constraint \textsc{Align (CAT1, EDGE1, CAT2, EDGE2)} in \text{McCarthy and Prince (1993a)}.
its ranking with \textsc{BinMin} and \textsc{AlignR} (FT, IP): it floats along this ranking skeleton. Furthermore, it may also split into \textsc{Anchor-OI} and \textsc{Anchor-IO} and as noted earlier, when this happens, the ranking is always ANCHOR-OI >> ANCHOR-IO. The ranking skeleton provides three slots which are all possible landing sites for the floating and possibly splitting \textsc{Anchor}, and its docking at different sites results in different sub-grammars.

Thus the second part of the unified grammar can be expressed as:

(5) \[
\begin{array}{c}
\text{BINMIN} >> \\
(\text{II}) \\
(\text{V}) \\
(\text{III})
\end{array}
\begin{array}{c}
\text{ALIGNR (FT, IP)} \\
(\text{I}) \\
(\text{IV})
\end{array}
\]

ANCHOR

The mobility of ANCHOR is indicated by the arrows pointing to its possible landing sites; the single and double lines respectively represent the cases where ANCHOR stays as one constraint in ranking and splits into ANCHOR-OI and ANCHOR-IO. When it does split, the ranking is always ANCHOR-OI >> ANCHOR-IO. The roman number indicates the genre whose ranking hierarchy is instantiated by the docking of ANCHOR at the corresponding sites.

Thus, combining (3) and (5), we have the unified verse grammar:

(6) \[
\begin{array}{c}
\text{BINMAX, GoodFTINTERJ, GoodFT'Xt', Anchor-I}_{\text{SBOPhP}}, \text{NonFinality (PCat)} >> \\
\text{BINMIN} >> \\
(\text{II}) \\
(\text{V}) \\
(\text{III})
\end{array}
\begin{array}{c}
\text{ALIGNR (FT, IP)} \\
(\text{I}) \\
(\text{IV})
\end{array}
\]

ANCHOR

This is the grammar that accounts for the consistent, yet not completely identical, ways in which the modern speaker scans classical Chinese verse lines across genres\(^2\). The dual property of flexibility and restrictiveness of this grammar is evident from its constitution: its flexibility is achieved via the mobility of ANCHOR and the restrictiveness guaranteed by the fixed ranking among the other constraints, as well as the restricted landing sites of the floating ANCHOR.

Three notes are in order regarding this grammar. First, as predicted in Chapter 1, the grammar is indeed a partial ranking due to the presence of the floating constraint ANCHOR. Depending on where ANCHOR lands, it may be instantiated into five sub-grammars, each being a full ranking responsible for the scansion of one genre. More specifically, as indicated in (6), when ANCHOR splits into two sub-constraints between which B\textsc{inMin} is sandwiched, the resultant full ranking is the sub-grammar for genres (II) (\textit{Jiuge}) and (V) (\textit{Ci}); when ANCHOR does not split and docks between B\textsc{inMin} and

\(^2\) It needs to be reminded that the constraint hierarchy for PhP boundary delimitation is tucked away in \textsc{NonFinality (PCAT)} and takes effect only when PCat is parametrized into PhP, and as such also constitutes part of the grammar.
ALIGNR (FT, IP), the resultant full ranking is the sub-grammar for genres (I) (Shijing) and (III) (Guti); when \textsc{Anchor} docks below \textsc{Alignr} (FT, IP), the resultant full ranking is the sub-grammar for genre (IV) (Jinti).

In this sense, the grammar (6) actually represents five coexisting sub-grammars. That an individual can simultaneously possess several grammars is uncontroversial, as in the case of multilingualism, multidialectalism, a speaker’s competence to switch among styles and registers. On each specific occasion of use, the speaker would reach into the grammar pool and select one suitable for the given occasion. The current case where a speaker is able to parse verse lines from different genres in different ways is another scenario where coexisting grammars, or sub-grammars, for that matter, are involved. When presented with a verse line from a given genre, the speaker would select the corresponding one of the sub-grammars represented by the grammar, specifically, by allowing the floating constraint \textsc{Anchor} to land in one of its landing sites.

Second, of the nine constraints, \textsc{Anchor} is the only floating one. This is a welcome result in view of previous works related to the mobility of constraints. For example, Itô and Mester (1998) showed on the basis of the stratification in the phonological lexicon of Japanese, that only faithfulness constraints can float. Gnanadesikan (1995) provides evidence from child language acquisition that points to the mobility of faithfulness constraints in comparison to the immobility of markedness ones. Van Oostendorp’s (1997) study on speech registers and Anttila and Cho’s (1998) work on certain synchronic variation and diachronic change in both English and Finnish yield similar findings about the mobility of faithfulness constraints. It remains to be explored whether the mobility of faithfulness constraints is principled rather than merely stipulative.

Third, in a related way, we wish to emphasize that although the model of floating constraints can be potentially very powerful, the grammar in (6) affords to be sufficiently restrictive by constraining the nature, number, and landing sites of floating constraints. More specifically, only one faithfulness constraint is allowed to float, and it has only three possible landing sites. Consequently, the five sub-grammars resulting from the different landing of the floating constraint are minimally different, which is desirable as it minimizes computational load for the speaker in entertaining coexisting grammars.

Finally, as mentioned in Section 1.2.2.2 of Chapter 1, of the several models proposed to account for variation, there is yet no conclusive evidence for which is superior. However, the present study seems to indicate that the floating constraints model, when restricted to a certain extent, as is the case here, is both formally appealing and explanatorily adequate. More specifically, in terms of the representation and acquisition of grammars, allowing \textsc{Anchor} to float is the only computationally efficient way to unify the sub-grammars, as it captures the maximally shared ranking

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\textsuperscript{3} The different docking of \textsc{Anchor} along the ranking skeleton indicates that scansions of lines from different genres differ in the weight attached to the boundary matching between the grammatical and the prosodic structures, and as such conforms to the native speaker’s impressionistic report of the scansion ‘styles’: genres (II) and (V) are felt to be scanned in a more ‘prose-like’ way where meaning and syntax are honored to a degree while genre (IV) is scanned in a virtually mechanical manner which ignores the syntax. The scansion ‘style’ of genres (I) and (III) lies in between.
skeleton and minimal difference between the sub-grammars. The other models such as partially ordered grammars and multiple grammars can do the job, but in a less restrictive and elegant way.

### 7.2 Formal grounding of the metrical harmony

In the previous five chapters, we argued that for each genre the native speaker’s judgment on metrical harmony can be formally grounded in the corresponding sub-grammar. Specifically, for each line type in every genre, the lines cognized as being metrically most harmonious are exactly those whose corresponding parse from their shared grammatical structure to their corresponding scansion is optimal under the corresponding sub-grammar. In general terms, we may suggest that the metrical harmony can be formally grounded in the verse grammar. Below we briefly compare the present proposal with earlier attempts of accounting for metrical harmony.

It is widely observed that the native speaker can pass intuitive judgments on the metrical harmony of verse lines, and how to formally account for the metrical harmony, which is also referred to, from an opposite angle, as metrical tension and metrical complexity (cf. Halle & Keyser 1971; Kiparsky 1977), has been a central issue in theoretical verse studies, in particular generative metrics. Of them, Kiparsky (1977; also 1975) is the representative and more elaborate one where he proposes a metrical tension index for English verse lines. This index measures the metrical tension by merely counting the number of mismatches between the stress pattern of the line and the basic metrical pattern, the latter vaguely couched as an independent template ‘generated by some combinatorial process’ (p.190). More specifically, as both the linguistic stress pattern and the basic metrical pattern with its specificmetrical positions (such as SWSWSWSWSW in the pentameter) are postulated to be of a tree structure (Liberman 1975), at least two sources of mismatches may be identified: labeling and bracketing. However, that this index turns out somewhat inadequate is evident from Kiparsky’s own admission quoted below:

There obviously remain some delicate problems in weighting the different elements of complexity in the right way. For example, what exactly is the relative importance of bracketing and labeling mismatches? Labeling mismatches seem to be more salient, but how much, and why? At this point there is not much that can be said in reply to such questions; but there is some progress in our even being able to raise them’ (p.227).

Notably, the problem identified here which involves weighting different channels of mismatches contributing to the metrical complexity and remains unsolved in the pre-OT era, strongly invites an OT-etic solution in terms of constraint ranking. However, what bears on the current discussion is not to propose an OT account for the metrical harmony of English verse lines\(^4\), but to point out that Kiparsky’s approach to metrical harmony appears less attractive because it entails an identification of specific rules, and a numerical counting of the violation of such rules, in addition to the vaguely defined metrical patterns.

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\(^4\) Such an attempt should evidently be feasible; see the tentative though not unproblematic discussion in Golston (1998).
By comparison, our proposal is to ground the metrical harmony straightforwardly in the grammar and no additional machinery is necessary. More specifically, first, as stated early in Chapter 1, no separate metrical patterns are postulated and the grammar, developed in the OT framework as a constraint ranking hierarchy, is solely comprised of prosodic constraints operative in the ambient language. Second, there is no need to pinpoint specific rules, or constraints, for that matter, contributing to metrical harmony. Indeed, the metrical harmony is not reducible to the observation of any one single constraint: ANCHOR, BINMIN, ALIGNR (FT, IP), BINARITY, and LONG-LAST have all been shown to be responsible and which constraint is crucial in determining metrical harmony falls naturally out of the constraint interaction reflected in their relative ranking, i.e. the grammar. Third, instead of resorting to the numerical counting which incurs the problem of accommodating violations of rules of different weight, in the present proposal, the metrical harmony is directly measured via the formal construct of OT harmony which is in turn gauged in terms of satisfaction/violation of interacting constraints whose different weights are captured in the ranking hierarchy. We have seen that constraint ranking can be crucial to account for metrical harmony in certain cases, such as the 6- and 7-syll Jiuge lines (cf. (57) and (58) in Chapter 3).

In short, under the present proposal, there is no need for a separate metrical tension or harmony index; the metrical harmony can be directly gauged via OT harmony in the grammar per se, which is also responsible for the scansion of the verse lines. As suggested in Chapter 1, an adequate verse grammar must be able to account for both the scansion of the verse lines and the native judgment of metrical harmony, in the same way that a grammar must be able to account for both the production of well-formed sentences and the native judgments on the well-formedness of sentences. In this light, in addition to offering a formal account of the cognitively oriented notion of metrical harmony, this proposal regarding the formal grounding of metrical harmony also testifies to the explanatory adequacy of the verse grammar.

7.3 Additional issue: the meter of classical Chinese verse

Although as stated in the introductory chapter, this study is not a study of meter or metrics, we nonetheless wish to conclude the chapter by briefly addressing a commonly asked question for any study on verse, i.e. what constitutes the meter of classical Chinese verse. The present study has offered valuable insight into this issue, which has so far remained elusive in works on Chinese verse. Back in Section 5.5.3 of Chapter 5, we already demystified the so-called ‘tonal meter’ and briefly argued that the meter of Jinti verse is ‘phrasing meter’; here we go one step further and argue that this is the meter for all genres of classical Chinese verse.

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5 Indeed, abundant evidence has been cited since Kiparsky (1977) to show that the rules are ‘normative’ rather than ‘absolute’ (e.g. Youmans 1989), and as such are apparently better understood as violable constraints.

6 Here we follow Schlepp (1980) in regarding meter as the linguistic basis for the rhythm (cf. also Chatman 1965): while rhythm is empirically perceptible meter is more abstract. For example, English and French poems respectively employ stress and syllable counting as the primary linguistic element to achieve rhythm, and the meters are respectively referred to as accentual and syllabic meter.
The crucial evidence comes from the fact that the metrically most harmonious lines of all genres are uniformly characterized by a complete mapping between the grammatical and the prosodic structures of the lines – at both the foot and the PhP level. This is formally captured as the satisfaction of the faithfulness constraint ANCHOR, modulo fine tuning by ALIGNR (FT, IP) and the three constraints regulating the well-formedness of PhP parsing, and in fact indirectly the position of SB in the line, i.e. BINARITY, EVENNESS and LONG-LAST. This uniform pattern becomes evident if we present the grammatical structures of the metrically most harmonious lines for all line types across genres, side by side with the optimal scansions of lines of such structures. The PhP boundaries of 3- and 4-syll lines are not marked out due to irrelevance.

(7)

<table>
<thead>
<tr>
<th>Line type</th>
<th>Metrically most harmonious grammatical structures across genres</th>
<th>Corresponding optimal scansion</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-syll</td>
<td>S[SS]</td>
<td>(S)(SS)</td>
</tr>
<tr>
<td>4-syll</td>
<td>[SS][SS]</td>
<td>(SS)</td>
</tr>
<tr>
<td>5-syll</td>
<td>[SS][SS]</td>
<td>(SS)(S)(SS)</td>
</tr>
<tr>
<td>6-syll</td>
<td>[SS][SS][SS]</td>
<td>(SS)(SS)(SS)</td>
</tr>
<tr>
<td>7-syll</td>
<td>[SS][SS][SS]</td>
<td>(SS)(SS)(S)(SS)</td>
</tr>
</tbody>
</table>

Assuming that the metrically most harmonious lines are the most rhythmical and hence constitute the best exponent of the meter, we observe that for each line type, the grammatical phrasing of such lines always fully matches the prosodic phrasing. This clearly indicates that the grammatical phrasing serves as the linguistic basis for rhythm, and we thus label the meter as ‘phrasing meter’. Cross-linguistically, Hayes (1995) suggests that Japanese verse achieves rhythm via the strong tendency to ‘align phonological breaks with metrical breaks’, which is in fact also a form of phrasing meter.

As for the role of the tone, we suggest, on the basis of our argument in Section 5.5.3 of Chapter 5, that it fulfils an ‘ornamental’ purpose by formulating a melodic contour via interpolation between individual lexical tones of the syllables in the line, a contour that rides on top of the rhythm achieved by the boundary mapping and enriches the musicality of the verse recitation. Indeed, although the meter of classical Chinese verse has so far been elusive, that some linguistic device other than the tone constitutes the meter of classical Chinese verse has been informally expressed by a number of authors (e.g. Buring 1966; Schlepp 1980; Chen 1994). Of particular pertinence is Young’s (1984) remark that ‘the line and caesura structure would suggest a rhythm, and the tones a melody’. This impressionistic but incisive statement is thus substantiated by the present study: ‘the line and caesura’ can actually be more precisely expressed as the location of grammatical boundaries, which constitutes the meter of classical Chinese verse.

7 The idea might be easier to comprehend if we temporarily borrow the construct of metrical template and consider the optimal scansion as some sort of template onto which the grammatical structure maps to achieve full boundary matching. This is comparable to the scenario of stress-based English meter where a metrically optimal line achieves a full mapping of its linguistic stress pattern with the template of say, pentameter.

8 It needs to be pointed out that Hayes postulates an independent metrical hierarchy, which we dispense with in accordance with the principles of prosodic metrics (Golston 1998) as stated in Chapter 1.