MNRAS **000**, 1–2 (2015) Preprint 31 May 2018 Compiled using MNRAS LATEX style file v3.0

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Accepted XXX. Received YYY; in original form ZZZ

ABSTRACT
This is a simple template for authors to write new MNRAS papers. The abstract should briefly describe the aims, methods, and main results of the paper. It should be a single paragraph not more than 250 words (200 words for Letters). No references should appear in the abstract.

Key words: keyword1 – keyword2 – keyword3

1 INTRODUCTION

This is a simple template for authors to write new MNRAS papers. See `mnras_sample.tex` for a more complex example, and `mnras_guide.tex` for a full user guide.

All papers should start with an Introduction section, which sets the work in context, cites relevant earlier studies in the field by Others (2013), and describes the problem the authors aim to solve (e.g. Author 2012).

2 METHODS, OBSERVATIONS, SIMULATIONS ETC.

Normally the next section describes the techniques the authors used. It is frequently split into subsections, such as Section 2.1 below.

2.1 Maths

Simple mathematics can be inserted into the flow of the text e.g. $2 \times 3 = 6$ or $v = 220\,\mathrm{km\,s^{-1}}$, but more complicated expressions should be entered as a numbered equation:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}. \quad (1)$$

Refer back to them as e.g. equation (1).

2.2 Figures and tables

Figures and tables should be placed at logical positions in the text. Don't worry about the exact layout, which will be handled by the publishers.

Table 1. This is an example table. Captions appear above each table. Remember to define the quantities, symbols and units used.

A	B	C	D
1	2	3	4
2	4	6	8
3	5	7	9

Figures are referred to as e.g. Fig. 4, and tables as e.g. Table 1.

3 CONCLUSIONS

The last numbered section should briefly summarise what has been done, and describe the final conclusions which the authors draw from their work.

ACKNOWLEDGEMENTS

The Acknowledgements section is not numbered. Here you can thank helpful colleagues, acknowledge funding agencies, telescopes and facilities used etc. Try to keep it short.

REFERENCES

Author A. N., 2013, Journal of Improbable Astronomy, 1, 1
Others S., 2012, Journal of Interesting Stuff, 17, 198

APPENDIX A: SOME EXTRA MATERIAL

If you want to present additional material which would interrupt the flow of the main paper, it can be placed in an Appendix which appears after the list of references.

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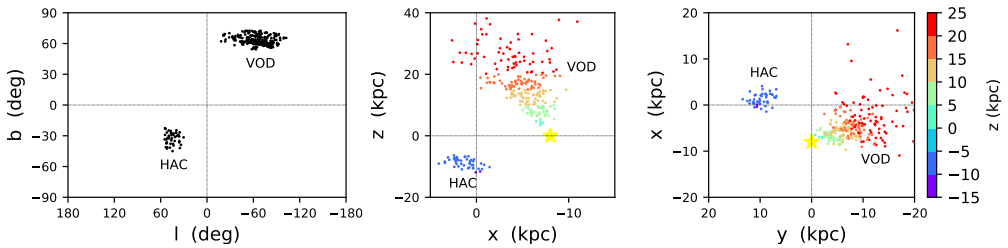

Figure 1. Should I keep all panels? Sun (yellow star) located at ($x_\odot$, $y_\odot$, $z_\odot$) = (-8,0,0) kpc . We have 44 HAC targets (46 in the previous paper but 2 of them don't have pm) and 245 VOD stars, after removing 'group 1' classified as Sgr by Vivas. In all plots I only show these stars (so NO Sgr in theory). Vivas+ 2016 published 420 RRL but I only cross matched with the Gaia RR Lyrae catalogue, for purity, and 306 RRL remain. We lose other 61 stars when I mask out group 1. The plots are colour coded by z, the distance from the Galactic plane.

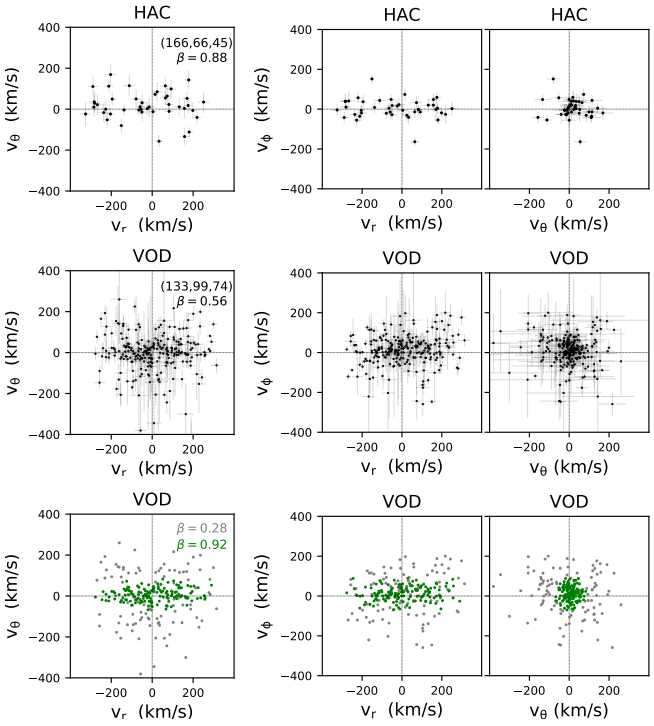

Figure 2. ($\sigma_r, \sigma_\theta, \sigma_\phi$) and β in the legend. I keep the same notation as in your sausage paper. Bottom row the same as middle row but color coded by probability to belong to each of the two components in the GMM (no constraints on any parameter). Should I make a small table with the result of the GMM or just mention them in the text?

This paper has been typeset from a TEX/LATEX file prepared by the author.

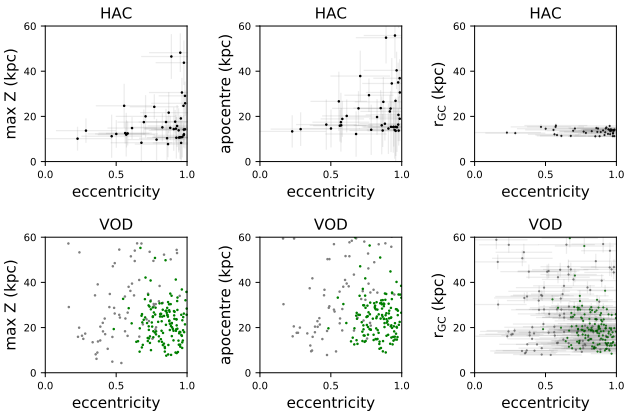

Figure 3. other plots (see figure 4) could replace the last two columns. I didnt add the errors on the VOD plots because they become very messy (see last plot). In green we mark the stars which are more likely to belong to the anisotropic component (classified as in Figure 2). Should I also mark in red 'group 2' which Vivas + 2016 suggest is the VOD? Their distribution is very similar to the HAC.

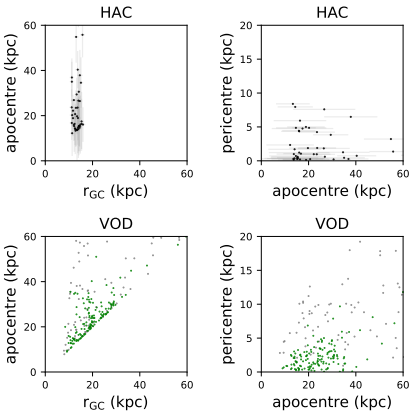

Figure 4. Maybe some of these plots could replace some of Figure 3? The plots on the left show that many of the targets are actually at apocentre, right? Apocentre of VOD seems a little further than HAC apocentre but we didnt sample a large range of distances so maybe not true.