Bananas and tangerines
Spilled on streets

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ABSTRACT: 1-2 sentences basic introduction into field. 2-3 sentences more detailed background. 1 sentence clearly stating the general problem being addressed by this particular study. 1 sentence summarizing the main result ("here we show"). 2-3 sentences explaining what the main result reveals/adds. 1-2 sentences to put results into more general context. Optional - if accessibility is enhanced by this: 2-3 sentences to provide broader perspective.

Key words: Street networks, Blocks, urban form, shape analysis, urban morphology, urban morphometrics, routing

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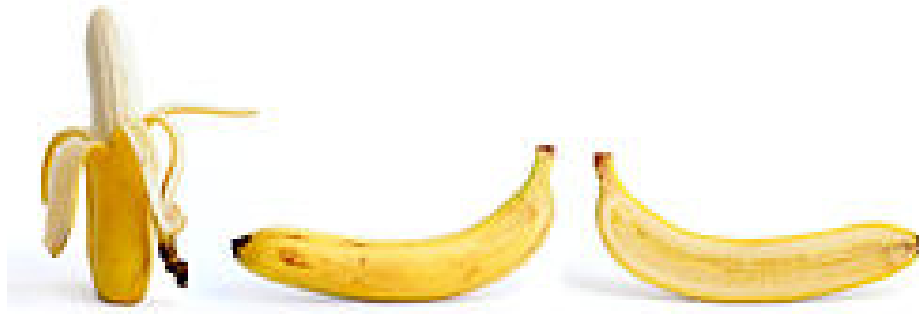[§]E-mail: anvy@itu.dk; website: https://nerds.itu.dk.

Figure 1: Banana

1. Introduction

1.1 why do we care?

1 paragraph general motivation - framework of urban data science. why everyone would benefit from having this issue solved. cite arcaute on 'recent advances, lobo on 'urban science'. also: alessandretti 2020, louail 2015, barthelemy books (morphogenesis 2018; spatial networks 2022)

2-3 sentences morphometrics (fleischmann, porta, dibble, etc.) diet 2018 on planar map classification. sharifi on urban forms.

1 paragraph problem description - cite cardillo, geisberger, morer (computational costs), maybe venerandi 2016?; vanegas paper on actually *simulating* these spaces

1 paragraph examples - other authors complaining about the issue, without having solved it yet (e.g. best paper ever (Vybornova et al., 2022)); grippa 2018; peponis 2007 merges these into urban blocks (replacing by center lines)

1 paragraph summary of what happens in this paper - 'towards an automated detection of bananas'; method inspired by louf and barthelemy; tried out on X cities across the world, from different morphological classes (cite fleischmann); 2 sentences about using OSM as data source, and OSMnx/geopandas/momepy (...) for processing; code is open source (?) ;

2. Method

This is method. And the figure 1 shows the banana.

highways: mention taillanter preprint 2022 (with barthelemy)

nodes: briefly explain why/how DBscan for node consolidation is used (cf. serra et gil for porto?)

edges: description/terminology: cf. hermosilla 2014 'UBRSA'; see strano 2012 for power law of "land cells" (spaces surrounded by street segments); most recent: shpuza 2011, 2017, 2022 (how to get the PDF...). circular compactness - inspired by louf; see also more recent barthelemy 2017 with the same figures;

3. Results

hope/idea: show relevant shape for all use cases (X cities?) choose cities systematically (!?) based on morphological classification

4. Discussion

how to move forward? (sneak preview of google summer of code)

incorporate further data (ideas: directionality; street names; angles; land use; ...) use network formalism: on dual approach (intersections = edges): jiang 2004, yang 2022, rosvall/sneppen; barthelemy paper on shortest path shape

end with a call to action & 'towards open urban data science'

References

Vybornova, A., Cunha, T., Gühnemann, A., and Szell, M. (2022). Automated detection of missing links in bicycle networks. *Geographical Analysis*.