

# Code book

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## Contents

- 1 General Approach
  - 1.1 Database Architecture
  - 1.2 Coding Procedure
  - 1.3 Coding conventions
    - 1.3.1 General coding format
    - 1.3.2 Other coding conventions
    - 1.3.3 How to deal with levels of certainty and disagreement?
    - 1.3.4 Policy on Coding inferred present and inferred absent and the uncertainty when a trait appears
    - 1.3.5 Incorrect punctuation and common errors
    - 1.3.6 Transitional periods
    - 1.3.7 Summary of the conventions on how to use punctuation
    - 1.3.8 Summary of primary coding definitions
    - 1.3.9 Binary code abbreviations
- 2 Phase I Variables (polity-based)
  - 2.1 General variables
    - 2.1.1 Temporal bounds
    - 2.1.2 Supra-cultural relations
    - 2.1.3 Map
    - 2.1.4 General Description
  - 2.2 Social Complexity variables
    - 2.2.1 Social Scale
    - 2.2.2 Hierarchical Complexity
    - 2.2.3 Professions
    - 2.2.4 Bureaucracy characteristics
    - 2.2.5 Law
    - 2.2.6 Specialized Buildings: polity owned
      - 2.2.6.1 Transport infrastructure
      - 2.2.6.2 The most impressive/costly building(s)
      - 2.2.6.3 Special purpose sites
    - 2.2.7 Information
      - 2.2.7.1 Measurement System
      - 2.2.7.2 Writing System
      - 2.2.7.3 Kinds of Written Documents
      - 2.2.7.4 Money
      - 2.2.7.5 Postal System
  - 2.3 Warfare variables
    - 2.3.1 Military Technologies
      - 2.3.1.1 Military use of Metals
      - 2.3.1.2 Projectiles
      - 2.3.1.3 Handheld weapons
      - 2.3.1.4 Animals used in warfare
      - 2.3.1.5 Armor
      - 2.3.1.6 Naval technology
      - 2.3.1.7 Fortifications
      - 2.3.1.8 Other technologies
    - 2.3.2 Military Organization
    - 2.3.3 General Characteristics of Warfare

- 2.3.3.1 Types of Warfare
    - 2.3.3.2 Cultural distance
    - 2.3.3.3 Intensity of warfare
  - 2.3.4 List of Wars
  - 2.3.5 Internal Conflicts Codesheet
    - 2.3.5.1 General
    - 2.3.5.2 Characteristics
    - 2.3.5.3 Internal war type
  - 2.3.6 Individual Conflict coding template
    - 2.3.6.1 General
    - 2.3.6.2 War type
    - 2.3.6.3 Cultural distance
    - 2.3.6.4 Consequences for territories
  - 2.3.7 Battle template
    - 2.3.7.1 Sieges, Battles, and Naval Engagements
    - 2.3.7.2 Siege Template
- 2.4 Ritual variables
  - 2.4.1 Largest scale collective ritual of the official cult
  - 2.4.2 Most widespread collective ritual of the official cult
  - 2.4.3 Most frequent collective ritual of the official cult
  - 2.4.4 Most euphoric collective ritual of the official cult
  - 2.4.5 Most dysphoric collective ritual of the official cult
- 3 Phase II Variables (polity-based)
  - 3.1 Institutional Variables
    - 3.1.1 Limits on Power of the Chief Executive
      - 3.1.1.1 Legal (formal) limits
      - 3.1.1.2 Legal (formal) freedoms
      - 3.1.1.3 Power distributed
      - 3.1.1.4 Customary (informal) checks on executive
      - 3.1.1.5 Limits on executive power imposed by religious agents
      - 3.1.1.6 Mechanisms of Power Transfer (from one head of state to the next)
    - 3.1.2 Central Bureaucracy
    - 3.1.3 Local-level officials (provincial, regional, civic administration)
  - 3.2 Legal System
    - 3.2.1 Procedures of Legal System
    - 3.2.2 Informal Justice
    - 3.2.3 Property Rights
    - 3.2.4 Inheritance System
  - 3.3 Equity
    - 3.3.1 Sex Class and Race
    - 3.3.2 Discrimination
  - 3.4 Social Mobility
    - 3.4.1 Status
    - 3.4.2 Slavery
  - 3.5 Religion and Normative Ideology
    - 3.5.1 Description of Religious or Normative Ideology System
    - 3.5.2 Deification of Rulers
    - 3.5.3 Normative Ideological Aspects of Equity and Prosociality
    - 3.5.4 Normative Ideological Aspects of Slavery
    - 3.5.5 Normative Ideological Aspects of Human Sacrifice
    - 3.5.6 Normative Ideological precepts concerning morality/supernatural beings
    - 3.5.7 Moralizing Supernatural Powers
  - 3.6 Well-Being
    - 3.6.1 Economic Well-Being
    - 3.6.2 Public Goods
    - 3.6.3 Entertainment and Knowledge Well-Being
    - 3.6.4 Biological Well-Being
    - 3.6.5 Prosocial Behavior

- 3.7 Economy variables (polity-level)
      - 3.7.1 State Income
      - 3.7.2 Taxation
      - 3.7.3 Wages and Costs
- 4 Agriculture, Economy, and Population Variables (NGA-based)
- 5 Economy and Technology variables (NGA-Level)
  - 5.1 Energy Sector
  - 5.2 Metals Sector
    - 5.2.1 Armor
  - 5.3 Construction Sector
    - 5.3.1 Materials used in building industry
    - 5.3.2 Sophistication of building techniques
    - 5.3.3 Housing
    - 5.3.4 Monumental Architecture
    - 5.3.5 Funerary Construction
      - 5.3.5.1 Opulence of funerary practices
  - 5.4 Banking and Finance Sector
  - 5.5 Information and Communication Sector
    - 5.5.1 Dissemination of Information
  - 5.6 Public Infrastructure
    - 5.6.1 Entertainment Sector
    - 5.6.2 Transport infrastructure
  - 5.7 Transport and Trade Sector
    - 5.7.1 Domestic transport
    - 5.7.2 International Trade
    - 5.7.3 Domestic Trade
    - 5.7.4 Markets
  - 5.8 Other Sectors
    - 5.8.1 Ceramics
    - 5.8.2 Luxury Goods
  - 5.9 Professions and Workshops
    - 5.9.1 Textile Work
    - 5.9.2 Ceramic Work
    - 5.9.3 Construction Work
    - 5.9.4 Fine-Arts Work
    - 5.9.5 Smith Work
    - 5.9.6 Food Work
    - 5.9.7 Information Work
    - 5.9.8 Entertainment Work
    - 5.9.9 Finance Work
    - 5.9.10 Service Work
    - 5.9.11 Mixing/Compound Making Work
    - 5.9.12 Merchant Work
    - 5.9.13 Merchant Work
- 6 Agriculture
  - 6.1 Background
    - 6.1.1 General Description
    - 6.1.2 Human Geography
    - 6.1.3 Environment
  - 6.2 Agricultural Land Use
    - 6.2.1 Features of Cultivation
  - 6.3 Agricultural Technology and practices
    - 6.3.1 Tools
    - 6.3.2 Soil Preparation
    - 6.3.3 Conventions and Techniques
    - 6.3.4 Post-Harvest, Food Storage and Preservation
  - 6.4 Social Scale of Food Production
    - 6.4.1 Preparation

- 6.4.2 Harvesting of Crops
  - 6.5 Agricultural Intensity
    - 6.5.1 Food Animals
    - 6.5.2 Food Production
    - 6.5.3 Dietary Importance
  - 6.6 Major Carbohydrate Sources
    - 6.6.1 Carbohydrate source #1
    - 6.6.2 Carbohydrate source #2
    - 6.6.3 Carbohydrate source #3
- 7 Population
  - 7.1 General Population
  - 7.2 Estimated Carrying Capacity
- 8 References

# General Approach

## Database Architecture

The basic components of the database architecture are *units*, *variables*, and spatio-temporal *coordinates*. Units serve as both methods of data entry and potential units of statistical analysis. They are characterized by spatio-temporal coordinates, which are dynamical (in other words, the spatial extent of a unit can change with time). Variables are coded through units, and therefore units are the means of tying values of coded variables to spatio-temporal coordinates.

Currently we have the following types of units (this list may be expanded as needed):

- **Natural Geographic Region (NGA)**. This type of unit is defined spatially by the area enclosed within a boundary drawn on the world map. It does not change with time. Its rough spatial scale is 100 km × 100 km (+/- 50%). Examples: Latium, Upper Egypt, Middle Yellow River Valley.
- **Polity**. Polity is defined as an independent political unit. Kinds of polities range from villages (local communities) through simple and complex chiefdoms to states and empires. A polity can be either centralized or not (e.g., organized as a confederation). What distinguishes a polity from other human groupings and organizations is that it is politically independent of any overarching authority; it possesses sovereignty. Polities are defined spatially by the area enclosed within a boundary on the world map. There may be more than one such areas. Polities are dynamical entities, and thus their geographical extent may change with time. Thus, typically each polity will be defined by a set of multiple boundaries, each for a specified period of time. For prehistoric periods and for NGAs populated by a multitude of small-scale polities we use a variant called **quasi-polity** (see below)
- **Quasi-polity**. The polity-based approach is not feasible for those periods when a NGA is divided up among a multitude of small-scale polities (e.g., independent villages or even many small chiefdoms) or when it is controlled in quick succession by a number of different regimes. In instances such as these we use the concept of 'quasi-polity' (in either its 'spatial' and/or 'temporal' sense). An example of a quasi-polity in its spatial sense is the Neo-Hittite Kingdoms, while a quasi-polity in its temporal form would be the 28th-30th Dynasties of Egypt. The idea is to collect data for the quasi-polity as a whole. This way we can integrate over (often patchy) data from different sites and different polities to estimate what a 'generic' polity was like. Accordingly, when coding, for example, social complexity variables, enter data not for the whole NGA but for a 'typical' polity in it. For example, when coding for a quasi-polity **polity territory** is not the area of the NGA as a whole, but the average or typical area of polities within the NGA. Similarly, for societies known only archaeologically we may not be able to establish the boundaries of polities, even approximately. *Quasi-polity* is defined as a cultural area with some degree of cultural (including linguistic, if known) homogeneity that is distinct from surrounding areas. For example, the Marshall Islands before German occupation had no overarching native or colonial authority (chiefs controlled various subsets of islands and atolls) and therefore it was not a polity. But it was a quasi-polity because of the significant cultural and linguistic uniformity.

- **Religious System (RS).** This unit is defined in ways that are analogous to a polity, except it reflects religious, rather than political authority. Religious systems are dynamical and are typically defined by a set of dated boundaries. Unlike polities, religious systems often overlap with each other.
- **City.** Cities are represented by a single point on the map that doesn't change with time. Although it is possible to reflect their spatial expansion dynamically, we chose not to do so in the current implementation.
- **Interest Group (IG).** An IG is a social group that pursues some common interest, so that its members are united by a common goal or goals. Polities and religious cults are also interest groups, but the IG category is broader. It also includes ethnic groups, professional associations, warrior bands, solidarity associations, mutual aid societies, firms and banks (including their premodern variants), etc. The IG is defined sociologically, not geographically. However, if desired, a geographic area, enclosed within a boundary, may be associated with it in the same way as with a polity or a RS.
- **Freeform area (FA).** This is an area enclosed within a boundary, or a dated set of boundaries. Basically, it is our method for treating an arbitrary shape on the map to which a historical expert wishes to tie certain values of coded variables. Examples include a province within an empire, something with a hole in it, or a 'southeast corner of a region.'

### Notes:

- As the database evolves, and more questions are posed, it is conceivable that other units could be added.
- We recognize that most historical polities did not have sharp boundaries. Instead, their sphere of control may gradually decline from the political center, or centers. There could be effectively stateless lacunae inside the territory nominally claimed by a state. The current implementation of the database does not reflect such 'facts on the ground.' However, we will consider implementing such a feature in a future version, so suggestions on how to do this are welcome.
- As a coding convention, we prefer to limit the temporal extent of polities to two-three centuries, because polities tend to evolve with time and often experience transformative events, which make it more natural to code the next period as a different polity. For example, we divide Roman history into the following polities: Regal, Early, Middle, and Late Republic, Principate, and Dominate.
- The current version of the Code Book has been developed primarily for historical societies. Coding data for societies that are known only archaeologically poses an additional set of challenges. We are currently developing a Seshat CodeBook-Archaeology that will address these challenges.

## Coding Procedure

(using approaches based on NGAs, as an example)

- Identify an NGA within the larger UTM Zone. This should be an area ideally around 100 by 100 km, or 10,000 sq. km. Dimensions, of the NGA can, however, vary by 50% (and in rare cases, more).
- In the NGA page list chronologically all polities that were located in the NGA, or encompassed in it (see Latium as an example). For periods when the NGA was fragmented among many small-scale polities, use the quasi-polity approach. In the intermediate case, when there are several (few) polities, focus on the one that controls the largest proportion of the NGA.
- As a coding convention, we try not to have chunks of time that are too long on the same polity data sheet. Try to limit the length to 200-300 years, but at the same time don't slice it too thinly. Aim at roughly 200 (100-300) year chunks, but be guided by actual historical events that result in major change. As an example, we have split Rome-Republican Period into three, see the list of polities in Latium.
- If coding polity-based variables, switch to a polity and code all variables on its page. In other words, you don't put any polity-related codes within the NGA sheet. The NGA is used purely as a sampling scheme, all codes go into the relevant polity sheets.
- If coding resources, agriculture, and population, list chronologically the general 'epochs' and then code these variables for each period separately (again, see Latium NGA for an example).
- Same approach is used to add lists of religious systems and cities, in which case entry is linked to the page where codes for the RS or city are located.

## Coding conventions

(the Wiki implementation)

## General coding format

- Every entry field consists of two different sections. The first is machine readable. It is indicated by boldface in the reading mode and by being enclosed between triple quotes in editing mode. All dates are entered after the colon in the machine readable part of the entry field. The card suit symbols delimit the variable name and coded value, like this:

♠ **Polity territory** ♣ **5,300,000** ♥ squared kilometers

or

♠ **Polity territory** ♣ **5.3** ♥ million squared kilometers (the units are indicated right of the hearts symbol)

- The second, narrative section follows the machine readable part. It is used to explain the reasoning behind the specific code selected, list references, indicate whether the data is based upon historical or archaeological sources, provide other information important to contextualize the dates and so on. In many ways this section is even more important than the code itself, because it allows the knowledge to accumulate. We expect that each coding sheet will be gone over by multiple historians, who will need to know why a particular code was chosen to decide whether they agree with it, or can improve on it by bringing in additional information. It is also possible that subsequent historians will register their dissenting opinions on how the variable should be coded, and there is a method for doing that (see below).

## Other coding conventions

- All dates are followed by either BCE or CE. bce stands for Before Common Era and ce indicates Common Era.
- Generally speaking, the hyphen (-) indicates a range
- To indicate the length of time a feature was present we use the hyphen (-), between the start date and the end date. Different dates or time periods are separated from each other by the semicolon (;). For example, suppose the territory of the polity to be coded was 5,300,000 sq km between 120 BCE and 75 BCE, but then an additional region was added, bringing the total territory to 6,100,000 sq km (and this territory was unchanged until 30 CE). We code it like this:

♠ **Polity territory** ♣ **5,300,000: 120-75 BCE; 6,100,000: 75-30 CE** ♥ squared kilometers

## How to deal with levels of certainty and disagreement?

- We use different types of brackets to indicate varying degrees of certainty (or confidence) with which the dates are entered into the database. As a ground rule no brackets means a high degree certainty and no disagreement between experts. Where we cannot pinpoint the precise value, we use square brackets, i.e. [ ]. Note that the square brackets cover what is known in statistics as the 90 percent confidence interval. In other words, we do not attempt to capture all remotely possible values, but only the more likely ones, leaving off 5 percent of probability out at each end. For example, suppose the population of the polity in 100 BCE was somewhere between 1.5 and 2 million. Then we code it like this:

♠ **Polity population** ♣ **[1,500,000 - 2,000,000]: 100 BCE** ♥

Again, remember not to cover all remotely possible contingencies; focus on the likely range.

Note that we code the uncertainty on the **values**, not on the dates. If for example the sources or experts are unclear about whether or not professional military officers appeared between 150 BCE and 90 BCE, then we code it like this:

♠ **Professional military officers ♣ [absent; present]: 150-90 BCE♥** The date here is coded in a range, the uncertainty is coded in the value

- Curly brackets, { }, indicate disagreements between experts. For example, if two different experts disagreed on the population of the polity in 100 BCE then we code it like this:

♠ **Polity population ♣ {1,500,000; 2,000,000}: 100 BCE ♥**

Expert disagreements are handled similarly as uncertainty -- the disagreement is recorded on the value, **not** on the date. If according to one expert professional military officers appeared in 150 BCE, while another thinks that it only happened in 90 BCE. We code it like this:

♠ **Professional military officers ♣ absent: 500-150 BCE; {absent; present}: 150-90 BCE; present: 90 BCE - 1 CE ♥**

## **Policy on Coding inferred present and inferred absent and the uncertainty when a trait appears**

As a coding convention, use the 'inferred absent' and 'inferred present' codes to code a specific variable when the available literature does not provide unequivocal evidence of presence/absence for that trait, yet there is reason to infer or deduce that the trait was or was not present in the society.

The inferred present code should be used when other evidence implies or requires the existence of some trait in the polity. For instance, if it is known that goods were transported overland along routes which crossed large river-ways and that wood was the primary construction material in the polity, it may be reasonable to infer the presence of bridges in the Transport Infrastructure section even if bridges are not specifically mentioned in the sources (as this could be due to the perishability of the building material).

The inferred absence code should be used wherever it seems likely that a trait is not mentioned in the available literature because the trait was indeed absent from the polity, rather than simply being unavailable to modern scholars for lack of surviving evidence. For instance, in the Kinds of Written Documents section, if the polity has numerous written records that survive and there is no mention in any source of any works of fiction known from the polity, then it is appropriate to code inferred absence for the Fiction variable.

Coders should let logic guide their decisions. **It is crucial that all inferred absent /inferred present codes be followed by a detailed explanation in the descriptive section clarifying the nature of and reason for the inference.**

Inferences can be made both forwards and backwards in time. Drawing inferences backwards, for example for the polity before we know for certain a legal code was present, might often result in a code of "inferred absent". Another common situation is when a trait is present at, for example, 1000 CE and 1400 CE. It can be inferred present also for 1200 and 1300 CE, even if there is no direct evidence of its presence (and there is no evidence that it was first lost, than regained). Similarly, if we know that iron metallurgy was practiced by most or all societies in the general vicinity of the coded one, we can infer presence. Remember that the device of square brackets [absent; present] can also be used (see next paragraph).

Note that when we code [absent; present] this code is not simply "unknown". We use it when there is uncertainty about whether a trait appeared during a particular time period, or for the entire polity duration. See above for explanations of how to use square brackets [] to express uncertainty. Conversely, when we code "suspected unknown", this does not mean uncertainty, it means that the coder has made a study of the variable and cannot find relevant information or there are gaps in the records that do not permit any other code, including inference. A code of "unknown" is assigned when a relevant domain expert confirms that this variable cannot be coded because of gaps in the direct and indirect historical or archaeological record. ***Importantly, only an expert can suggest a code of 'unknown'; RAs should use only 'suspected unknown'.***

If there is good evidence that something was absent and then became present at a point in time, but not clear when it first appeared (or the opposite - was present and became absent or obsolete), use the conventions on coding transitions (explained below).

## Incorrect punctuation and common errors

- In theory, uncertainty and disagreement could be coded both for variable values and for dates. However, we choose to **not** express uncertainty in the dates, only in values.

The following example is *incorrect*:

♠ Professional military officers ♣ absent: 500 BCE - [150 BCE; 90 BCE]; present: [150 BCE; 90 BCE] - 1 CE ♥ The date code contains uncertainty and we cannot work with data in this form.

## Transitional periods

- Some traits are known to either appear or disappear within a certain time period, but it is unknown precisely when this transition occurs. These are coded as follows:
  - **absent\_to\_present** = it is unclear from the evidence precisely when the variable appears but there is direct evidence of its absence until some point and there is direct evidence of its presence from some later point. The intervening period between the codes absent and present is coded [absent; present]. For example, ♠ Professional military officers ♣ absent: 500-150 BCE; absent\_to\_present: 150-90 BCE; present: 90 BCE - 1 CE ♥
  - **present\_to\_absent** = it is unclear from the evidence precisely when the variable disappears but there is direct evidence of its presence until some point and there is direct evidence of its absence from some later point. This is the inverse of the situation described for the code absent\_to\_present. It is also used when a trait becomes obsolete. For example, crossbow becomes obsolete when firearms become sufficiently effective, so it should be coded present\_to\_absent if this transition occurs at an unknown time

note that when the precise date of a transition is known, this is simply reflected in dated simple codes, for example: ♠ Professional military officers ♣ absent: 500-1103 BCE; present: 103 BCE - 1 CE ♥

## Summary of the conventions on how to use punctuation

- In summary, the conventions of using various punctuation signs as follows:
  - Hyphen indicates a range
  - Colon divides the value from time period
  - Semicolon is used within square [] or curly {} brackets to separate the extreme values. It is also used to demarcate different sections of code, like here to separate out the codes for the periods 120-75 BCE and 75 BCE - 30 CE: ♠ Polity territory ♣ 5,300,000: 120-75 BCE; 6,100,000: 75 BCE - 30 CE ♥ squared kilometers
  - Comma is reserved for the 'thousands separator' (so 1 million = 1,000,000) and dot as the decimal mark (so pi = 3.14). Don't mix up the use of commas and semicolons within square and curly brackets, as that would confuse the webcrawler program that will harvest data from the Wiki-database

## Summary of primary coding definitions

The following most widely used binary codes are defined as follows:

- 'absent' = evidence of absence
- 'present' = evidence of presence
- 'inferred absent' = evidence implying absence. See the explanation above.
- 'inferred present' = evidence implying presence. See above.



- '[absent; present]' and '[present; absent]' = uncertainty about appearance of a trait (different than scholarly disagreement). See above for details.
- 'absent\_to\_present' = transition that is not able to be dated precisely. See above for details.
- 'present\_to\_absent' = transition that is not able to be dated precisely. See above for details.
- '{present; absent}' = Two or more experts are in disagreement over the coding status of this variable. (Curly brackets indicate this type of uncertainty concerns expert opinion).
- 'unknown' = an expert has made a study of this variable and believes that this variable cannot be coded because of gaps in the direct and indirect (when available) historical or archaeological record. If another expert disagrees with the original expert's assessment the code should be changed to reflect expert uncertainty.
- 'suspected unknown' = the RA suspects that the variable should be coded 'unknown' because of gaps in the primary and secondary (when available) historical or archaeological record but an expert is needed to confirm this.
- 'not applicable' = the coder has attempted to assign a code to a variable (e.g., present/absent), but determined that it cannot be coded because no alternative code is appropriate. For example, a variable pertaining to specific mechanisms for constraining the power of an executive would receive the code 'not applicable' if no executive was present to be constrained.
- blank = no coder has engaged with this variable or more work needs to be done to provide a code for this variable

## Binary code abbreviations

These codes are for use in spreadsheets. See section above for fuller explanations.

- A = absent
- P = present
- A\* = inferred absent
- P\* = inferred present
- U = unknown
- U\* = suspected unknown
- A~P = uncertainty about when a given trait appears. Used to indicate the transitional period from absent to present
- P~A = uncertainty about when a given trait disappears. Used to indicate the transitional period from present to absent. Also used for obsolete traits
- A;P = scholarly disagreement or uncertainty
- NA = not applicable; no other code is appropriate

## Phase I Variables (polity-based)

### General variables

♠ **RA** ♣ ♥ The name of the research assistant or associate who coded the data. If more than one RA made a substantial contribution, list all.

♠ **Expert** ♣ ♥ The name of the historical or archaeological expert who supervised coding and checked/improved/approved the result. If more than one expert was involved, list all.

♠ **UTM zone** ♣ ♥ List only one, usually where the capital city is located

♠ **Original name** ♣ ♥ Generally same as the name of this page

♠ **Alternative names** ♣ ♥ Used in the historical literature; also supply the most common name used by the natives

♠ **Peak Date** ♣ ♥ The period when the polity was at its peak, whether militarily, in terms of the size of territory controlled, or the degree of cultural development. This variable has a subjective element, but typically historians agree when the peak was.

## Temporal bounds

The next three coding positions define the temporal bounds of the polity. These codes take into account that such temporal bounds may be fuzzy and allow us to capture this 'fuzziness.' For example, some polities such as the Medieval German Empire or China under the Zhou Dynasty began as reasonably coherent states, but with time gradually lost cohesion, the degree to which the center exercised control over regional subpolities. Because this process was gradual, there was no sharp temporal boundary. The 'Degree of centralization' variable allows to capture these transitions (by coding time periods when the polity transitions, for example, from a 'confederated state' to 'loose' and finally to 'nominal' degree of centralization. Similarly, polities may have a fuzzy starting date, if they originate as subpolities under a disintegrating overarching polity. These transitions are captured by the variable 'Supra-polity relations'.

♠ **Duration** ♣ ♥ The starting and ending dates covered by this coding sheet. Briefly explain the significance of each date. For example, the starting date could be the establishment of a long-ruling dynasty, while the ending date may be the year when the polity was conquered by an aggressive neighbor. In cases when starting and/or ending dates are fuzzy, as explained above, use the earliest possible starting date and the latest possible ending date. This approach will result in a temporal overlap, so that some NGAs for some periods will be coded as belonging to two polities simultaneously (e.g., to a disintegrating overarching polity and to the rising regional subpolity). Such overlap is acceptable, and will be dealt with at the analysis stage.

♠ **Degree of centralization** ♣ ♥ unknown/ quasi-polity/ nominal/ loose/ confederated state /unitary state

- 'quasi-polity' = or 'none'. Use if, for example, the NGA is inhabited by many politically independent groups. There are four types of quasi-polity: archaeological, temporal, complex and dominant. Quasi-Polities: further information.
- 'nominal' = regional rulers pay only nominal allegiance to the overall ruler and maintain independence on all important aspects of governing, including taxation and warfare. (example: Japan during the Sengoku period)
- 'loose' = the central government exercises a certain degree of control, especially over military matters and international relations. Otherwise the regional rulers are left alone (example: European 'feudalism' after the collapse of the Carolingian empire)
- 'confederated state' = regions enjoy a large degree of autonomy in internal (regional) government. In particular, the regional governors are either hereditary rulers, or are elected by regional elites or by the population of the region; and regional governments can levy and dispose of regional taxes. Use this category for the more centralized 'feudal states'.
- 'unitary state' = regional governors are appointed and removed by the central authorities, taxes are imposed by, and transmitted to the center

♠ **Supra-polity relations** ♣ ♥ unknown/ none/ alliance/ nominal allegiance/ personal union/ vassalage/

- 'alliance' = belongs to a long-term military-political alliance of independent polities ('long-term' refers to more or less permanent relationship between polities extending over multiple years)
- 'nominal allegiance' = same as 'nominal' under the variable "Degree of centralization" but now reflecting the position of the focal polity within the overarching political authority
- 'personal union' = the focal polity is united with another, or others, as a result of a dynastic marriage
- 'vassalage' = corresponding to 'loose' category in the Degree of centralization

## Supra-cultural relations

Below code cultural relations between the coded (quasi)polity and the preceding one, as well as those nearby. These codes are particularly useful for archaeologically known polities.

♠ **preceding (quasi)polity** ♣ ♥ Name. This code is based on the core region of the current polity (not the NGA region). E.g. Achaemenid Empire's core region was Persia, where they were preceded by the Median Empire.

♠ **relationship to preceding (quasi)polity** ♣ ♥ Possible codes: continuity (gradual change), cultural assimilation (by another quasi-polity in the absence of substantial population replacement), elite migration (the preceding elites replaced by new elites coming from elsewhere), population migration (evidence for substantial population replacement). In the narrative paragraph explain the evidential basis for the code: what are the proxies for change? Examples include DNA data, isotope data, material (other than subsistence) culture, subsistence mode, symbolic culture (incl. burial practices), settlement patterns.

♠ **succeeding (quasi)polity** ♣ ♥ Name. Only name it here and don't code the nature of change (it's coded on the page of the succeeding quasi-polity). This code is based on the core region of the current polity (not the NGA region). E.g. Achaemenid Empire's core region was Persia, where they were succeeded by the Macedonian Empire.

♠ **Supracultural entity** ♣ ♥ Name it. Our quasi-polities are often embedded within larger-scale cultural groupings of polities or quasi-polities. These are sometimes referred to as "civilizations". For example, medieval European kingdoms were part of Latin Christendom. During the periods of disunity in China, warring states there, nevertheless, belonged to the same Chinese cultural sphere. Archaeologists often use "archaeological traditions" to denote such large-scale cultural entities (for example, Peregrine's Atlas of Cultural Evolution). Note, 'supracultural entity' refers to cultural interdependence, and is distinct from a political confederation or alliance, which should be coded under 'supra-polity relations.'

In the narrative paragraph details the types of supracultural links between the coded polity and the supracultural entity: trade, religion, ritual, demographic (e.g., migration, colonization), artistic/symbolic, technological, spousal/marriage (especially between the elites)

♠ **scale of supra-cultural interaction** ♣ ♥ km squared. An estimate of the area encompassed by the supracultural entity

♠ **Capital** ♣ ♥ The city where the ruler spends most of its time. If there were more than one capital supply all names and enclose in curly braces. For example, {Susa; Pasargadae; Persepolis; Ecbatana; Babylon}. Note that the capital may be different from the largest city (see below).

'Capital' may be difficult to code for archaeologically known societies. If there is reasonable basis to believe that the largest known settlement was the seat of the ruler code it as capital (and indicate uncertainty in the narrative paragraph). Archaeologists are able to recognize special architectural structures, such as a ceremonial centres and some kind of citadels or palaces. These features could be recognized with certainty after a careful study of the whole region and the settlement network. If such an inference cannot be made, code as 'unknown' (again, the largest settlement is coded elsewhere).

**Language** List the language(s) used polity-wide for administration, religion, and military affairs. Also list the language spoken by the majority of the population, if different from the above. The names of the language, family, and genus should be adapted from the *World Atlas of Language Structures* project, accessible here: <http://wals.info/languoid>. An example of a coded language tree for the Roman Principate (ItRomRg) would be  
**Language : Latin | Language Genus : Romance | Language Family : Indo-European**

♠ **Language** ♣ ♥

♠ **Linguistic Family** ♣ ♥

♠ **Language Genus** ♣ ♥

**Religion** List the religion(s) practiced by the ruling elites in the polity. Also list religion traditions practiced by non-elites, as well as other notable religions practiced by members of the polity. List up to 3 religious traditions. If there are other religious traditions, either practiced only for a short time during the polity's duration (e.g. one ruler in a dynasty initiates a novel religion) or practiced by only a small minority of the population, describe

those traditions in the descriptive paragraph. The names of the religious traditions should be adapted, where possible, from the *Database of Religious History* project, accessible here:

<https://religiondatabase.org/about/tree/>. An example of a coded language tree for the Roman Principate (ItRomRg) would be: **Religious Tradition : Roman Religious Tradition | Religion Family : Roman State Religion | Religion Sect : Imperial Cult (emperor worship)**

♠ **Religious Tradition** ♣ ♥

♠ **Religion Family** ♣ ♥

♠ **Religion Sect** ♣ ♥

## Map

For quasi-polities mark not only the range but also the neighboring quasi-polities and the main archaeological sites.

## General Description

Provide a descriptive paragraph detailing the key features of the polity, which will help understanding the codes below.

## Social Complexity variables

♠ **RA** ♣ ♥ The name of the research assistant or associate who coded the data. If more than one RA made a substantial contribution, list all.

♠ **Expert** ♣ ♥ The name of the historical or archaeological expert who supervised coding and checked/improved/approved the result. If more than one expert was involved, list all.

## Social Scale

♠ **Polity territory** ♣ ♥ in squared kilometers

♠ **Polity Population** ♣ ♥ Estimated population of the polity; can change as a result of both adding/losing new territories or by population growth/decline within a region

♠ **Population of the largest settlement** ♣ ♥ Note that this could be different from the capital (coded under General). If possible, indicate the dynamics (that is, how population changed during the temporal period of the polity). Note that we are also building a city database - you should consult it as it may already have the needed data.

♠ **Largest communication distance** ♣ ♥ Distance in kilometers between the capital and the furthest provincial capital. Use the figure for the most direct land and/or sea route that was available.

As an alternative for prehistoric communities, measure the distance between largest quasi-capital and furthest village within the quasi-polity.

## Hierarchical Complexity

♠ **Settlement hierarchy** ♣ ♥ levels. This variable records the hierarchy of not just settlement sizes, but also their complexity as reflected in different roles they play within the (quasi)polity. As settlements become more populous they acquire more complex functions: transportational (e.g. port); economic (e.g. market);

administrative (e.g. storehouse, local government building); cultural (e.g. theatre); religious (e.g. temple), utilitarian (e.g. hospital), monumental (e.g. statues, plazas).

Example: (1) Large City (monumental structures, theatre, market, hospital, central government buildings) (2) City (market, theatre, regional government buildings) (3) Large Town (market, administrative buildings) (4) Town (administrative buildings, storehouse) (5) Village (shrine) (6) Hamlet (residential only).

In the narrative paragraph explain the different levels and list their functions. Provide a (crude) estimate of population sizes. For example, Large Town (market, temple, administrative buildings): 2,000-5,000 inhabitants.

♠ **Administrative levels** ♣ ♥ levels. An example of hierarchy for a state society could be (1) the overall ruler, (2) provincial/regional governors, (3) district heads, (4) town mayors, (5) village heads. Note that unlike in settlement hierarchy, here you code people hierarchy. **Do not simply copy settlement hierarchy data here.** For archaeological polities, you will usually code as 'unknown', unless experts identified ranks of chiefs or officials independently of the settlement hierarchy.

Note: Often there are more than one concurrent administrative hierarchy. In the example above the hierarchy refers to the territorial government. In addition, the ruler may have a hierarchically organized central bureaucracy located in the capital. For example, (4) the overall ruler, (3) chiefs of various ministries, (2) mid-level bureaucrats, (1) scribes and clerks. In the narrative paragraph detail what is known about both hierarchies. The machine-readable code should reflect the largest number (the longer chain of command).

♠ **Religious levels** ♣ ♥ levels. Same principle as with the previous variable. Start with the head of the official cult (if present) = level 1 and work down to the local priest.

♠ **Military levels** ♣ ♥ levels. Again, start with the commander-in-chief = level 1 and work down to the private.

Even in primitive societies such as simple chiefdoms it is often possible to distinguish at least two levels – a commander and soldiers. A complex chiefdom would be coded three levels. The presence of warrior burials might be the basis for inferring the existence of a military organization. (The lowest military level is always the individual soldier).

## Professions

♠ **Occupational complexity** ♣ ♥

♠ **Professional military officers** ♣ ♥ Full-time specialists absent/present/inferred present/inferred absent/uncoded/unknown

♠ **Professional soldiers** ♣ ♥ Full-time specialists absent/present/inferred present/inferred absent/uncoded/unknown

♠ **Professional priesthood** ♣ ♥ Full-time specialists absent/present/inferred present/inferred absent/uncoded/unknown

## Bureaucracy characteristics

♠ **Full-time bureaucrats** ♣ ♥ Full-time administrative specialists absent/present/inferred present/inferred absent/uncoded/unknown. Code this absent if administrative duties are performed by generalists such as chiefs and subchiefs. Also code it absent if state officials perform multiple functions, e.g. combining administrative tasks with military duties. Note that this variable shouldn't be coded "present" only on the basis of the presence of specialized government buildings -- there must be some additional evidence of functional specialization in government.

♠ **Source of support** ♣ ♥ possible codes: state salary, governed population, land, none. 'State salary' can be paid either in currency or in kind (e.g., koku of rice). 'Governed population' means that the official directly collects tribute from the population (for example, the 'kormlenie' system in Medieval Russia). 'Land' is when the bureaucrats live off land supplied by the state. 'None' is when the state officials are not compensated (example: in the Republican and Principate Rome the magistrates were wealthy individuals who served without salary, motivated by prestige and social or career advancement).

♠ **Examination system** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown. The paradigmatic example is the Chinese imperial system.

♠ **Merit promotion** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Code present if there are regular, institutionalized procedures for promotion based on performance. When exceptional individuals are promoted to the top ranks, in the absence of institutionalized procedures, we code it under institution and equity variables

♠ **Specialized government buildings** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown. These buildings are where administrative officials are located, and must be distinct from the ruler's palace. They may be used for document storage, registration offices, minting money, etc. Defense structures also are not coded here (see Military). State-owned/operated workshop should also not be coded here.

## Law

♠ **Formal legal code** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown. Usually, but not always written down. If not written down, code it 'present' when a uniform legal system is established by oral transmission (e.g., officials are taught the rules, or the laws are announced in a public space). Provide a short description

♠ **Judges** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown. This refers only to full-time professional judges

♠ **Courts** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown. Buildings specialized for legal proceedings only.

♠ **Professional Lawyers** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown.

## Specialized Buildings: polity owned

'Polity-owned' includes owned by the community, or the state

♠ **Communal buildings** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown

This code distinguishes between settlements that consist of only private households (code 'absent') and settlements where there are communal buildings which could be used for a variety of uses (code 'present').

♠ **Special purpose house** ♣ ♥ A normal house used in a distinctive or special manner. This code reflects differentiation between houses.

♠ **Utilitarian public buildings** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown. Typical examples include aqueducts, sewers, and granaries. In the narrative paragraph list all utilitarian buildings and give examples of the most impressive/costly/large ones. Also score them separately:

♠ **irrigation systems** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown

♠ **drinking water supply systems** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown

♠ **markets** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown

♠ **food storage sites** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown

♠ **Symbolic buildings** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown. Non-utilitarian constructions that display symbols, or are themselves symbols of the community or polity (or a ruler as a symbol of the polity). Examples include Taj Mahal mausoleum, Trajan's Column, Ashoka's Pillars, Qin Shih Huang's Terracota Army, the Statue of Liberty. Has to be constructed by humans, so sacred groves or mountains are not symbolic buildings. A palace is also not a symbolic building, because it has other, utilitarian functions (houses the ruler).

♠ **Entertainment buildings** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown. These include theaters, arenas, race tracks.

♠ **Knowledge/information buildings** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown. These include astronomic observatories, libraries, and museums.

## Transport infrastructure

built and/or maintained by the polity (that is, code 'present' even if the polity did not build a road, but devotes resources to maintaining it).

♠ **Roads** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown. **This variable refers to deliberately constructed roads that connect settlements or other sites. It excludes streets/accessways within settlements and paths between settlements that develop through repeated use.**

♠ **Bridges** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown

♠ **Canals** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown

♠ **Ports** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown These include river ports. Direct historical or archaeological evidence of Ports is absent when no port has been excavated or all evidence of such has been obliterated. Indirect historical or archaeological data is absent when there is no evidence that suggests that the polity engaged in maritime or riverine trade, conflict, or transportation, such as evidence of merchant shipping, administrative records of customs duties, or evidence that at the same period of time a trading relation in the region had a port (for example, due to natural processes, there is little evidence of ancient ports in delta Egypt at a time we know there was a timber trade with the Levant). When evidence for the variable itself is available the code is 'present.' When other forms of evidence suggests the existence of the variable (or not) the code may be 'inferred present' (or 'inferred absent'). When indirect evidence is *not* available the code will be either absent, temporal uncertainty, suspected unknown, or unknown.

## The most impressive/costly building(s)

Name and describe the most impressive/costly building(s) in the narrative paragraph. Also score all of them for:

♠ **height** ♣ ♥ in m

♠ **extent** ♣ ♥ in m (the horizontal dimension along the longest axis)

♠ **cost** ♣ ♥ in people-years.

## Special purpose sites

♠ **Special purpose sites** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Sites not associated with residential areas. This position is primarily useful for coding archaneologically known societies

♠ **Ceremonial site** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown

♠ **Burial site** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Dissociated from settlement, has monumental features.

♠ **Trading emporia** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Trading settlements characterised by their peripheral locations, on the shore at the edge of a polity, a lack of infrastructure (typically those in Europe contained no churches) and often of a short-lived nature. They include isolated caravanserai along trade routes.

♠ **Enclosures** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown An 'enclosure' is clearly demarcated special-purpose area. It can be separated from surrounding land by earthworks (including banks or ditches), walls, or fencing. It may be as small as a few meters across, or encompass many hectares. It is non-residential, but could serve numerous purposes, both practical (animal pens) as well as religious and ceremonial

♠ **Mines or quarries** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown

♠ **Other site** ♣ ♥ Provide a description

## Information

### Measurement System

Code the variables below as absent/present/inferred present/inferred absent/uncoded/unknown

Textual evidence of a measurement system: measurement units are named in sources (e.g. pound, aroura). Archaeological evidence includes finding containers of standard volume, etc. (use 'inferred presence')

♠ **Length** ♣ ♥

♠ **Area** ♣ ♥

♠ **Volume** ♣ ♥

♠ **Weight** ♣ ♥

♠ **Time** ♣ ♥ A natural unit such as 'day' doesn't qualify. Nor does a vague one like 'season'. Archaeological evidence is a clock (e.g., sundial)

♠ **Geometrical** ♣ ♥ For example, degree

♠ **Other** ♣ ♥ More advanced measurements: temperature, force, astronomical. Note that currency is coded not here, but below

### Writing System

Code the variables below as absent/present/inferred present/inferred absent/uncoded/unknown

♠ **Mnemonic devices** ♣ ♥ For example, tallies

♠ **Nonwritten records** ♣ ♥ Records that are more extensive than mnemonics, but don't utilize script. Example: quipu; seals and stamps

♠ **Script** ♣ ♥ As indicated at least by fragmentary inscriptions (note that if written records are present, then so is script)

♠ **Written records** ♣ ♥ These are more than short and fragmentary inscriptions, such as found on tombs or runic stones. There must be several sentences strung together, at the very minimum. For example, royal proclamations from Mesopotamia and Egypt qualify as written records

♠ **Non-phonetic writing** ♣ ♥ this refers to the kind of script

♠ **Phonetic alphabetic writing** ♣ ♥ this refers to the kind of script

### Kinds of Written Documents

Code the variables below as absent/present/inferred present/inferred absent/uncoded/unknown

♠ **Lists, tables, and classifications** ♣ ♥

♠ **Calendar** ♣ ♥

♠ **Sacred Texts** ♣ ♥ Sacred Texts originate from supernatural agents (deities), or are directly inspired by them.

♠ **Religious literature** ♣ ♥ Religious literature differs from the sacred texts. For example, it may provide commentary on the sacred texts, or advice on how to live a virtuous life.

♠ **Practical literature** ♣ ♥ Texts written with the aim of providing guidance on a certain topic, for example manuals on agriculture, warfare, or cooking. Letters do not count as practical literature.

♠ **History** ♣ ♥



♠ **Philosophy** ♣ ♥

♠ **Scientific literature** ♣ ♥ Mathematics, natural sciences, social sciences

♠ **Fiction** ♣ ♥ Include poetry here

Note for the next Codebook version: we will separate "Fiction" into two separate codes: "Poetry" and "Fictional Prose Narrative"

## Money

Code the variables below as absent/present/inferred present/inferred absent/uncoded/unknown (we are mainly interested to know which is the most sophisticated form of money)

♠ **Articles** ♣ ♥ items that have both a regular use and are used as money (example: axes, cattle, measures of grain, ingots of non-precious metals)

♠ **Tokens** ♣ ♥ unlike articles, used only for exchange. unlike coins are not manufactured (example: cowries)

♠ **Precious metals** ♣ ♥ non-coined silver, gold, platinum

♠ **Foreign coins** ♣ ♥

♠ **Indigenous coins** ♣ ♥

♠ **Paper currency** ♣ ♥ Or another kind of fiat money. Note that this only refers to indigenously produced paper currency. Code absent if colonial money is used.

♠ **Debt and credit structures** ♣ ♥ commercial/market practices that take physical form, e.g. a contract on parchment (not just verbal agreements)

♠ **Store of wealth** ♣ ♥ (example: hoard, chest for storing valuables, treasury room). Note for the future: perhaps should separate these into individual variables.

## Postal System

Code the variables below as absent/present/inferred present/inferred absent/uncoded/unknown

♠ **Couriers** ♣ ♥ Full-time professional couriers.

♠ **Postal stations** ♣ ♥ Specialized buildings exclusively devoted to the postal service. If there is a special building that has other functions than a postal station, we still code postal station as present. The intent is to capture additional infrastructure beyond having a corps of messengers.

♠ **General postal service** ♣ ♥ This refers to a postal service that not only serves the ruler's needs, but carries mail for private citizens.

♠ **Fastest individual communication** ♣ ♥ This is the fastest time (in days) an individual can travel from the capital city to the most outlying provincial capital (if one exists), usually keeping within the boundaries of the polity. This might be by ship, horse, horse relay, or on foot, or a combination.

## Warfare variables

♠ **RA** ♣ ♥ The name of the research assistant or associate who coded the data. If more than one RA made a substantial contribution, list all.

♠ **Expert** ♣ ♥ The name of the historical or archaeological expert who supervised coding and checked/improved/approved the result. If more than one expert was involved, list all.

## Military Technologies

Military Technologies: A military technology should be coded 'present' if there is concrete evidence that it was used in warfare (e.g. metal in armor or weapons, spears used in warfare and not only in hunting, etc) and 'inferred present' if there is evidence that the polity used the technology (e.g. for hunting, as an ornamental or ceremonial item, in jewelry), but no concrete evidence that the metal was specifically used in warfare (explain in comment).

## Military use of Metals

### ♠ Copper ♣ ♥

♠ **Bronze** ♣ ♥ Bronze is an alloy that includes copper, so a polity that uses bronze in warfare is familiar with copper technology and probably uses it to at least a limited extent. Consequently, if a culture uses bronze in warfare and there is no mention of using copper then 'inferred present' is probably best.

### ♠ Iron ♣ ♥

♠ **Steel** ♣ ♥ Steel is an alloy that includes iron, so a polity that uses bronze in warfare is familiar with copper technology and probably uses it to at least a limited extent. Consequently, if a culture uses steel in warfare and there is no mention of using iron then 'inferred present' is probably best.

## Projectiles

Code the variables below as absent/present/inferred present/inferred absent/uncoded/unknown

♠ **Javelins** ♣ ♥ Includes thrown spears

♠ **Other thrown weapons** ♣ ♥ (e.g. knives, shurikens, boomerang). List the other thrown weapons.

♠ **Atlatl** ♣ ♥

♠ **Slings** ♣ ♥

♠ **Self bow** ♣ ♥ This is a bow made from a single piece of wood (example: the English/Welsh longbow)

♠ **Composite bow** ♣ ♥ This is a bow made from several different materials, usually wood, horn, and sinew. Also known as laminated bow. Recurved bows should be coded here as well, because usually they are composite bows. When there is evidence for bows (or arrows) and no specific comment about how sophisticated the bows are then 'inferred present' for self bows and 'inferred absent' for composite bows is generally best (along with brief notes indicating that it is best to assume the less sophisticated rather than the more sophisticated technology is present).

♠ **Crossbow** ♣ ♥

♠ **Tension siege engines** ♣ ♥ For example, catapult, onager

♠ **Sling siege engines** ♣ ♥ E.g., trebuchet, include mangonels here

♠ **Incendiaries** ♣ ♥ e.g. fire arrows, Greek fire

♠ **Gunpowder siege artillery** ♣ ♥ For example, cannon, mortars.

♠ **Handheld firearms** ♣ ♥ E.g., muskets, pistols, and rifles

## Handheld weapons

Code the variables below as absent/present/inferred present/inferred absent/uncoded/unknown. Materials is not important for coding (but mention materials in notes). For example, daggers and swords can be wooden.

Nonmilitary implements used in warfare (e.g., pitchforks, scythes) should be coded in the "other" category.

♠ **War clubs** ♣ ♥ Includes maces

♠ **Battle axes** ♣ ♥ Axes designed for military use.

♠ **Daggers** ♣ ♥ Bladed weapons shorter than 50 cm. Includes knives. Material is not important (coded elsewhere), thus flint daggers should be coded as present.

♠ **Swords** ♣ ♥ Bladed weapons longer than 50 cm. A machete is a sword (assuming the blade is probably longer than 50 cm). Material is not important (coded elsewhere), thus swords made from hard wood, or those edged with stones or bone should be coded as present.

♠ **Spears** ♣ ♥ Includes lances and pikes. A trident is a spear.

♠ **Polearms** ♣ ♥ This category includes halberds, naginatas, and morning stars

♠ **Other** ♣ ♥ Give a short description

## Animals used in warfare

Code the variables below as absent/present/inferred present/inferred absent/uncoded/unknown If an animal is used as a supply animal for war then it should be coded as present (but clearly state in notes that it is used as a pack animal).

- ♠ Dogs ♣ ♥
- ♠ Donkeys ♣ ♥
- ♠ Horses ♣ ♥
- ♠ Camels ♣ ♥
- ♠ Elephants ♣ ♥
- ♠ Other ♣ ♥ Give examples, e.g., the use of oxen to pull supply carts.

## Armor

Code the variables below as absent/present/inferred present/inferred absent/uncoded/unknown Materials for shields, helmets, breastplate, and limb protection can be made of any material, as long as they provide protection. For example, a soft cloth cap would not be a helmet, but a tough leather cap would be a helmet.

- ♠ Wood, bark, etc ♣ ♥
- ♠ Leather, cloth ♣ ♥ For example, leather cuirass, quilted cotton armor
- ♠ Shields ♣ ♥
- ♠ Helmets ♣ ♥
- ♠ Breastplates ♣ ♥ Armor made from wood, horn, or bone can be very important (as in the spread of the Asian War Complex into North America). Leather and cotton (in the Americas) armor was also effective against arrows and war clubs. Breastplate refers to any form of torso protection (in fact, we might rename this variable 'torso protection' at a later date). In the vast majority of cases you will probably find that if a culture has wooden armor, leather armor, chainmail armor, or scaled armor that breastplate should be coded as present because this is the most common location for armor. However, in theory, it is possible to have armor that doesn't protect the torso (for example, a culture might use armor that protects the limbs only).
- ♠ Limb protection ♣ ♥ E.g., greaves. Covering arms, or legs, or both.
- ♠ Chainmail ♣ ♥ We're using a broad definition of chainmail. Habergeon was the word used to describe the Chinese version and that would qualify as chainmail. Armor that is made of small metal rings linked together in a pattern to form a mesh.
- ♠ Scaled armor ♣ ♥ Armor consisting of many individual small armor scales (plates) attached to a backing of cloth or leather. The scales don't need to be metal (i.e. they could be particularly rigid bits of leather, horn, bone, etc).
- ♠ Laminar armor ♣ ♥ (also known as banded mail, example: lorica segmentata). Armor that is made from horizontal overlapping rows or bands of sold armor plates.
- ♠ Plate armor ♣ ♥ Armor made of iron or steel plates.

## Naval technology

Code the variables below as absent/present/inferred present/inferred absent/uncoded/unknown

- ♠ Small vessels (canoes, etc) ♣ ♥
- ♠ Merchant ships pressed into service ♣ ♥
- ♠ Specialized military vessels ♣ ♥ (such as galleys and sailing ships)

## Fortifications

Code the variables below as absent/present/inferred present/inferred absent/uncoded/unknown With defensive fortifications, what matters is not what is inherited but what techniques are used for building in the current period, so be careful not to use fortifications from earlier periods - focus on new fortifications (but mention that old fortifications in notes if you're coding absent because there aren't any new fortifications).

- ♠ Settlements in a defensive position ♣ ♥ Settlements in a location that was clearly chosen for defensive reasons. E.g. on a hill top, peninsula.
- ♠ Wooden palisades ♣ ♥
- ♠ Earth ramparts ♣ ♥

♠ **Ditch** ♣ ♥

♠ **Moat** ♣ ♥ Differs from a ditch in that it has water

♠ **Stone walls (non-mortared)** ♣ ♥

♠ **Stone walls (mortared)** ♣ ♥

♠ **Fortified camps** ♣ ♥ Camps made by armies on the move (e.g. on a campaign) that which could be constructed on a hill top or in the middle of a plain or desert, usually out of local materials.

♠ **Complex fortifications** ♣ ♥ When there are two or more concentric walls. So simply a wall and a donjon, for example, is not enough.

♠ **Long walls** ♣ ♥ km. These are fortifications that were used not to protect a specific city or town, but a large territory. Examples include the Great Wall of China. Provide an estimate in km of the extent of the longest of such fortification systems. If not present, enter '0'. Very large circular walls protecting a settlement are not long walls - long walls are fairly linear and protect whole areas from incursions. If a polity inherits a stone wall from a previous one and continues to use and repair it, then we should probably code it as present.

♠ **Modern fortifications** ♣ ♥ used after the introduction of gunpowder, e.g., trace italienne/starfort.

## Other technologies

Signalling, chemical and biological weapons, etc. We may later create separate categories here, but for now simply list whatever seems appropriate.

## Military Organization

♠ **Standing armies** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown. Permanent armed forces that may be scaled back between conflicts, but not completely disbanded

♠ **Uniformity of equipment** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown. The state equips the troops with standardized equipment. The alternative is for soldiers themselves to provide their own equipment

♠ **Total army** ♣ ♥ potential total manpower resources that can be called upon by the polity as an effective army. These troops do not all need to be professional but they should undergo either occasional training and/or have access to military weapons. This figure should include an estimate for the number of foreign mercenaries that could be hired on an ad hoc basis. This army doesn't need to be gathered in one location (for example, troops could be sent to, or stationed on several distant frontiers).

♠ **Professional army** ♣ ♥ size of the army that is remunerated when not on active duty (via salary or with land such as with the provision of an iqta or fief) and so can be called upon to fight at any time.

♠ **Largest fielded army** ♣ ♥ The size of the largest army that fought in a specific battle. Also provide details about its composition, if known (e.g., the numbers of infantry, cavalry, artillery, etc)

♠ **Maximum logistical lag** ♣ ♥ The longest time it takes (in days) to move an army from the capital city to any provincial capital (if one exists), via movements usually within the boundaries of the polity. This variable differs from the "fastest individual communication" variable in two ways: 1) the most distant provincial capital in space (km) is not always the most distant in time (days); 2) moving an army is much harder than a single individual so the value can be different due to logistical factors. Seasons (weather) may affect travel time so in some circumstances it may be appropriate to code a range of values, between summer and winter.

♠ **Sources of recruits** ♣ ♥ Regular draft, mercenaries, mass mobilization, recruits into a professional corps: domestic or foreign. Could all segments of the population serve in the army, or was it restricted to such groups as elites, certain ethnicities or regions, foreigners, etc.

♠ **Procurement of equipment and animals** ♣ ♥ Possible codes:

- by soldiers
- by soldiers, but compensated by the state and equipment (e.g. horses) replaced if lost
- by the state.

## General Characteristics of Warfare

This section provides general information on the types of wars (if any) that affected the coded (quasi)polity. The coding strategy here is binary (absent/present). These codes will be supplemented, where possible, by quantitative data from coding each known war along the same dimensions. However, for poorly known historical periods and for polities for which only archaeological data are available, such quantitative data are unavailable, and this section's purpose is to provide less precise data that could still be used in the analysis.

Explain the codes. After coding 'present' provide an example of a war that had the coded characteristic.

### Types of Warfare

♠ **Inter-polity wars** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Code present, if at least one war during this period was an external (interstate) war. Provide an example.

♠ **Internal wars** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Code present, if at least one war during this period was an internal (within polity) war. When the belligerents are sub-units of a Seshat-defined quasi-polity that has never previously been centralized (e.g. an archaeological tradition) this is always coded as an inter-polity war not internal warfare. Internal wars occur when sub-units under centralized authority start fighting. This state of warfare remains internal warfare even once the central authority has receded to a nominal status (such periods may be coded as a quasi-polity). Inter-polity warfare occurs when central authority is not present or was previously present but has now been formally revoked.

The next variables provide additional description of internal wars. Because civil wars often involve several dimensions, code 'Present' as many of the following variables as apply.

♠ **Intra-elite conflicts** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Between different elite factions. E.g. the Angkor Civil War of 1181 CE, in which Jayavarman VII fought with cousins and other aspirants for the throne

♠ **Popular uprisings** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown A broadly based rebellion in which commoners (non-elites) are the major component. It can take place in the central regions of the polity, or in peripheral regions (in which case a separatist rebellion can also be coded as present), or both. E.g. the Yellow Turban Rebellion of 184 CE against Eastern Han Dynasty rule

♠ **Military revolts** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Insurrection led by a military leader involving components of armed forces. E.g. the Abbasid Revolution against Umayyad authority

♠ **Separatist rebellions** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Rebellion in a region aiming to secede from the center. E.g. the Seven Kingdom Rebellion in 154 BCE under the Western Han Dynasty

**Note: this is the current answer we have to the 'The Gallic Empire' dilemma: i.e. when should a region that seceded be treated as a foreign power? (Is the war to be coded as 'internal' or 'external'?)** If the original polity 1. still exists, 2. has the capabilities to reverse the revolt, and 3. makes an effort to do so (diplomatically and/or militarily) then the conflict will be considered an internal conflict rather than an external war. In the event that the revolt continues, it will become an external war when the revolting state is supported by another external power. This occurred, for example, when the Netherlands fought the Eighty Years' War (1568-1648 CE) with the Spanish Habsburgs. The internal period of the revolt can be considered over shortly after 1581, when the Republic of the Seven United Netherlands was established. In 1585 its independence was supported by the English whom by the Treaty of Nonsuch (1585) turned the United Provinces briefly into a

protectorate of England. The external support could also arrive in the form of a dynastic marriage, a formal diplomatic recognition of sovereignty and military/financial assistance. Here we are not measuring ideological recognition (the intentions of the third power do not matter). We indirectly measure the power of the secessionist state. The interest of the third power tells us the rebel province is potentially capable of governing itself. The third power wouldn't be interested, and its interference would not be destabilising, unless independence from the original polity was a realistic outcome.

♠ **rural succession** ♣♥ absent/present/inferred present/inferred absent/uncoded/unknown. Rebellion in a rural area and/or non-administrative region aiming to secede from the centre. E.g. the revolts of rural areas in Anatolia against Ottoman control in 1629-1631 CE

♠ **Violent civil conflict** ♣♥ absent/present/inferred present/inferred absent/uncoded/ unknown. Riots, demonstrations, and/or other form of rebellion that involves violent confrontation or suppression by authorities. E.g. the Year of the Four Emperors during the Roman Principate in 68-69 CE, when several military leaders and their armies vied with each other for power

♠ **Violent riots urban** ♣♥ absent/present/inferred present/inferred absent/uncoded/ unknown. Riots, demonstrations, and/or other form of rebellion that involves violent confrontation or suppression by authorities in one or more urban centres. E.g. the Alexandria Riots of 205 BCE under the Ptolemaic Kingdom

♠ **Oppression / extermination of subaltern group** ♣♥ absent/present/inferred present/ inferred absent/uncoded/unknown. 'purges' of some community or interest group within a polity by the state, e.g. the violent persecution of religious minorities under the Sassanid Persian Empire

## Cultural distance

♠ **Wars within same ethnic group** ♣♥ absent/present/inferred present/inferred absent/uncoded/unknown Both sides come from the same ethnic group and speak the same dialect of the common language. Most civil wars will fall into this category, unless there is a significant cultural distance between the two parties.

♠ **Wars involving groups with different dialects** ♣♥ absent/present/inferred present/inferred absent/uncoded/unknown Opponent groups perceive each other as having distinct ethnic identities demarcated by a significant dialectal difference, but still speaking a mutually comprehensible language but within the same linguistic group.

♠ **Wars involving groups with different languages** ♣♥ absent/present/inferred present/inferred absent/uncoded/unknown The opponent groups speak mutually unintelligible languages, but similarities between languages are apparent to them. Examples include English and Dutch, or Italian and Spanish, but not English and Italian (although both are Indo-European languages, the kinship between them is not apparent to a nonspecialist).

♠ **Wars involving groups with different language families** ♣♥ absent/present/inferred present/inferred absent/uncoded/unknown The opponent groups speak mutually unintelligible languages that have no similarities apparent to them. Examples include English and Chinese, or Italian and Hindu(although in the second example both are Indo-European languages, the kinship between them is not apparent to a nonspecialist). Use the consensus classifications of historical linguists (i.e. consult sources like Ethnologue or Glottolog-or even Wikipedia-if in doubt). This means that, for example, Japanese and Korean are from different language families-there are plausible hypotheses that they might be related, but there is no conclusive evidence that is accepted by the general historical linguistics community.

♠ **Wars between groups from different archaeological cultures** ♣♥ absent/present/inferred present/inferred absent/uncoded/unknown Use this variable for periods that are only known archaeologically. By 'different' archaeological cultures we mean those divided by a very sharp cultural gradient.

♠ **Wars between different religious sects** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown This refers to different religious denominations with the same world religion. E.g., Catholics vs. Protestants, or Shiites vs. Sunnis.

♠ **Wars between different world religions** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown E.g., Christianity vs. Islam, or Islam vs. Hinduism. World, or Axial religions include Zoroastrianism, Judaism, Christianity (and its offshoots), Islam, Hinduism, Buddhism, Jainism, Confucianism, Tengriism, Sikhism, Momrmonism, etc.

♠ **Wars of world religion against tribal religion** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown E.g., Christian European settlers vs. Native American Indians.

♠ **Wars on Urbanism-Literacy frontier** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Conflict between cultures with developed urbanism and literacy (indicated by written records), and cultures without developed urbanism and literacy. In this context, literacy means that the culture has a writing system (particularly, a writing system that is used to keep records). Consequently, it doesn't matter how widespread literacy is, only that some people are literate.

♠ **Wars on steppe frontier** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Settled agriculturalists vs. nomadic pastoralists. Steppes are characterized by grassland plains without trees.

♠ **Wars on agricultural frontier** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Settled agriculturalists vs. hunter-gatherers

## Intensity of warfare

Consequences for polities and their populations resulting from warfare.

♠ **Annexation** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown/suspected unknown When the belligerents are sub-units of a Seshat-defined quasi-polity that has never previously been centralized this is always coded as an inter-polity war not internal warfare. So when one chiefdom annexes the territory of another chiefdom within the same archaeological tradition (evidence of destruction, occupation of territory etc.) this counts as evidence of annexation.

♠ **Looting** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown/suspected unknown The population is systematically plundered. May involve some property destruction, but there is no systematic destruction of permanent structures (see below).

♠ **Sack** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown/suspected unknown Plundering is accompanied by widespread violence. May involve some property destruction, but there is no systematic destruction of permanent structures (see below).

♠ **Rape** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown/suspected unknown Widespread or systematic.

♠ **Deportation** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown/suspected unknown The population is expelled and moved elsewhere within the polity.

♠ **Expulsion** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown/suspected unknown The population is expelled from the territory.

♠ **Enslavement** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown/suspected unknown Widespread or systematic.

♠ **Imprisonment** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown/suspected unknown Widespread or systematic.

♠ **Destruction** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown/suspected unknown By burning or otherwise destroying houses, walls, public buildings, and other permanent structures.

♠ **Torture** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown/suspected unknown Widespread or systematic.

♠ **Mutilation** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown/suspected unknown Widespread or systematic.

♠ **Targeted massacre** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown/suspected

unknown A certain segment of population is targeted for extermination. These could be the army, the elites, ethnic or religious minorities. Less than 10 percent of population is affected.

♠ **General massacre** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown/suspected

unknown The estimated proportion of population killed is between 10 and 50 percent.

♠ **Extermination** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown/suspected unknown

An attempt is made to eliminate the population completely. The estimated proportion of population killed/enslaved is over 50 percent.

♠ **Ethnocide** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown/suspected unknown A systematic program to replace the culture of the defeated with the culture of the victors.

**Archaeological proxies:** the strategy right now is to simply code as present/absent. However, in the explanatory paragraphs comment on any quantifiable features of data. For example, what proportion of skeletons bear evidence of violence. Eventually we may convert these notes into quantitative data.

♠ **Skeletal evidence of violence** ♣ ♥ Code absent/present. In the explanatory paragraph indicate frequency, if known. Explain the nature of evidence (e.g., arrow points embedded in bones).

♠ **Mass burials** ♣ ♥ Code absent/present. In the explanatory paragraph explain the nature of evidence (e.g., high proportion of skeletons show evidence of violent death).

♠ **Settlement destruction** ♣ ♥ Code absent/present. In the explanatory paragraph explain the nature of evidence (e.g., evidence of burning, followed by abandonment).

♠ **Pictorial evidence of warfare** ♣ ♥ Code absent/present. In the explanatory paragraph provide details and explain the nature of evidence (e.g., battles, attack on settlements, ritualized execution of prisoners, etc).

## List of Wars

This section lists all wars in which the polity engaged during the period described by the 'duration' variable. Each war in the list is linked to a data sheet devoted to coding the war characteristics.

The war name format: *Name of war, Date war began, Belligerent A, Belligerent B*

Example: **Russo-Japanese War, 1905, Russian Empire, Japan**

Note: sieges should start with "Siege of" to show it is not a battle. Except for rare exceptions, no battle should be listed as "Battle of" write the name only as this helps alphabetical indexing of battles. The battle format applies to land and sea battles. When the literature refers to a "raid" this should be coded on the siege template if it concerns a city/urban area. If the raid is on a temporary army encampment, it should be coded as a battle.

The war template is given in the next section of this Code Book.

## Internal Conflicts Codesheet

### General

♠ **Internal war name** ♣ ♥ The name of the conflict. The 'Kitos War', 'Great Judean Revolt' and 'Bar Kokhba's Revolt' are all internal wars within the Roman Empire polity as were the Conspiracy of Lucilla, Assassination of Geta and the Persecution of Christians by Valerian.

♠ **Meta-conflict name** ♣ ♥ A name to group together similar conflicts. The 'Kitos War', 'Great Judean Revolt' and 'Bar Kokhba's Revolt' are all internal wars within the Roman Empire polity that are part of the meta-conflict 'Jewish Rebellions against Roman Rule'. Likewise, the 'Assassination of Pertinax' and 'Niger's Revolt' were both part of the Roman Empire meta-conflict 'Year of the Five Emperors'.



♠ **Conflict start** ♣ ♥ Year date.

♠ **Conflict end** ♣ ♥ Year date.

## Characteristics

♠ **Challenger type** ♣ ♥ (Aristocrat, Army general, Soldiers, Priest, Bureaucrat, Court, Provincial ruler, General population, Regional population, Unknown) Usually the aggressor is the challenger e.g. a rebel. However, often instability is initiated by the state - such as in purges and persecutions of sometimes apparent non-aggressors, e.g. of Christians under Roman Empire. In such cases the object of the state attack (priest and/or regional population) becomes listed as the challenger type (and is also used to code the war type - see below e.g. 'popular revolt' / 'intra-elite conflict' often both present with Christian opposition to Roman rule).

♠ **Highest settlement level** ♣ ♥ (Capital, Provincial, Local) Capital - conflict occurs in the capital of the polity and those who cause it may have any association (or none at all) with the state/government/military; Provincial - those who cause instability are employed by or directly associated with state/government/military and conflict occurs entirely outside of the capital; Local - those who cause instability are not employed by or directly associated with state/government/military and this instability occurs outside of the capital.

♠ **Magnitude of participation** ♣ ♥ Range estimate number people involved in conflict. It is usually possible to bracket the conflict within seven orders of magnitude (1-10, 10-100, 100-1000, 1000-10000, 10000-100000, 100000-1000000, 1000000-10000000) from low magnitude of a conspiracy to assassinate the Caliph, to a provincial governor who marches his army on the capital, to an intractable rebellion that drags on for 30 years or a populous province that manages to gain independence.

## Internal war type

♠ **Intra-elite conflicts** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Between different elite factions.

♠ **Popular uprisings** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown A broadly based rebellion in which commoners (non-elites) are the major component. It can take place in the central regions of the polity, or in peripheral regions (in which case a separatist rebellion can also be coded as present), or both.

♠ **Military revolts** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Insurrection lead by a military leader involving components of armed forces.

♠ **Separatist rebellions** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Rebellion in a region aiming to secede from the center.

## Notes

Write here a brief description of the conflict.

## Individual Conflict coding template

### General

♠ **Polity Involved in conflict** ♣ ♥ Identify the 'target' polity involved in conflict. Use PolIDs where possible

♠ **Other Polities involved in conflict** ♣ ♥ Identify other polities involved in conflict. Use PolIDs where possible

♠ **War name** ♣ ♥ If the war does not have a name in the literature, choose a simple name which names the belligerents such as "Roman-Parthian." Style suggestion: do not include the word "war" in the war name. The First Punic war would be coded as "First Punic."

♠ **Alternative names for war** ♣ ♥ Sometimes the war is known by more than one name. If the name may sound obscure to non-specialists use this field for a simple alternative: an alternative to the "First Punic" war would be "Roman-Carthage".

♠ **War date** ♣ ♥ Date from earliest to last conflict in this war.

♠ **War belligerents** ♣ ♥ List all belligerents involved in any battles/sieges of this war.

♠ **Meta-conflict** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Is this war part of a group of conflicts that span a much larger timeframe between the belligerents? For example, the "First", "Second" and "Third Punic" wars are conflicts within the Roman-Carthage meta-conflict. These wars are coded as separate wars, rather than grouped together and coded as a single "Roman-Carthage" war.

## War type

♠ **Inter-polity** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown This variable tells us whether this was an external (interstate) war (code Present), or internal (civil) war (code Absent).

The next four variables are relevant only if the war was internal (however, some external wars have an internal component, so it is possible to code Inter-polity = Present and Popular uprising = Present). Because civil wars often involve several dimensions, code 'Present' as many of the following variables as apply.

♠ **Intra-elite** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Between different elite factions.

♠ **Popular uprising** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown A broadly based rebellion in which commoners (non-elites) are the major component. It can take place in the central regions of the polity, or in peripheral regions (in which case a separatist rebellion can also be coded as present), or both.

♠ **Military revolt** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Insurrection lead by a military leader involving components of armed forces.

♠ **Separatist rebellion** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Rebellion in a region aiming to secede from the center.

♠ **rural succession** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown. Rebellion in a rural area and/or non-administrative region aiming to secede from the centre. E.g. the revolts of rural areas in Anatolia against Ottoman control in 1629-1631 CE

♠ **Violent civil conflict** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/ unknown. Riots, demonstrations, and/or other form of rebellion that involves violent confrontation or suppression by authorities. E.g. the Year of the Four Emperors during the Roman Principate in 68-69 CE, when several military leaders and their armies vied with each other for power

♠ **Violent riots urban** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/ unknown. Riots, demonstrations, and/or other form of rebellion that involves violent confrontation or suppression by authorities in one or more urban centres. E.g. the Alexandria Riots of 205 BCE under the Ptolemaic Kingdom

♠ **Oppression / extermination of subaltern group** ♣ ♥ absent/present/inferred present/ inferred absent/uncoded/unknown. 'purges' of some community or interest group within a polity by the state, e.g. the violent persecution of religious minorities under the Sassanid Persian Empire

## Cultural distance

♠ **Same ethnic group** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Both sides come from the same ethnic group and speak the same dialect of the common language. Most civil wars will fall into this category, unless there is a significant cultural distance between the two parties.

♠ **Different dialects** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Opponent groups perceive each other as having distinct ethnic identities demarcated by a significant dialectal difference, but still speaking a mutually comprehensible language but within the same linguistic group.

♠ **Different languages** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown The opponent groups speak mutually unintelligible languages, but similarities between languages are apparent to them. Examples include English and Dutch, or Italian and Spanish, but not English and Italian (although both are Indo-European languages, the kinship between them is not apparent to a nonspecialist).

♠ **Different language families** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown The opponent groups speak mutually unintelligible languages that have no similarities apparent to them. Examples include English and Chinese, or Italian and Hindi(although in the second example both are Indo-European languages, the kinship between them is not apparent to a nonspecialist).

♠ **Different religious sects** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown This refers to different religious denominations with the same world religion. E.g., Catholics vs. Protestants, or Shiites vs. Sunnis.

♠ **Different world religions** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Taoism, Confucianism (China), Hinduism, Buddhism, Jainism, Sikhism (India), Zoroastrianism, Judaism, Christianity, Islam (Middle East).

♠ **World religion against tribal religion** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown E.g., Christian European settlers vs. Native American Indians.

♠ **Civilization/Barbarism frontier** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown 'Civilization' refers to cultures with developed urbanism and literacy (indicated by written records), and 'barbarism' (in the non-pejorative sense) is a culture without developed urbanism and literacy.

♠ **Steppe frontier** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Settled agriculturalists vs. nomadic pastoralists

♠ **Agricultural frontier** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Settled agriculturalists vs. hunter-gatherers

## Consequences for territories

Consequences for territories resulting from the war.

♠ **None** ♣ ♥

♠ **Annexation** ♣ ♥

♠ **Looting** ♣ ♥

♠ **Sack** ♣ ♥

♠ **Rape** ♣ ♥

♠ **Deportation** ♣ ♥

♠ **Expulsion** ♣ ♥

♠ **Enslavement** ♣ ♥

♠ **Imprisonment** ♣ ♥

♠ **Destruction** ♣ ♥

♠ **Torture** ♣ ♥

♠ **Mutilation** ♣ ♥

♠ **Targeted massacre** ♣ ♥

- ♠ General massacre ♣ ♥
- ♠ Extermination ♣ ♥
- ♠ Ethnocide ♣ ♥

## Battle template

### General

♠ Name ♣ ♥

♠ Alternative names ♣ ♥ Sometimes the battle is known by more than one name.

♠ Date ♣ ♥

♠ Latitude ♣ ♥ Use online latitude/longitude finder. Example: [1] (<http://itouchmap.com/latlong.html>) When possible, provide name of nearest town or state whether it is an estimate or very approximate location. Also note if there is any academic debate whether this is the correct battle site.

♠ Longitude ♣ ♥

♠ Battle type ♣ ♥ Land or Sea.

♠ Logarithmic magnitude ♣ ♥ Decimal logarithm of the total number of forces involved. To indicate the rough order of magnitude, it can be rounded to the next whole number as follows:

1 = 10 [4-30]

2 = 100 [31-300]

3 = 1000 [301-3,000]

4 = 10000 [3,001-30,000]

etc.

### Sieges, Battles, and Naval Engagements

♠ List of Sieges ♣ ♥ Number of sieges in the war. Note that 'siege' is a generic name for any interaction between an army and a settlement belonging to opposing factions. If an army entered a hostile city without resistance, this is siege.

List sieges here, with each siege name linked to a data sheet describing the siege. See the template in the following section.

♠ Naval Engagements ♣ ♥ Number (analogously to sieges)

List naval engagements

♠ Land Battles ♣ ♥ Number (analogously to sieges)

List battles

**Belligerents** We group all belligerents into group A and group B

♠ Principle belligerent A ♣ ♥ The polity that provided more troops than its allies on the battlefield.

♠ Other belligerents A ♣ ♥ List other polities allied with Principle belligerent A.

♠ **Principle belligerent B** ♣ ♥ The polity that provided more troops than its allies on the battlefield.

♠ **Other belligerents B** ♣ ♥ List other polities allied with Principle belligerent B.

♠ **Belligerent A army size** ♣ ♥ Combine all polities on the side A

♠ **Belligerent A percent army lost** ♣ ♥ Percent. Estimate. Very often exact numbers, or estimated numbers, are not available. However, there is nearly always enough information to provide a percentage estimate. For example, if the army was described as 'annihilated' you would code 100 (for 100%). If casualties were described as light, code 5. If they were heavy, [25-30] etc.

♠ **Belligerent A army losses** ♣ ♥ People.

♠ **Belligerent B army size** ♣ ♥

♠ **Belligerent B percent army lost** ♣ ♥ Percent. Estimate.

♠ **Belligerent B army losses** ♣ ♥ People.

## Navies

For naval battles we want to know available data for personnel losses and vessel losses for the same belligerent. Historical literature is not consistent in the form of statistic relayed but an expert might be able to work out the other statistic if one is known. (If the polity used vessels with a known manpower, an expert might be able to work out the number of personnel lost from the number of vessels, and vice versa for the vessels from the figure given for personnel lost).

♠ **Belligerent A vessels** ♣ ♥ Number.

♠ **Belligerent A percent vessels lost** ♣ ♥ Percent.

♠ **Belligerent A naval personnel** ♣ ♥ Number.

♠ **Belligerent A percent personnel lost** ♣ ♥ Percent.

♠ **Belligerent B vessels** ♣ ♥ Number.

♠ **Belligerent B percent vessels lost** ♣ ♥ Percent.

♠ **Belligerent B naval personnel** ♣ ♥ Number.

♠ **Belligerent B percent personnel lost** ♣ ♥ Percent.

## Siege Template

This section should be for sieges. The Battle Aftermath codes should be ignored when coding sieges. Only code this section.

## General

♠ **Besieger** ♣ ♥ Name of the polity that is outside the city wanting to get in.

♠ **Siege duration** ♣ ♥ Days.

♠ **Siege duration (magnitude)** ♣ ♥ Hours. Days. Weeks. Months. Years. Estimate. It isn't always known how many exact days the siege took but it is almost always possible to give a duration magnitude. Many sieges go on for months and years. However, if at any point the besieging army

goes away in its entirety and then comes back for another go, this must be counted as two separate sieges.

♠ **Inhabitants surrender** ♣ ♥ Did the inhabitants surrender? absent/present/inferred present/inferred absent/uncoded/unknown

♠ **Treachery** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Did one or a group of the inhabitants "open the gates", or otherwise enable the besieger to capture the city (sometimes this occurs without any formal siege occurring).

♠ **Fortress, castle, citadel?** ♣ ♥ Is this siege primarily of a fortress, castle or citadel rather than a walled town or city. absent/present/inferred present/inferred absent/uncoded/unknown

♠ **Raid** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown Is this an attack on a city that cannot be classed as a formal siege?

♠ **Battle aftermath** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown City was attacked in the aftermath of a battle and there were consequences for the city. Coded present usually means this is not a formal siege and the battle has been coded separately.

♠ **Siege fails** ♣ ♥ Did the besieger fail? absent/present/inferred present/inferred absent/uncoded/unknown

## Consequences for cities

This section is the same as Consequences for territories on the warfare page. This one shows the impact of a successful siege on a city (or fortress, castle, citadel).

- ♠ **None** ♣ ♥
- ♠ **Annexation** ♣ ♥
- ♠ **Looting** ♣ ♥
- ♠ **Sack** ♣ ♥
- ♠ **Rape** ♣ ♥
- ♠ **Deportation** ♣ ♥
- ♠ **Expulsion** ♣ ♥
- ♠ **Imprisonment** ♣ ♥
- ♠ **Enslavement** ♣ ♥
- ♠ **Torture** ♣ ♥
- ♠ **Mutilation** ♣ ♥
- ♠ **Destruction** ♣ ♥
- ♠ **Targeted massacre** ♣ ♥
- ♠ **General massacre** ♣ ♥
- ♠ **Extermination** ♣ ♥
- ♠ **Ethnocide** ♣ ♥

## Ritual variables

A collective ritual is a ritual in which two or more people participate - excluding private rituals (such as treatments and therapies) performed as a service to clients by shamans, withdoctors and other magico-medical specialists. With the official cult we refer to the set of collective ritual practices that are most closely associated with legitimation of the power structure (including elites, if any).

♠ **RA** ♣ ♥ The name of the research assistant or associate who coded the data. If more than one RA made a substantial contribution, list all.

♠ **Expert** ♣ ♥ The name of the historical or archaeological expert who supervised coding and checked/improved/approved the result. If more than one expert was involved, list all.

**Description of the Ritual System** Please provide here general information about the ritual system, which will help to orient readers in interpreting the data on specific rituals coded below.

## Largest scale collective ritual of the official cult

Code the variables below for the collective ritual of the official cult that is performed on the largest scale. Largest scale refers to the largest number of people a ritual brings together in a single location. If there are several collective rituals that have the same level of scale, code the best documented one.

♠ **Name** ♣ ♥ In the narrative part, also give a brief description of the ritual

♠ **Frequency for the ritual specialist** ♣ ♥ daily/weekly/monthly/seasonally/yearly/once per generation/once in a lifetime. Code the frequency of participating in a ritual from the perspective of the ritual specialist (e.g. priest). Entertainers (acrobats, dancers, actors...) are considered as ritual specialists. If the ritual's frequency does not fit within any of the suggested categories--for example, if it is performed every three days, or every twelve years--use the category that is closest, then specify the exact frequency in the description field.

♠ **Frequency per participant** ♣ ♥ daily/weekly/monthly/seasonally/yearly/once per generation/once in a lifetime. Code the frequency of participating in a ritual from the perspective of the participants. This group of participants does not include the ritual specialists, like priests. It also does not include sacrificial victims. However, highly engaged audiences (audiences who are processing, jeering, ...) are considered as participants. Audiences consisting of passive spectators or witnesses are coded for in the next variable. When it is difficult to distinguish between a highly engaged audience and an audience consisting of passive spectators, code these audiences here. If the ritual's frequency does not fit within any of the suggested categories--for example, if it is performed every three days, or every twelve years--use the category that's closest, then specify the exact frequency in the description field.

♠ **Frequency for the audience** ♣ ♥ daily/weekly/monthly/seasonally/yearly/once per generation/once in a lifetime. Code the frequency of participating in a ritual from the perspective of a typical member of an audience consisting of passive spectators or witnesses (**do not include anyone here who is a participant in eating food at a banquet, praying at a place of worship, taking part in an agricultural festival etc. Code this as 'not applicable' if there is no clear audience**). If the ritual's frequency does not fit within any of the suggested categories--for example, if it is performed every three days, or every twelve years--use the category that's closest, then specify the exact frequency in the description field.

♠ **Duration** ♣ ♥ in hours. In case the duration of the ritual varies (e.g. the duration varies between 6 and 10 hours) code the range using square brackets (i.e., [6-10]).

♠ **Typical size of participating group** ♣ ♥ in absolute numbers. Code ranges using square brackets.

♠ **Inclusiveness (ritual specialist)** ♣ ♥ Ritual specialists comprise individuals coming from which of the following groups: whole polity / majority (e.g., all Muslims) / substantial minority (e.g., all free adult male citizens) / elites (e.g., priesthood, royalty) / other. Please provide additional information in the description field. Specifically, it would be important to know whether the role was restricted to a particular gender, caste, rank, etc.

♠ **Inclusiveness (participants)** ♣ ♥ Participants comprise individuals coming from which of the following groups: whole polity / majority (e.g., all Muslims) / substantial minority (e.g., all free adult male citizens) / elites (e.g., priesthood, royalty) / other. Please provide additional information in the description field. Specifically, it would be important to know whether the role was restricted to a particular gender, caste, rank, etc.

♠ **Inclusiveness (audience)** ♣ ♥ Audience comprise individuals coming from which of the following groups: whole polity / majority (e.g., all Muslims) / substantial minority (e.g., all free adult male citizens) / elites (e.g., priesthood, royalty) / other. Please provide additional information in the description field. Specifically, it would be important to know whether the role was restricted to a particular gender, caste, rank, etc. This is for passive spectators or witnesses (**do not include anyone here who is a participant in eating food at a banquet, praying at a place of worship, taking part in an agricultural festival etc. Code this as 'not applicable' if there is no clear audience**).

**Dysphoric elements** Dysphoric elements are negative (frightening, painful, or unpleasant), emotionally arousing components of ritual. Code the variables below using the coding scheme absent/present/inferred present/inferred absent/uncoded/unknown. NB Only code these variables as "present" if they are experienced by ritual specialists or participants. This excludes passive audiences and human sacrificial victims. In the description field, specify whether ritual specialists or participants experienced the variable in question.

- ♠ fasting ♣ ♥
- ♠ vigil/sleep deprivation ♣ ♥
- ♠ fear ♣ ♥
- ♠ humiliation ♣ ♥
- ♠ disgust ♣ ♥
- ♠ poisoning/dysphoria-causing drugs ♣ ♥ (e.g. vomiting)
- ♠ pain ♣ ♥
- ♠ mutilation ♣ ♥
- ♠ risk of death ♣ ♥
- ♠ other dysphoric elements ♣ ♥ List the other(s)

**Euphoric elements** Euphoric elements are positive, emotionally arousing components of a ritual. Code the variables below using the coding scheme absent/present/inferred present/inferred absent/uncoded/unknown. NB Only code these variables as "present" if they are experienced by ritual specialists or participants. This excludes passive audiences and human sacrificial victims. In the description field, specify whether ritual specialists or participants experienced the variable in question.

- ♠ feasting ♣ ♥ NB The mere act of sharing food is not sufficient for this variable to be coded "present". A meal may be considered a feast when participants share unusually large quantities of food.
- ♠ alcohol ♣ ♥
- ♠ euphoria-inducing drugs (other than alcohol) ♣ ♥
- ♠ sex ♣ ♥
- ♠ dancing ♣ ♥
- ♠ synchronous movement ♣ ♥ (e.g. dancing or marching in unison)
- ♠ singing ♣ ♥
- ♠ entertainment ♣ ♥ (Only code 'present' here if there is any reason to believe there was specific parts of the ritual included for entertainment. Church singing, spiritual bells etc. should be coded in the 'singing' and 'other' variables respectively as they do not have the function of entertainment)
- ♠ other euphoric elements ♣ ♥ List the other(s)

**Cohesion** Cohesion among performers of the ritual. Code the variables below using the coding scheme absent/present/inferred present/inferred absent/uncoded/unknown

- ♠ honour code ♣ ♥ (This should be coded as present only when there is evidence of a defined morale based code (written or spoken) which is not to be broken by those who are part of the ritual)
- ♠ oath taking ♣ ♥ (This should only be coded as present when there is evidence or reason to believe that a specific oath or promise is given as part of the ritual)
- ♠ enemies of any group member are my enemies ♣ ♥ (This should only be coded as present where there is specific evidence that the ritual encourages an attitude of a community or group, which was to be defended against outsiders)
- ♠ willingness to die for each other ♣ ♥ (This should only be coded as present when there is evidence of the ritual encouraging a bond or commitment to other participants, which explicitly demands the willingness to die or the sacrifice one's life for a common cause of the participants)
- ♠ obligations to each others families ♣ ♥ (This should only be coded as present where there is specific evidence that ritual encourages a commitment to the families of other participants)
- ♠ other cohesion ♣ ♥ List the other(s)

♠ **Orthopraxy checks** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown. Orthopraxy checks are mechanisms used to ensure that rituals are *performed* in a standardized way, e.g.



through the supervisory prominence of a professionalized priesthood or other system of governance, appeal to texts detailing the proper procedure, etc. In the narrative paragraph, also give a brief description of the orthopraxy checks. Examples of evidence for orthopraxy checks includes the presence of a ritual specialist who polices good practice, or the existence of a text providing instructions regarding the proper performance of this ritual (even if this text is not consulted during the ritual).

♠ **Orthodoxy checks** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown. Orthodoxy checks are mechanisms used to ensure that rituals are *interpreted* in a standardized way, e.g. through the supervisory prominence of a professionalized priesthood or other system of governance, appeal to texts detailing the proper interpretation, etc. In the main paragraph, also give a brief description of the orthodoxy checks. Examples of evidence for orthodoxy checks includes the presence of a ritual specialist who polices authoritative dogma, or the existence of a sacred text or a text providing the correct interpretation of this ritual (even if this text is not consulted during the ritual).

**Costs of participation** Code the variables below using the coding scheme absent/present/inferred present/inferred absent/uncoded/unknown

♠ **currency** ♣ ♥

♠ **property/valuable items** ♣ ♥ NB Don't include food/drink if they do not constitute a substantial cost to ritual participants themselves

♠ **health costs** ♣ ♥

♠ **animal sacrifice** ♣ ♥ NB This variable may be coded as "present" in cases where the animal sacrifice occurs prior to the ritual proper, provided it is indeed a sacrifice, and one necessary for the ritual proper to be then performed correctly.

♠ **human sacrifice of an out-group member** ♣ ♥ (i.e. an individual who is not considered part of the group performing the ritual) NB: This variable may be coded as "present" whenever loss of human life is necessary for the ritual to be performed correctly. However, this definition may change.

♠ **human sacrifice of an in-group member** ♣ ♥ (i.e. an individual who is considered part of the group performing the ritual) NB: This variable may be coded as "present" whenever loss of human life is necessary for the ritual to be performed correctly. However, this definition may change.

♠ **human sacrifice of a relative** ♣ ♥ (e.g. sacrificing the first-born son) NB: This variable may be coded as "present" whenever loss of human life is necessary for the ritual to be performed correctly. However, this definition may change.

♠ **other costs** ♣ ♥ List the other(s)

## Most widespread collective ritual of the official cult

Code the variables below for the most widespread collective ritual of the official cult. Widespread refers to the degree of coverage a ritual has in a polity and therefore to the proportion of the overall population that participates in or observes a ritual. Keep in mind that it is possible that the ritual with the highest coverage is not necessarily a mass ritual performed at one location, but can be a ritual that is performed all over the polity and of which the aggregate of all participants represent the largest degree of coverage. If there are several collective rituals that are equally widespread, code the best documented one.

♠ **Name** ♣ ♥ In the narrative part, also give a brief description of the ritual

♠ **Frequency for the ritual specialist** ♣ ♥ daily/weekly/monthly/seasonally/yearly/once per generation/once in a lifetime. Code the frequency of participating in a ritual from the perspective of the ritual specialist (e.g. priest). Entertainers (acrobats, dancers, actors...) are considered as ritual specialists. If the ritual's frequency does not fit within any of the suggested categories--for example, if it is performed every three days, or every twelve years--use the category that is closest, then specify the exact frequency in the description field.

♠ **Frequency per participant** ♣ ♥ daily/weekly/monthly/seasonally/yearly/once per generation/once in a lifetime. Code the frequency of participating in a ritual from the perspective of the participants. This group of participants does not include the ritual specialists, like priests. It also does not include sacrificial victims. However, highly engaged audiences (audiences who are processing, jeering, ...) are considered as participants. Audiences consisting of passive spectators or witnesses are coded for in the next variable. When it is difficult to distinguish between a highly engaged audience and an audience consisting of passive spectators, code these audiences here. If the ritual's frequency does not fit within any of the

suggested categories--for example, if it is performed every three days, or every twelve years--use the category that's closest, then specify the exact frequency in the description field.

♠ **Frequency for the audience** ♣ ♥ daily/weekly/monthly/seasonally/yearly/once per generation/once in a lifetime. Code the frequency of participating in a ritual from the perspective of a typical member of an audience consisting of passive spectators or witnesses (**do not include anyone here who is a participant in eating food at a banquet, praying at a place of worship, taking part in an agricultural festival etc.** Code this as 'not applicable' if there is no clear audience). If the ritual's frequency does not fit within any of the suggested categories--for example, if it is performed every three days, or every twelve years--use the category that's closest, then specify the exact frequency in the description field.

♠ **Duration** ♣ ♥ in hours. In case the duration of the ritual varies (e.g. the duration varies between 6 and 10 hours) code the range using square brackets (i.e., [6-10]).

♠ **Typical size of participating group** ♣ ♥ in absolute numbers. Code ranges using square brackets.

♠ **Inclusiveness (ritual specialist)** ♣ ♥ Ritual specialists comprise individuals coming from which of the following groups: whole polity / majority (e.g., all Muslims) / substantial minority (e.g., all free adult male citizens) / elites (e.g., priesthood, royalty) / other. Please provide additional information in the description field. Specifically, it would be important to know whether the role was restricted to a particular gender, caste, rank, etc.

♠ **Inclusiveness (participants)** ♣ ♥ Participants comprise individuals coming from which of the following groups: whole polity / majority (e.g., all Muslims) / substantial minority (e.g., all free adult male citizens) / elites (e.g., priesthood, royalty) / other. Please provide additional information in the description field. Specifically, it would be important to know whether the role was restricted to a particular gender, caste, rank, etc.

♠ **Inclusiveness (audience)** ♣ ♥ Audience comprise individuals coming from which of the following groups: whole polity / majority (e.g., all Muslims) / substantial minority (e.g., all free adult male citizens) / elites (e.g., priesthood, royalty) / other. Please provide additional information in the description field. Specifically, it would be important to know whether the role was restricted to a particular gender, caste, rank, etc. This is for passive spectators or witnesses (**do not include anyone here who is a participant in eating food at a banquet, praying at a place of worship, taking part in an agricultural festival etc.** Code this as 'not applicable' if there is no clear audience).

**Dysphoric elements** Dysphoric elements are negative (frightening, painful, or unpleasant), emotionally arousing components of ritual. Code the variables below using the coding scheme absent/present/inferred present/inferred absent/uncoded/unknown. NB Only code these variables as "present" if they are experienced by ritual specialists or participants. This excludes passive audiences and human sacrificial victims. In the description field, specify whether ritual specialists or participants experienced the variable in question.

♠ **fasting** ♣ ♥

♠ **vigil/sleep deprivation** ♣ ♥

♠ **fear** ♣ ♥

♠ **humiliation** ♣ ♥

♠ **disgust** ♣ ♥

♠ **poisoning/dysphoria-causing drugs** ♣ ♥ (e.g. vomiting)

♠ **pain** ♣ ♥

♠ **mutilation** ♣ ♥

♠ **risk of death** ♣ ♥

♠ **other dysphoric elements** ♣ ♥ List the other(s)

**Euphoric elements** Euphoric elements are positive, emotionally arousing components of a ritual. Code the variables below using the coding scheme absent/present/inferred present/inferred absent/uncoded/unknown. NB Only code these variables as "present" if they are experienced by ritual specialists or participants. This excludes passive audiences and human sacrificial victims. In the description field, specify whether ritual specialists or participants experienced the variable in question.

♠ **feasting** ♣ ♥ NB The mere act of sharing food is not sufficient for this variable to be coded "present". A meal may be considered a feast when participants share unusually large quantities of food.

♠ **alcohol** ♣ ♥

- ♠ **euphoria-inducing drugs (other than alcohol)** ♣ ♥
- ♠ **sex** ♣ ♥
- ♠ **dancing** ♣ ♥
- ♠ **synchronous movement** ♣ ♥ (e.g. dancing or marching in unison)
- ♠ **singing** ♣ ♥
- ♠ **entertainment** ♣ ♥ (Only code 'present' here if there is any reason to believe there was specific parts of the ritual included for entertainment. Church singing, spiritual bells etc. should be coded in the 'singing' and 'other' variables respectively as they do not have the function of entertainment)
- ♠ **other euphoric elements** ♣ ♥ List the other(s)

**Cohesion** Cohesion among performers of the ritual. Code the variables below using the coding scheme absent/present/inferred present/inferred absent/uncoded/unknown

- ♠ **honour code** ♣ ♥ (This should be coded as present only when there is evidence of a defined morale based code (written or spoken) which is not to be broken by those who are part of the ritual)
- ♠ **oath taking** ♣ ♥ (This should only be coded as present when there is evidence or reason to believe that a specific oath or promise is given as part of the ritual)
- ♠ **enemies of any group member are my enemies** ♣ ♥ (This should only be coded as present where there is specific evidence that the ritual encourages an attitude of a community or group, which was to be defended against outsiders)
- ♠ **willingness to die for each other** ♣ ♥ (This should only be coded as present when there is evidence of the ritual encouraging a bond or commitment to other participants, which explicitly demands the willingness to die or the sacrifice one's life for a common cause of the participants)
- ♠ **obligations to each others families** ♣ ♥ (This should only be coded as present where there is specific evidence that ritual encourages a commitment to the families of other participants)
- ♠ **other cohesion** ♣ ♥ List the other(s)

♠ **Orthopraxy checks** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown.

Orthopraxy checks are mechanisms used to ensure that rituals are *performed* in a standardized way, e.g. through the supervisory prominence of a professionalized priesthood or other system of governance, appeal to texts detailing the proper procedure, etc. In the narrative paragraph, also give a brief description of the orthopraxy checks. Examples of evidence for orthopraxy checks includes the presence of a ritual specialist who polices good practice, or the existence of a text providing instructions regarding the proper performance of this ritual (even if this text is not consulted during the ritual).

♠ **Orthodoxy checks** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown. Orthodoxy checks are mechanisms used to ensure that rituals are *interpreted* in a standardized way, e.g. through the supervisory prominence of a professionalized priesthood or other system of governance, appeal to texts detailing the proper interpretation, etc. In the main paragraph, also give a brief description of the orthodoxy checks. Examples of evidence for orthodoxy checks includes the presence of a ritual specialist who polices authoritative dogma, or the existence of a sacred text or a text providing the correct interpretation of this ritual (even if this text is not consulted during the ritual).

**Costs of participation** Code the variables below using the coding scheme absent/present/inferred present/inferred absent/uncoded/unknown

- ♠ **currency** ♣ ♥
- ♠ **property/valuable items** ♣ ♥ NB Don't include food/drink if they do not constitute a substantial cost to ritual participants themselves
- ♠ **health costs** ♣ ♥
- ♠ **animal sacrifice** ♣ ♥ NB This variable may be coded as "present" in cases where the animal sacrifice occurs prior to the ritual proper, provided it is indeed a sacrifice, and one necessary for the ritual proper to be then performed correctly.
- ♠ **human sacrifice of an out-group member** ♣ ♥ (i.e. an individual who is not considered part of the group performing the ritual) NB: This variable may be coded as "present" whenever loss of human life is necessary for the ritual to be performed correctly. However, this definition may change.
- ♠ **human sacrifice of an in-group member** ♣ ♥ (i.e. an individual who is considered part of the group performing the ritual) NB: This variable may be coded as "present" whenever loss of human

life is necessary for the ritual to be performed correctly. However, this definition may change.

♠ **human sacrifice of a relative** ♣ ♥ (e.g. sacrificing the first-born son) NB: This variable may be coded as "present" whenever loss of human life is necessary for the ritual to be performed correctly. However, this definition may change.

♠ **other costs** ♣ ♥ List the other(s)

## Most frequent collective ritual of the official cult

Code the variables below for the most frequent collective ritual of the official cult. If there are several collective rituals that are performed equally frequently, code the best documented one.

♠ **Name** ♣ ♥ In the narrative part, also give a brief description of the ritual

♠ **Frequency for the ritual specialist** ♣ ♥ daily/weekly/monthly/seasonally/yearly/once per generation/once in a lifetime. Code the frequency of participating in a ritual from the perspective of the ritual specialist (e.g. priest). Entertainers (acrobats, dancers, actors...) are considered as ritual specialists. If the ritual's frequency does not fit within any of the suggested categories--for example, if it is performed every three days, or every twelve years--use the category that is closest, then specify the exact frequency in the description field.

♠ **Frequency per participant** ♣ ♥ daily/weekly/monthly/seasonally/yearly/once per generation/once in a lifetime. Code the frequency of participating in a ritual from the perspective of the participants. This group of participants does not include the ritual specialists, like priests. It also does not include sacrificial victims. However, highly engaged audiences (audiences who are processing, jeering, ...) are considered as participants. Audiences consisting of passive spectators or witnesses are coded for in the next variable. When it is difficult to distinguish between a highly engaged audience and an audience consisting of passive spectators, code these audiences here. If the ritual's frequency does not fit within any of the suggested categories--for example, if it is performed every three days, or every twelve years--use the category that's closest, then specify the exact frequency in the description field.

♠ **Frequency for the audience** ♣ ♥ daily/weekly/monthly/seasonally/yearly/once per generation/once in a lifetime. Code the frequency of participating in a ritual from the perspective of a typical member of an audience consisting of passive spectators or witnesses (**do not include anyone here who is a participant in eating food at a banquet, praying at a place of worship, taking part in an agricultural festival etc. Code this as 'not applicable' if there is no clear audience**). If the ritual's frequency does not fit within any of the suggested categories--for example, if it is performed every three days, or every twelve years--use the category that's closest, then specify the exact frequency in the description field.

♠ **Duration** ♣ ♥ in hours. In case the duration of the ritual varies (e.g. the duration varies between 6 and 10 hours) code the range using square brackets (i.e., [6-10]).

♠ **Typical size of participating group** ♣ ♥ in absolute numbers. Code ranges using square brackets.

♠ **Inclusiveness (ritual specialist)** ♣ ♥ Ritual specialists comprise individuals coming from which of the following groups: whole polity / majority (e.g., all Muslims) / substantial minority (e.g., all free adult male citizens) / elites (e.g., priesthood, royalty) / other. Please provide additional information in the description field. Specifically, it would be important to know whether the role was restricted to a particular gender, caste, rank, etc.

♠ **Inclusiveness (participants)** ♣ ♥ Participants comprise individuals coming from which of the following groups: whole polity / majority (e.g., all Muslims) / substantial minority (e.g., all free adult male citizens) / elites (e.g., priesthood, royalty) / other. Please provide additional information in the description field. Specifically, it would be important to know whether the role was restricted to a particular gender, caste, rank, etc.

♠ **Inclusiveness (audience)** ♣ ♥ Audience comprise individuals coming from which of the following groups: whole polity / majority (e.g., all Muslims) / substantial minority (e.g., all free adult male citizens) / elites (e.g., priesthood, royalty) / other. Please provide additional information in the description field. Specifically, it would be important to know whether the role was restricted to a particular gender, caste, rank, etc. This is for passive spectators or witnesses (**do not include anyone here who is a participant in eating food at a banquet, praying at a place of worship, taking part in an agricultural festival etc. Code this as 'not applicable' if there is no clear audience**).

**Dysphoric elements** Dysphoric elements are negative (frightening, painful, or unpleasant), emotionally arousing components of ritual. Code the variables below using the coding scheme absent/present/inferred present/inferred absent/uncoded/unknown. NB Only code these variables as "present" if they are

experienced by ritual specialists or participants. This excludes passive audiences and human sacrificial victims. In the description field, specify whether ritual specialists or participants experienced the variable in question.

- ♠ **fasting** ♣ ♥
- ♠ **vigil/sleep deprivation** ♣ ♥
- ♠ **fear** ♣ ♥
- ♠ **humiliation** ♣ ♥
- ♠ **disgust** ♣ ♥
- ♠ **poisoning/dysphoria-causing drugs** ♣ ♥ (e.g. vomiting)
- ♠ **pain** ♣ ♥
- ♠ **mutilation** ♣ ♥
- ♠ **risk of death** ♣ ♥
- ♠ **other dysphoric elements** ♣ ♥ List the other(s)

**Euphoric elements** Euphoric elements are positive, emotionally arousing components of a ritual. Code the variables below using the coding scheme absent/present/inferred present/inferred absent/uncoded/unknown. NB Only code these variables as "present" if they are experienced by ritual specialists or participants. This excludes passive audiences and human sacrificial victims. In the description field, specify whether ritual specialists or participants experienced the variable in question.

- ♠ **feasting** ♣ ♥ NB The mere act of sharing food is not sufficient for this variable to be coded "present". A meal may be considered a feast when participants share unusually large quantities of food.
- ♠ **alcohol** ♣ ♥
- ♠ **euphoria-inducing drugs (other than alcohol)** ♣ ♥
- ♠ **sex** ♣ ♥
- ♠ **dancing** ♣ ♥
- ♠ **synchronous movement** ♣ ♥ (e.g. dancing or marching in unison)
- ♠ **singing** ♣ ♥
- ♠ **entertainment** ♣ ♥ (Only code 'present' here if there is any reason to believe there was specific parts of the ritual included for entertainment. Church singing, spiritual bells etc. should be coded in the 'singing' and 'other' variables respectively as they do not have the function of entertainment)
- ♠ **other euphoric elements** ♣ ♥ List the other(s)

**Cohesion** Cohesion among performers of the ritual. Code the variables below using the coding scheme absent/present/inferred present/inferred absent/uncoded/unknown

- ♠ **honour code** ♣ ♥ (This should be coded as present only when there is evidence of a defined morale based code (written or spoken) which is not to be broken by those who are part of the ritual)
- ♠ **oath taking** ♣ ♥ (This should only be coded as present when there is evidence or reason to believe that a specific oath or promise is given as part of the ritual)
- ♠ **enemies of any group member are my enemies** ♣ ♥ (This should only be coded as present where there is specific evidence that the ritual encourages an attitude of a community or group, which was to be defended against outsiders)
- ♠ **willingness to die for each other** ♣ ♥ (This should only be coded as present when there is evidence of the ritual encouraging a bond or commitment to other participants, which explicitly demands the willingness to die or the sacrifice one's life for a common cause of the participants)
- ♠ **obligations to each others families** ♣ ♥ (This should only be coded as present where there is specific evidence that ritual encourages a commitment to the families of other participants)
- ♠ **other cohesion** ♣ ♥ List the other(s)

♠ **Orthopraxy checks** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown.

Orthopraxy checks are mechanisms used to ensure that rituals are *performed* in a standardized way, e.g. through the supervisory prominence of a professionalized priesthood or other system of governance, appeal to texts detailing the proper procedure, etc. In the narrative paragraph, also give a brief description of the orthopraxy checks. Examples of evidence for orthopraxy checks includes the presence of a ritual

specialist who polices good practice, or the existence of a text providing instructions regarding the proper performance of this ritual (even if this text is not consulted during the ritual).

♠ **Orthodoxy checks** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown. Orthodoxy checks are mechanisms used to ensure that rituals are *interpreted* in a standardized way, e.g. through the supervisory prominence of a professionalized priesthood or other system of governance, appeal to texts detailing the proper interpretation, etc. In the main paragraph, also give a brief description of the orthodoxy checks. Examples of evidence for orthodoxy checks includes the presence of a ritual specialist who polices authoritative dogma, or the existence of a sacred text or a text providing the correct interpretation of this ritual (even if this text is not consulted during the ritual).

**Costs of participation** Code the variables below using the coding scheme absent/present/inferred present/inferred absent/uncoded/unknown

♠ **currency** ♣ ♥

♠ **property/valuable items** ♣ ♥ NB Don't include food/drink if they do not constitute a substantial cost to ritual participants themselves

♠ **health costs** ♣ ♥

♠ **animal sacrifice** ♣ ♥ NB This variable may be coded as "present" in cases where the animal sacrifice occurs prior to the ritual proper, provided it is indeed a sacrifice, and one necessary for the ritual proper to be then performed correctly.

♠ **human sacrifice of an out-group member** ♣ ♥ (i.e. an individual who is not considered part of the group performing the ritual) NB: This variable may be coded as "present" whenever loss of human life is necessary for the ritual to be performed correctly. However, this definition may change.

♠ **human sacrifice of an in-group member** ♣ ♥ (i.e. an individual who is considered part of the group performing the ritual) NB: This variable may be coded as "present" whenever loss of human life is necessary for the ritual to be performed correctly. However, this definition may change.

♠ **human sacrifice of a relative** ♣ ♥ (e.g. sacrificing the first-born son) NB: This variable may be coded as "present" whenever loss of human life is necessary for the ritual to be performed correctly. However, this definition may change.

♠ **other costs** ♣ ♥ List the other(s)

## Most euphoric collective ritual of the official cult

When selecting the relevant ritual do keep in mind that we are foremost interested in the level of euphoria during the peak moment of the ritual. Furthermore, we are interested in the levels of euphoria for participants and/or ritual specialists (not the audience or sacrificial victims). If there are several collective rituals with the same high level of euphoria, code the best documented one.

♠ **Name** ♣ ♥ In the narrative part, also give a brief description of the ritual

♠ **Frequency for the ritual specialist** ♣ ♥ daily/weekly/monthly/seasonally/yearly/once per generation/once in a lifetime. Code the frequency of participating in a ritual from the perspective of the ritual specialist (e.g. priest). Entertainers (acrobats, dancers, actors...) are considered as ritual specialists. If the ritual's frequency does not fit within any of the suggested categories--for example, if it is performed every three days, or every twelve years--use the category that is closest, then specify the exact frequency in the description field.

♠ **Frequency per participant** ♣ ♥ daily/weekly/monthly/seasonally/yearly/once per generation/once in a lifetime. Code the frequency of participating in a ritual from the perspective of the participants. This group of participants does not include the ritual specialists, like priests. It also does not include sacrificial victims. However, highly engaged audiences (audiences who are processing, jeering, ...) are considered as participants. Audiences consisting of passive spectators or witnesses are coded for in the next variable. When it is difficult to distinguish between a highly engaged audience and an audience consisting of passive spectators, code these audiences here. If the ritual's frequency does not fit within any of the suggested categories--for example, if it is performed every three days, or every twelve years--use the category that's closest, then specify the exact frequency in the description field.

♠ **Frequency for the audience** ♣ ♥ daily/weekly/monthly/seasonally/yearly/once per generation/once in a lifetime. Code the frequency of participating in a ritual from the perspective of a typical member of an audience consisting of passive spectators or witnesses (**do not include anyone here who is a participant**

**in eating food at a banquet, praying at a place of worship, taking part in an agricultural festival etc. Code this as 'not applicable' if there is no clear audience).** If the ritual's frequency does not fit within any of the suggested categories--for example, if it is performed every three days, or every twelve years--use the category that's closest, then specify the exact frequency in the description field.

♠ **Duration** ♣ ♥ in hours. In case the duration of the ritual varies (e.g. the duration varies between 6 and 10 hours) code the range using square brackets (i.e., [6-10]).

♠ **Typical size of participating group** ♣ ♥ in absolute numbers. Code ranges using square brackets.

♠ **Inclusiveness (ritual specialist)** ♣ ♥ Ritual specialists comprise individuals coming from which of the following groups: whole polity / majority (e.g., all Muslims) / substantial minority (e.g., all free adult male citizens) / elites (e.g., priesthood, royalty) / other. Please provide additional information in the description field. Specifically, it would be important to know whether the role was restricted to a particular gender, caste, rank, etc.

♠ **Inclusiveness (participants)** ♣ ♥ Participants comprise individuals coming from which of the following groups: whole polity / majority (e.g., all Muslims) / substantial minority (e.g., all free adult male citizens) / elites (e.g., priesthood, royalty) / other. Please provide additional information in the description field. Specifically, it would be important to know whether the role was restricted to a particular gender, caste, rank, etc.

♠ **Inclusiveness (audience)** ♣ ♥ Audience comprise individuals coming from which of the following groups: whole polity / majority (e.g., all Muslims) / substantial minority (e.g., all free adult male citizens) / elites (e.g., priesthood, royalty) / other. Please provide additional information in the description field. Specifically, it would be important to know whether the role was restricted to a particular gender, caste, rank, etc. This is for passive spectators or witnesses (**do not include anyone here who is a participant in eating food at a banquet, praying at a place of worship, taking part in an agricultural festival etc. Code this as 'not applicable' if there is no clear audience).**

**Dysphoric elements** Dysphoric elements are negative (frightening, painful, or unpleasant), emotionally arousing components of ritual. Code the variables below using the coding scheme absent/present/inferred present/inferred absent/uncoded/unknown. NB Only code these variables as "present" if they are experienced by ritual specialists or participants. This excludes passive audiences and human sacrificial victims. In the description field, specify whether ritual specialists or participants experienced the variable in question.

♠ **fasting** ♣ ♥

♠ **vigil/sleep deprivation** ♣ ♥

♠ **fear** ♣ ♥

♠ **humiliation** ♣ ♥

♠ **disgust** ♣ ♥

♠ **poisoning/dysphoria-causing drugs** ♣ ♥ (e.g. vomiting)

♠ **pain** ♣ ♥

♠ **mutilation** ♣ ♥

♠ **risk of death** ♣ ♥

♠ **other dysphoric elements** ♣ ♥ List the other(s)

**Euphoric elements** Euphoric elements are positive, emotionally arousing components of a ritual. Code the variables below using the coding scheme absent/present/inferred present/inferred absent/uncoded/unknown. NB Only code these variables as "present" if they are experienced by ritual specialists or participants. This excludes passive audiences and human sacrificial victims. In the description field, specify whether ritual specialists or participants experienced the variable in question.

♠ **feasting** ♣ ♥ NB The mere act of sharing food is not sufficient for this variable to be coded "present". A meal may be considered a feast when participants share unusually large quantities of food.

♠ **alcohol** ♣ ♥

♠ **euphoria-inducing drugs (other than alcohol)** ♣ ♥

♠ **sex** ♣ ♥

♠ **dancing** ♣ ♥

♠ **synchronous movement** ♣ ♥ (e.g. dancing or marching in unison)

♠ **singing** ♣ ♥

♠ **entertainment** ♣ ♥ (Only code 'present' here if there is any reason to believe there was specific parts of the ritual included for entertainment. Church singing, spiritual bells etc. should be coded in the 'singing' and 'other' variables respectively as they do not have the function of entertainment)

♠ **other euphoric elements** ♣ ♥ List the other(s)

**Cohesion** Cohesion among performers of the ritual. Code the variables below using the coding scheme absent/present/inferred present/inferred absent/uncoded/unknown

♠ **honour code** ♣ ♥ (This should be coded as present only when there is evidence of a defined morale based code (written or spoken) which is not to be broken by those who are part of the ritual)

♠ **oath taking** ♣ ♥ (This should only be coded as present when there is evidence or reason to believe that a specific oath or promise is given as part of the ritual)

♠ **enemies of any group member are my enemies** ♣ ♥ (This should only be coded as present where there is specific evidence that the ritual encourages an attitude of a community or group, which was to be defended against outsiders)

♠ **willingness to die for each other** ♣ ♥ (This should only be coded as present when there is evidence of the ritual encouraging a bond or commitment to other participants, which explicitly demands the willingness to die or the sacrifice one's life for a common cause of the participants)

♠ **obligations to each others families** ♣ ♥ (This should only be coded as present where there is specific evidence that ritual encourages a commitment to the families of other participants)

♠ **other cohesion** ♣ ♥ List the other(s)

♠ **Orthopraxy checks** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown.

Orthopraxy checks are mechanisms used to ensure that rituals are *performed* in a standardized way, e.g. through the supervisory prominence of a professionalized priesthood or other system of governance, appeal to texts detailing the proper procedure, etc. In the narrative paragraph, also give a brief description of the orthopraxy checks. Examples of evidence for orthopraxy checks includes the presence of a ritual specialist who polices good practice, or the existence of a text providing instructions regarding the proper performance of this ritual (even if this text is not consulted during the ritual).

♠ **Orthodoxy checks** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown. Orthodoxy checks are mechanisms used to ensure that rituals are *interpreted* in a standardized way, e.g. through the supervisory prominence of a professionalized priesthood or other system of governance, appeal to texts detailing the proper interpretation, etc. In the main paragraph, also give a brief description of the orthodoxy checks. Examples of evidence for orthodoxy checks includes the presence of a ritual specialist who polices authoritative dogma, or the existence of a sacred text or a text providing the correct interpretation of this ritual (even if this text is not consulted during the ritual).

**Costs of participation** Code the variables below using the coding scheme absent/present/inferred present/inferred absent/uncoded/unknown

♠ **currency** ♣ ♥

♠ **property/valuable items** ♣ ♥ NB Don't include food/drink if they do not constitute a substantial cost to ritual participants themselves

♠ **health costs** ♣ ♥

♠ **animal sacrifice** ♣ ♥ NB This variable may be coded as "present" in cases where the animal sacrifice occurs prior to the ritual proper, provided it is indeed a sacrifice, and one necessary for the ritual proper to be then performed correctly.

♠ **human sacrifice of an out-group member** ♣ ♥ (i.e. an individual who is not considered part of the group performing the ritual) NB: This variable may be coded as "present" whenever loss of human life is necessary for the ritual to be performed correctly. However, this definition may change.

♠ **human sacrifice of an in-group member** ♣ ♥ (i.e. an individual who is considered part of the group performing the ritual) NB: This variable may be coded as "present" whenever loss of human life is necessary for the ritual to be performed correctly. However, this definition may change.

♠ **human sacrifice of a relative** ♣ ♥ (e.g. sacrificing the first-born son) NB: This variable may be coded as "present" whenever loss of human life is necessary for the ritual to be performed correctly. However, this definition may change.

♠ **other costs** ♣ ♥ List the other(s)



## Most dysphoric collective ritual of the official cult

When selecting the relevant ritual do keep in mind that we are foremost interested in rituals containing the highest intensity of dysphoria even though they may contain other elements that are less emotional or even euphoric. Furthermore, we are interested in peak levels of dysphoria for participants or ritual specialists (not the audience or sacrificial victims). Also, as we are interested in how these dysphoric moments are remembered it is necessary for the participants not normally to die during the rituals. If there are several collective rituals with the same high levels of peak dysphoria, code the best documented one.

♠ **Name** ♣ ♥ In the narrative part, also give a brief description of the ritual

♠ **Frequency for the ritual specialist** ♣ ♥ daily/weekly/monthly/seasonally/yearly/once per generation/once in a lifetime. Code the frequency of participating in a ritual from the perspective of the ritual specialist (e.g. priest). Entertainers (acrobats, dancers, actors...) are considered as ritual specialists. If the ritual's frequency does not fit within any of the suggested categories--for example, if it is performed every three days, or every twelve years--use the category that is closest, then specify the exact frequency in the description field.

♠ **Frequency per participant** ♣ ♥ daily/weekly/monthly/seasonally/yearly/once per generation/once in a lifetime. Code the frequency of participating in a ritual from the perspective of the participants. This group of participants does not include the ritual specialists, like priests. It also does not include sacrificial victims. However, highly engaged audiences (audiences who are processing, jeering, ...) are considered as participants. Audiences consisting of passive spectators or witnesses are coded for in the next variable. When it is difficult to distinguish between a highly engaged audience and an audience consisting of passive spectators, code these audiences here. If the ritual's frequency does not fit within any of the suggested categories--for example, if it is performed every three days, or every twelve years--use the category that's closest, then specify the exact frequency in the description field.

♠ **Frequency for the audience** ♣ ♥ daily/weekly/monthly/seasonally/yearly/once per generation/once in a lifetime. Code the frequency of participating in a ritual from the perspective of a typical member of an audience consisting of passive spectators or witnesses (**do not include anyone here who is a participant in eating food at a banquet, praying at a place of worship, taking part in an agricultural festival etc. Code this as 'not applicable' if there is no clear audience**). If the ritual's frequency does not fit within any of the suggested categories--for example, if it is performed every three days, or every twelve years--use the category that's closest, then specify the exact frequency in the description field.

♠ **Duration** ♣ ♥ in hours. In case the duration of the ritual varies (e.g. the duration varies between 6 and 10 hours) code the range using square brackets (i.e., [6-10]).

♠ **Typical size of participating group** ♣ ♥ in absolute numbers. Code ranges using square brackets.

♠ **Inclusiveness (ritual specialist)** ♣ ♥ Ritual specialists comprise individuals coming from which of the following groups: whole polity / majority (e.g., all Muslims) / substantial minority (e.g., all free adult male citizens) / elites (e.g., priesthood, royalty) / other. Please provide additional information in the description field. Specifically, it would be important to know whether the role was restricted to a particular gender, caste, rank, etc.

♠ **Inclusiveness (participants)** ♣ ♥ Participants comprise individuals coming from which of the following groups: whole polity / majority (e.g., all Muslims) / substantial minority (e.g., all free adult male citizens) / elites (e.g., priesthood, royalty) / other. Please provide additional information in the description field. Specifically, it would be important to know whether the role was restricted to a particular gender, caste, rank, etc.

♠ **Inclusiveness (audience)** ♣ ♥ Audience comprise individuals coming from which of the following groups: whole polity / majority (e.g., all Muslims) / substantial minority (e.g., all free adult male citizens) / elites (e.g., priesthood, royalty) / other. Please provide additional information in the description field. Specifically, it would be important to know whether the role was restricted to a particular gender, caste, rank, etc. This is for passive spectators or witnesses (**do not include anyone here who is a participant in eating food at a banquet, praying at a place of worship, taking part in an agricultural festival etc. Code this as 'not applicable' if there is no clear audience**).

**Dysphoric elements** Dysphoric elements are negative (frightening, painful, or unpleasant), emotionally arousing components of ritual. Code the variables below using the coding scheme absent/present/inferred present/inferred absent/uncoded/unknown. NB Only code these variables as "present" if they are experienced by ritual specialists or participants. This excludes passive audiences and human sacrificial

victims. In the description field, specify whether ritual specialists or participants experienced the variable in question.

- ♠ **fasting** ♣ ♥
- ♠ **vigil/sleep deprivation** ♣ ♥
- ♠ **fear** ♣ ♥
- ♠ **humiliation** ♣ ♥
- ♠ **disgust** ♣ ♥
- ♠ **poisoning/dysphoria-causing drugs** ♣ ♥ (e.g. vomiting)
- ♠ **pain** ♣ ♥
- ♠ **mutilation** ♣ ♥
- ♠ **risk of death** ♣ ♥
- ♠ **other dysphoric elements** ♣ ♥ List the other(s)

**Euphoric elements** Euphoric elements are positive, emotionally arousing components of a ritual. Code the variables below using the coding scheme absent/present/inferred present/inferred absent/uncoded/unknown. NB Only code these variables as "present" if they are experienced by ritual specialists or participants. This excludes passive audiences and human sacrificial victims. In the description field, specify whether ritual specialists or participants experienced the variable in question.

- ♠ **feasting** ♣ ♥ NB The mere act of sharing food is not sufficient for this variable to be coded "present". A meal may be considered a feast when participants share unusually large quantities of food.
- ♠ **alcohol** ♣ ♥
- ♠ **euphoria-inducing drugs (other than alcohol)** ♣ ♥
- ♠ **sex** ♣ ♥
- ♠ **dancing** ♣ ♥
- ♠ **synchronous movement** ♣ ♥ (e.g. dancing or marching in unison)
- ♠ **singing** ♣ ♥
- ♠ **entertainment** ♣ ♥ (Only code 'present' here if there is any reason to believe there was specific parts of the ritual included for entertainment. Church singing, spiritual bells etc. should be coded in the 'singing' and 'other' variables respectively as they do not have the function of entertainment)
- ♠ **other euphoric elements** ♣ ♥ List the other(s)

**Cohesion** Cohesion among performers of the ritual. Code the variables below using the coding scheme absent/present/inferred present/inferred absent/uncoded/unknown

- ♠ **honour code** ♣ ♥ (This should be coded as present only when there is evidence of a defined morale based code (written or spoken) which is not to be broken by those who are part of the ritual)
- ♠ **oath taking** ♣ ♥ (This should only be coded as present when there is evidence or reason to believe that a specific oath or promise is given as part of the ritual)
- ♠ **enemies of any group member are my enemies** ♣ ♥ (This should only be coded as present where there is specific evidence that the ritual encourages an attitude of a community or group, which was to be defended against outsiders)
- ♠ **willingness to die for each other** ♣ ♥ (This should only be coded as present when there is evidence of the ritual encouraging a bond or commitment to other participants, which explicitly demands the willingness to die or the sacrifice one's life for a common cause of the participants)
- ♠ **obligations to each others families** ♣ ♥ (This should only be coded as present where there is specific evidence that ritual encourages a commitment to the families of other participants)
- ♠ **other cohesion** ♣ ♥ List the other(s)

♠ **Orthopraxy checks** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown.

Orthopraxy checks are mechanisms used to ensure that rituals are *performed* in a standardized way, e.g. through the supervisory prominence of a professionalized priesthood or other system of governance, appeal to texts detailing the proper procedure, etc. In the narrative paragraph, also give a brief description of the orthopraxy checks. Examples of evidence for orthopraxy checks includes the presence of a ritual

specialist who polices good practice, or the existence of a text providing instructions regarding the proper performance of this ritual (even if this text is not consulted during the ritual).

♠ **Orthodoxy checks** ♣ ♥ absent/present/inferred present/inferred absent/uncoded/unknown. Orthodoxy checks are mechanisms used to ensure that rituals are *interpreted* in a standardized way, e.g. through the supervisory prominence of a professionalized priesthood or other system of governance, appeal to texts detailing the proper interpretation, etc. In the main paragraph, also give a brief description of the orthodoxy checks. Examples of evidence for orthodoxy checks includes the presence of a ritual specialist who polices authoritative dogma, or the existence of a sacred text or a text providing the correct interpretation of this ritual (even if this text is not consulted during the ritual).

**Costs of participation** Code the variables below using the coding scheme absent/present/inferred present/inferred absent/uncoded/unknown

♠ **currency** ♣ ♥

♠ **property/valuable items** ♣ ♥ NB Don't include food/drink if they do not constitute a substantial cost to ritual participants themselves

♠ **health costs** ♣ ♥

♠ **animal sacrifice** ♣ ♥ NB This variable may be coded as "present" in cases where the animal sacrifice occurs prior to the ritual proper, provided it is indeed a sacrifice, and one necessary for the ritual proper to be then performed correctly.

♠ **human sacrifice of an out-group member** ♣ ♥ (i.e. an individual who is not considered part of the group performing the ritual) NB: This variable may be coded as "present" whenever loss of human life is necessary for the ritual to be performed correctly. However, this definition may change.

♠ **human sacrifice of an in-group member** ♣ ♥ (i.e. an individual who is considered part of the group performing the ritual) NB: This variable may be coded as "present" whenever loss of human life is necessary for the ritual to be performed correctly. However, this definition may change.

♠ **human sacrifice of a relative** ♣ ♥ (e.g. sacrificing the first-born son) NB: This variable may be coded as "present" whenever loss of human life is necessary for the ritual to be performed correctly. However, this definition may change.

♠ **other costs** ♣ ♥ List the other(s)

## Phase II Variables (polity-based)

### Institutional Variables

♠ **RA** ♣ ♥

♠ **Expert** ♣ ♥

♠ **Editor** ♣ ♥

For the purposes of this project we define an institution as a system of social norms that governs the behavior of individuals in certain contexts, with social norms understood simply as socially transmitted rules of behavior. Institutions are also understood as being generally persistent across generations, changing only slowly over time although sometimes changing suddenly through some shock or radical social change. A classic example of an institution is marriage, which governs the behavior of the spouses in the context of their family and household. Particular norms within this institution describe the expected division of labor, rights and obligations of the partners, their children, and in-laws, etc. Because norms are socially transmitted rules, they are an example of a cultural element (by our definition, culture is any kind of socially transmitted information). There are other definitions of norms and institutions, but the one given here was chosen for its compatibility with the theoretical framework of cultural evolution (and this definition is not incompatible with alternative ones, e.g. institutions as alternative equilibria). It is often useful to distinguish formal from informal institutions. In the following, we will ask whether an institution is legally prescribed (part of a constitution or formal law code) or something that is an unwritten rule that, nevertheless, reflects the way things are done, and are expected to be done.

We define 'elite' as the top social, political, economic, and/or religious members of society. In the codes below, when we say to code as 'equal to top nobility', we are referring to the society's elite groups and families. 'Higher than top nobility', then, refers to the ruling family, and 'lower than top nobility' refers to all people at a lower status than the elite groups and families.

## Limits on Power of the Chief Executive

These codes refer to an explicit or defined right for some group to constrain the activity of the executive in some way, typically through a legal code, but other ways are imaginable (explain in paragraph if other mechanisms found). When coding 'present' for each of the below codes, provide explanation and give examples of the constraints being used, or note that the constraints were formalized but are no known instances of its use in practice.

### Legal (formal) limits

- ♠ **Executive power is separate or independent from military** ♣ ♥ absent/present/unknown
- ♠ **Executive power is separate or independent from legislative** ♣ ♥ absent/present/unknown
- ♠ **Executive power is separate or independent from judiciary** ♣ ♥ absent/present/unknown

### Legal (formal) freedoms

- ♠ **Right to petition executive** ♣ ♥ absent/present/unknown. There is a legally described mechanism for petitioning the head of state. Describe in paragraph, noting if there were any restrictions on the people (in terms of gender, social rank, etc.) who had this right
- ♠ **Critique of executive by government** ♣ ♥ absent/present/unknown. Government officials (i.e. judiciary/legislature) have legal right to criticize the head of state (i.e. can offer an official censure, a statement of disapproval, etc.). Explain in paragraph
- ♠ **Critique of executive by non-government** ♣ ♥ absent/present/unknown. Non-governmental organization (elite, social group, community organization, economic group, etc.) has legal right to criticize the head of state (i.e. can offer an official censure, a statement of disapproval). Explain in paragraph. Note: this does not include religious groups (Church leaders, Buddhist monks, etc.), since that is coded elsewhere)

### Power distributed

- ♠ **Sanction of executive by government** ♣ ♥ absent/present/unknown. Governmental officials (i.e. judiciary/legislature) have legal right to sanction or punish the head of state (e.g., impose a fine, a penance, etc.). Explain in paragraph
- ♠ **Sanction of executive by non-government** ♣ ♥ absent/present/unknown. Non-governmental organization (elite, social group, community organization, economic group, etc.) has legal right to sanction or punish the head of state (e.g., impose a fine, a penance, etc.). Explain in paragraph. Note: this does not include religious groups (Church leaders, Buddhist monks, etc.), since that is coded elsewhere)
- ♠ **Constraint on executive by government** ♣ ♥ absent/present/unknown. Governmental officials (i.e. judiciary/legislature) can veto or overturn executive decision (including removing a political appointment), or withhold cooperation (e.g., refuse to provide funds or allow raising troops), regardless of whether or not these limits were actually practiced. Explain in paragraph
- ♠ **Constraint on executive by non-government** ♣ ♥ absent/present/unknown. Non-governmental organization (elite, social group, community organization, economic group, etc.) can veto or overturn executive decision (including removing a political appointment), or withhold cooperation (e.g., refuse to provide funds or allow raising troops), regardless of whether or not these limits were actually practiced. Explain in paragraph. Note: this does not include religious groups (Church leaders, Buddhist monks, etc.), since that is coded elsewhere)
- ♠ **Impeachment** ♣ ♥ absent/present/unknown. There is a legal mechanism for removing and replacing the head of state

## Customary (informal) checks on executive

While the codes above reflect a legal or explicit right of some group to constrain the executive power, below code for non-formal limits. These include social or cultural norms which limit the action that can be seen as legitimately undertaken by the executive, for instance an unwritten restriction against an executive making changes to or decisions on religious matters. It is possible to code for all four combinations of absent/present along the formal/informal institution. This means that there could be the legal right to criticize a chief executive but it's never used, or, there may not be a law that specifies how the ruler is criticized, but there is an established practice of doing so. Where coding 'present' provide explanation and examples. Note that you should only code non-violent actions (so a rebellion that overthrows the head of state is not an instance of informal 'impeachment')

- ♠ **Informal critique of executive** ♣ ♥ absent/present/unknown
- ♠ **Informal sanction of executive** ♣ ♥ absent/present/unknown
- ♠ **Informal constraint on executive** ♣ ♥ absent/present/unknown
- ♠ **Informal impeachment** ♣ ♥ Note that you should only code non-violent actions (so a rebellion that overthrows the head of state is not an instance of informal 'impeachment')

## Limits on executive power imposed by religious agents

In this section we are interested in whether religious or supernatural agents impose limits on executive power. These codes refer to both formal, legal restrictions as well as informal constraints including social or cultural norms which limit the action that can be seen as legitimately undertaken by the executive, for instance an unwritten restriction against an executive making changes to or decisions on religious matters. Explain in descriptive section whether the constraint was formal or informal. 'Religious agents' here refers to religious groups, their leaders, or even religiously motivated individuals who are not leaders (e.g., Buddhist monks, street preachers)

- ♠ **Critique of executive by religious agents** ♣ ♥ absent/present/unknown
- ♠ **Sanction of executive by religious agents** ♣ ♥ absent/present/unknown
- ♠ **Constraint on executive by religious agents** ♣ ♥ absent/present/unknown
- ♠ **Constraint on executive by religious institutions** ♣ ♥ absent/present/unknown. This refers to religious practices or norms that work to constrain the activity of the executive. This differs from the above code in that this code refers to restrictions imposed without the need for religious 'agents' specifically to act. For example, witchcraft accusations or the threat of such accusations could serve to limit the activity of political actors and act as a normative-behavior reinforcement. Explain in paragraph what the institution is and which groups of people are constrained by it.
- ♠ **Impeachment by religious agents** ♣ ♥ absent/present/unknown
- ♠ **Subordination of the chief executive to a religious agent** ♣ ♥ absent/present/unknown. For example, the rulers acknowledge that there is a higher power above them
- ♠ **Motivation by belief in supernatural agent** ♣ ♥ absent/present/unknown. In this position, code situations when chief executives take on personal costs or otherwise make prosocial or selfless actions where it is stated or believed to be because of internalized religious conviction. For example, a ruler dedicating war spoils to a temple rather than using them for personal benefit. Unlike the previous position (subordination), which can be theoretical, here we are looking for actual instances when leaders were motivated to do prosocial acts by religious considerations

## Mechanisms of Power Transfer (from one head of state to the next)

- ♠ **Customary mechanism** ♣ ♥ absent/present/unknown. There is a broadly agreed-upon or customary mechanism (although perhaps not explicitly spelled out in law – see below) for power transfer. Explain how it was accomplished
- ♠ **Legal mechanism** ♣ ♥ absent/present/unknown. Provide details (e.g., specified in constitution)
- ♠ **Number of power transitions** ♣ ♥ All transfers of power of the chief executive/head of state, noting whether it was done according to an orderly, consensual mechanism, or as a result of contested action

(e.g., rebellion, coup d'état). Enter the total number of transitions here and list each one in the paragraph. Note Dynastic transitions where applicable

♠ **Number of contested transitions** ♣ ♥ How many transitions were contested (out of the total entered above), regardless of which party won the contest (i.e. incumbent or contesting agent). 1. We do not count as a contested transition any challenge that begins after 365 days have elapsed of the new reign. Caveat: care must be taken to record cases just after the cut off. We want to know when the conflict started. The reign end date of the previous ruler only tells us when the contest ended. Though a major event (e.g. a battle) can occur one and a half years after the new king's coronation the infighting/contest that lead up to it often begins earlier, such as immediately after the accession, or sometime within the first year. That infighting can be ignored by any historian who wants to simplify the text to mention only the battle. 2. Multiple separate contests within the transition timeframe should be counted as ONE contested transition. (Do not take time searching for the details of multiple separate contests but if all the detail is present in the same text opportunistically record it in the description field). 3. A transition can be contested before the new ruler is officially crowned.

♠ **Number of successful overturns** ♣ ♥ How many contested transitions of power resulted in an overturn of the ruler. This includes breaks in the normal line of succession (i.e. a dynastic succession was broken, a different party or ethnic group took power, or a rebellion resulted in a change to the rules or procedures regarding powers transitions) or when a relative overturns the ruler unexpectedly within the expected line of succession. Note: There will often be 'succession crises' when there is no 'normal line of succession' so that there will be a 'contested transition' with no possibility of a successful overturn: i.e. 1. The dynasty ends with no heir (typical cause of a succession crisis); 2. The previous ruler has died and divided the kingdom between his sons (who then decide to fight for it all); 3. There is no formal succession procedure and every succession is a fight (e.g. Mamluk Sultanate). These cases should not qualify as a successful overturn as nobody is being overturned.

## Central Bureaucracy

♠ **State-level administrators** ♣ ♥ absent/present/unknown. Individuals who have administrative tasks at the state or polity level. Includes elite families other than the close relatives of the head of state, officials appointed by and responsible to the executive, dependents of the ruling elite given administrative duties, etc. Explain in descriptive section. Code the following positions only if this one is coded 'present'

♠ **Prestige of state-level bureaucracy** ♣ ♥ lower/equal/higher/unknown. What is the social status of top officials in relation to top non-royal nobility? Code as: higher (than top nobility); equal (to top nobility); lower (than top nobility)

## Authority over state-level administrators

These codes refer to the type of control that rulers or the executive branch of government exerts over its state-level administrators.

♠ **Direct** ♣ ♥ absent/present/unknown. Direct means that the executive maintains tight control over the appointment, removal, assessment, and duties of state-level officials

♠ **Indirect** ♣ ♥ absent/present/unknown. Indirect means that the executive influences the activities of administrators (i.e. by ability to remove administrator from office, or by promoting certain religious or ethical norms that influence administrative behavior), but has not explicit legal authority to determine their actions. E.g. senatorial governors in the Roman Empire assigned to govern a province by the Emperor, but with little oversight once in place

♠ **Diffused** ♣ ♥ absent/present/unknown. Diffused means that administrators act largely on their own accord, whether they are aligned with the interests of the ruler or not. The executive retains only minimal control over the officials, typically informal pressure such as a broad agreement for reciprocal military, political, or economic aid (e.g. the control of feudal monarchs in Medieval Europe). This can include officials who are selected and removed with or without the executive's control (i.e. hereditary control of an office by a certain kin-group)

♠ **Mixed** ♣ ♥ absent/present/unknown. Some combination of the above. Explain

♠ **Governmental control** ♣ ♥ absent/present/unknown. Can state-level officials be removed by a different governmental agency/body (e.g. judicial branch, or a specially appointed magistrate)?

♠ **Non-governmental oversight** ♣ ♥ absent/present/unknown. Can officials be removed by a non-governmental group (religious, economic/trade group, social group)?

### Source of Support of state-level officials

♠ **State salary** ♣ ♥ absent/present/unknown. State salary can be paid either in currency or in kind (e.g., koku of rice)

♠ **Governed population** ♣ ♥ absent/present/unknown. Governed population means that the official directly collects tribute from the population (for example, the 'kormlenie' system in Medieval Russia)

♠ **Land** ♣ ♥ absent/present/unknown. Land is when the bureaucrats live off land supplied by the state

♠ **None** ♣ ♥ absent/present/unknown. None is when the state officials are not compensated (example: in the Republican and Principate Rome the magistrates were wealthy individuals who served without salary, motivated by prestige and social or career advancement)

♠ **Other** ♣ ♥ absent/present/unknown. Any other form of compensation not included in this list. Explain in paragraph

### Pathologies

♠ **Corruption** ♣ ♥ Is corruption of bureaucrats widespread or systematic? Corruption is defined as the use of public office for personal purposes (economic gain, political power, social prestige). If present, code for frequency as: infrequent <10% of officials; widespread = 10-50%; pervasive >50%; unknown

♠ **Bribery** ♣ ♥ This refers specifically to the economic aspect of corruption. It attempts to capture the estimated proportion of officials' income that comes from bribes and 'extra-legal' sources (e.g., kickbacks). If present, code for frequency as: negligible (<10%); significant (10-50%); majority (>50%); unknown

♠ **Abuse of power** ♣ ♥ This refers to non-economic aspects of corruption. For example, officials can use their power to unjustly imprison or enslave others, expropriate land, destroy property, etc. If present, code for frequency as: infrequent <10% of officials; widespread = 10-50%; pervasive >50%; unknown

♠ **Professionalization of state-level bureaucracy** ♣ ♥ absent/present/unknown. Are state-level administrators full-time professionals (as opposed to people who undertake administrative tasks in addition to other work and activities)?

♠ **modal number of years state-level bureaucrats spend in service** ♣ ♥ are state-level officials typically life-long administrators, or is a short time spent in government service before pursuing other activities, such as private economic opportunities?

♠ **Promotion of state-level officials to other positions** ♣ ♥ absent/present/unknown

♠ **Frequency of promotion of state-level officials to other positions** ♣ ♥ Roughly what proportion of officials are promoted or transferred to other branches of the government, including judicial and executive sectors or to provincial administration. If present, code for frequency as: infrequent <10% of officials; widespread = 10-50%; pervasive >50%; unknown

♠ **Promotion from lower ranks** ♣ ♥ absent/present/unknown

♠ **Frequency of promotion of state-level officials from lower ranks** ♣ ♥ Roughly what proportion of top bureaucratic officials worked their way up from lower ranks as opposed to direct political appointments? If present, code for frequency as: infrequent <10% of officials; widespread = 10-50%; pervasive >50%; unknown

### Local-level officials (provincial, regional, civic administration)

♠ **Number of regional administrative units** ♣ ♥ count the number of provinces, satrapies, dependent kingdoms, etc. that made up the polity territory, noting particularly changes in the number of units. Explain the breakdown of the number in the paragraph (e.g. 65 units in Han China in 143 BCE includes 40 commanderies and 25 semi-autonomous kingdoms)

♠ **Local-level administrators** ♣ ♥ absent/present/unknown. Officials who have administrative tasks at the provincial or local level. Describe

### Authority over local-level administrators

These codes refer to the type of control that rulers or the executive branch of government exerts over its local-level administrators. This code does not include the authority exerted by provincial or local level governmental agents, such as governors

♠ **Direct** ♣ ♥ absent/present/unknown. Direct means that the executive maintains tight control over the appointment, removal, assessment, and duties of local-level officials

♠ **Indirect** ♣ ♥ absent/present/unknown. Indirect means that the executive influences the activities of local officials (i.e. by ability to remove administrator from office, or by promoting certain religious or ethical norms that influence administrative behavior), but has not explicit legal authority to determine their actions. This also includes cases where the executive maintains direct control over provincial-level or local level superiors such as governors or district chiefs who themselves maintain direct control over lower-ranking local officials, but the executive does not exert direct control over low ranking low-level officials

♠ **Diffused** ♣ ♥ absent/present/unknown. Diffused means that administrators act largely on their own accord, whether they are aligned with the interests of the ruler or not. The executive retains only minimal control over the officials, typically informal pressure such as a broad agreement for reciprocal military, political, or economic aid (e.g. the control of feudal lords in Medieval Europe). This can include officials who are selected and removed with or without the executive's control (i.e. hereditary control of an office by a certain kin-group)

♠ **Mixed** ♣ ♥ absent/present/unknown. Some combination of the above. Explain

♠ **Governmental control** ♣ ♥ absent/present/unknown. Can local-level officials be removed by a different governmental agency/body (e.g. judicial branch, or a specially appointed magistrate)?

♠ **Non-governmental oversight** ♣ ♥ absent/present/unknown. Can local-level officials be removed by a non-governmental group (religious, economic/trade group, social group)?

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♠ **Other** ♣ ♥ absent/present/unknown. Any other form of compensation not included in this list. Explain in paragraph

### Pathologies

♠ **Corruption** ♣ ♥ Is corruption of local bureaucrats widespread or systematic? Corruption is defined as the use of public office for personal purposes (economic gain, political power, social prestige). If present, code for frequency as: infrequent <10% of officials; widespread = 10-50%; pervasive >50%; unknown

♠ **Bribery** ♣ ♥ This refers specifically to the economic aspect of corruption. It attempts to capture the estimated proportion of local officials' income that comes from bribes and 'extra-legal' sources (e.g., kickbacks). If present, code for frequency as: negligible (<10%); significant (10-50%); majority (>50%); unknown

♠ **Abuse of power** ♣ ♥ This refers to non-economic aspects of corruption. For example, local officials can use their power to unjustly imprison or enslave others, expropriate land, destroy property, etc. If present, code for frequency as: infrequent <10% of officials; widespread = 10-50%; pervasive >50%; unknown



♠ **Professionalization of local bureaucracy** ♣ ♥ absent/present/unknown. Are local-level administrators full-time professionals (as opposed to people who undertake administrative tasks in addition to other work and activities)?

♠ **modal number of years local bureaucrats spend in service** ♣ ♥ are local-level officials typically life-long administrators, or is a short time spent in government service before pursuing other activities, such as private economic opportunities?

## Legal System

### Procedures of Legal System

♠ **Multiple legal systems** ♣ ♥ absent/present/unknown. There are multiple, competing legal systems present, for instance in a colonial state one system used by colonial authorities and another 'traditional' system used by colonized populations. Prototypical example is the coexistence of Greek and Pharaonic law in Ptolemaic Egypt

♠ **Courts are supported by the state** ♣ ♥ absent/present/unknown. Does the government devote a part of its tax revenues to the legal system?

♠ **Criminal Prosecution** ♣ ♥ absent/present/unknown. Defendants have legally defined rights and/or protections. Explain in paragraph

### Accessibility of the Legal System

This refers to the ability of people to appear in trials when charged of a crime. In other words, can any person charged with a crime, regardless of status or rank, have their case heard in a court, or is such a privilege reserved for elites only?

♠ **ruling elite** ♣ ♥ absent/present/unknown

♠ **non-ruling elite** ♣ ♥ absent/present/unknown. Social, religious, or economic elites not connected directly to government office

♠ **general population** ♣ ♥ absent/present/unknown

♠ **foreign groups** ♣ ♥ absent/present/unknown. People from other polities

♠ **ethnic groups** ♣ ♥ absent/present/unknown. All ethnic or cultural groups in the polity have access to legal information

### Accessibility of Trials

♠ **ruling elite** ♣ ♥ absent/present/unknown

♠ **non-ruling elite** ♣ ♥ absent/present/unknown. Social, religious, or economic elites not connected directly to government office

♠ **general population** ♣ ♥ absent/present/unknown

♠ **foreign groups** ♣ ♥ absent/present/unknown. People from other polities

♠ **ethnic groups** ♣ ♥ absent/present/unknown. All ethnic or cultural groups in the polity have access to legal information

### Accessibility of Courts

♠ **Courts in polity capital** ♣ ♥ absent/present/unknown

♠ **Courts in regional capitals** ♣ ♥ absent/present/unknown

♠ **Courts in provincial towns** ♣ ♥ absent/present/unknown

♠ **Typical speed of judicial proceedings in criminal cases** ♣ ♥ days/weeks/months/years. Code by order of magnitude

♠ **Typical speed of judicial proceedings in civil cases** ♣ ♥ days/weeks/months/years. Code by order of magnitude

## Informal Justice

♠ **Non-state judiciary** ♣ ♥ absent/present/unknown. Non-state organization or groups (elite, social group, community organization, economic group, etc.) can administer and enforce regulations that control or punish members' behavior without involvement of state. For example, a trade guild imposing fines on members for non-attendance at meetings

♠ **Religious judiciary** ♣ ♥ absent/present/unknown. Religious officials (defined here as religious groups, their leaders, or even religiously motivated individuals who are not leaders, e.g., Buddhist monks, street preachers) can administer and enforce regulations that control or punish members' behavior without involvement of state

## Property Rights

♠ **Private property (land)** ♣ ♥ absent/present/unknown. Individuals can legally own land (i.e. have usufruct, exclusivity, and right of partibility)

♠ **Usufruct** ♣ ♥ absent/present/unknown. Individuals can have personal right to use and enjoy fruits from property

♠ **Exclusivity** ♣ ♥ absent/present/unknown. Property holders can exclude others from their land, e.g. herders grazing animals, travelers seeking to use their land as a thoroughfare, etc.

♠ **Partibility** ♣ ♥ absent/present/unknown. Property holders have right to divide their land

♠ **Lease** ♣ ♥ absent/present/unknown. Property can be leased

♠ **Lease Rights** ♣ ♥ absent/present/unknown. Renters have legal protections against appropriation or predation from lessees

♠ **Transfer of property** ♣ ♥ absent/present/unknown. Owners of property can transfer part or all of their property as a gift or inheritance without interference or oversight from state or non-state group (i.e. religious organization)

♠ **Use of property** ♣ ♥ absent/present/unknown. The state or non-state groups (i.e. religious organization, economic collective, etc.) prescribe specific uses of property owned by individuals, i.e. growing particular crops on certain percentage of agricultural land

♠ **Property market** ♣ ♥ absent/present/unknown. Property can be sold by the owner by a price determined by the owner, without interference or oversight from state or non-state group (i.e. religious organization)

♠ **Other property ownership** ♣ ♥ absent/present/unknown. Individuals can own and exert control (i.e. enjoy usufruct and rights of partibility, exclusivity, transfer and sale) over property other than land. E.g. buildings, valuable objects such as jewelry, tools, etc.

## Inheritance System

These codes seek to identify the inheritance system(s) practice in the polity. Any combination of the below codes is possible, if multiple systems were employed (explain in descriptive sections)

♠ **partible inheritance** ♣ ♥ absent/present/unknown

♠ **patrilineal inheritance** ♣ ♥ absent/present/unknown. Inheritance is determined by relationship to the father / male lineage

♠ **matrilineal inheritance** ♣ ♥ absent/present/unknown. Inheritance is determined by relationship to the mother / female lineage

♠ **primogeniture inheritance by only males** ♣ ♥ absent/present/unknown. The first-born son inherits property

- ♠ **primogeniture inheritance by males and females** ♣ ♥ absent/present/unknown. First-born child, male or female, inherits property
- ♠ **other inheritance practices** ♣ ♥ absent/present/unknown. Describe in paragraph
- ♠ **Trusts** ♣ ♥ absent/present/unknown. Property, money, or shares in some productive enterprise can be put in a trust. Note whether individuals, state agents, or groups (businesses, trade collectives, religious groups, etc.) can be trustees
- ♠ **State expropriation** ♣ ♥ absent/infrequent/frequent/unknown. Government expropriates property without due process and/or adequate compensation
- ♠ **Non-state expropriation** ♣ ♥ absent/infrequent/frequent/unknown. Non-state agents expropriate property without due process and/or adequate compensation

## Equity

### Sex Class and Race

#### Marriage

- ♠ **Monogamy** ♣ ♥ absent/present/unknown. Monogamy is widely practiced, either by legal regulation or custom (explain which in paragraph)
- ♠ **Formal Elite Polygamy** ♣ ♥ absent/present/unknown. Polygamy is widely practiced amongst the elite class by legal regulation (i.e. multiple spouses are each recognized by law)
- ♠ **Informal Elite Polygamy** ♣ ♥ absent/present/unknown. Polygamy is widely practiced amongst the elite class through custom, but spouses are not officially recognized by law
- ♠ **Elite Concubinage** ♣ ♥ absent/present/unknown. Elites reproduce with partners outside of a marriage relationship, with the children recognized as legitimate (at least in terms of being in the same upper social class as the parent)
- ♠ **Typical number of extramarital partners** ♣ ♥ With how many partners outside of a marriage relationship do elites typically produce offspring? Code as: none; one; few(2-9); many (10+)

#### Legal rights are different on the basis of:

- ♠ **Gender** ♣ ♥ yes/no/unknown
- ♠ **Social class** ♣ ♥ yes/no/unknown
- ♠ **Ethnicity or race** ♣ ♥ yes/no/unknown

## Discrimination

### Discrimination on the basis of gender (include de facto discrimination even when there are no explicit legal restrictions)

- ♠ **Bureaucratic positions are open to both males and females** ♣ ♥ yes/no/unknown
- ♠ **Promotion in administrative positions is open to both males and females** ♣ ♥ yes/no/unknown
- ♠ **Education is available to both males and females** ♣ ♥ yes/no/unknown
- ♠ **Property can be owned by both males and females** ♣ ♥ yes/no/unknown

### Discrimination on the basis of social class (include de facto limitations even when there are no explicit legal restrictions)

- ♠ **Bureaucratic positions are open to people from all social classes** ♣ ♥ yes/no/unknown
- ♠ **Promotion in administrative positions is open to people from all social classes** ♣ ♥ yes/no/unknown
- ♠ **Education is available to people from all social classes** ♣ ♥ yes/no/unknown
- ♠ **Property can be owned by people from all social classes** ♣ ♥ yes/no/unknown

### Discrimination on the basis of ethnicity/race

- ♠ **Bureaucratic positions are open to people from all ethnic/racial groups** ♣ ♥ yes/no/unknown
- ♠ **Promotion in administrative positions is open to people from all ethnic/racial groups** ♣ ♥ yes/no/unknown
- ♠ **Education is available to people from all ethnic/racial groups** ♣ ♥ yes/no/unknown
- ♠ **Property can be owned by people from all ethnic/racial groups** ♣ ♥ yes/no/unknown

## Social Mobility

### Status

#### Elite status

- ♠ **elite status is hereditary** ♣ ♥ absent/present/unknown. Members of the 'elite' inherit their status and positions. If the ruler position is inherited most of the time, then these are sufficient grounds to code this variable as present
- ♠ **elite status is selected** ♣ ♥ absent/present/unknown. Elite status is awarded to people based on merit, competition, particular achievements (e.g. military victory). Explain in paragraph
- ♠ **formal system of hereditary social status** ♣ ♥ absent/present/unknown. There is a formal system of hereditary social class or rank, e.g. the caste system of India or the Honorary Ranks bestowed during the Qin Empire in China

♠ **social mobility** ♣ ♥ absent/present/unknown. If there is a class system, is it possible for individuals to attain different ranks/levels (as opposed to the class being inherited from generation to generation)?

♠ **recruitment of chief executive** ♣ ♥ lower/equal/higher. What is the lowest social status of a person who attained the chief executive position? Code as: higher (than top nobility), as in the chief executive; equal (to top nobility); lower (than top nobility). For instance, Liu Bang (Gaozu) was a humble citizen of the State of Han and became the Emperor of all China through a successful coup

♠ **extreme status elevation** ♣ ♥ absent/present/unknown. There are known instances of people from lower social classes or ethnic groups attaining the highest positions of social prominence (political, social, or economic), e.g. the novus homo in Rome (such as Cicero), Henry Ford in the 20th c. US, or other 'self-made' people

♠ **extreme status diminution** ♣ ♥ absent/present/unknown. There are known instances of people from higher social classes or ethnic groups moving into low-status positions (political, social, or economic). E.g., a Khmer noble who challenged the king had his toes cut off, stripped of his nobility, and treated as a criminal. This includes criminals stripped of status through legal mechanisms as well as people who lost status through other means (whim of the Emperor, etc.). Explain in the paragraph

♠ **occupational mobility** ♣ ♥ absent/present/unknown. People are free to choose and to change their careers or occupations; i.e. there is a functioning job market. This is opposed to occupations that are hereditary such as certain trade guilds, indentured serfdom, or slavery

### Slavery

♠ **Proportion of population enslaved** ♣ ♥ Give an estimate of the total population of the polity which was enslaved in any form, to the nearest 10% (providing ranges, e.g. 20-40%, is fine).

♠ **Proportion of population enserfed** ♣ ♥

#### Types

- ♠ **Chattel slavery** ♣ ♥ absent/present/unknown. This refers to the right to own human beings as personal property
- ♠ **Elite slavery** ♣ ♥ absent/present/unknown. This refers to military or administrative slaves, such as mameluks, janissaries, scribes, court eunuchs, etc.

♠ **Bonded serfdom** ♣ ♥ absent/present/unknown Serfs are peasants that are bonded to particular land. They cannot move away and are required to work the land. If 'serfs' themselves can be bought or sold, code as slaves (maybe need an intermediate category)

♠ **Corvée labor to a landowner** ♣ ♥ absent/present/unknown. Labor requirements owed to owners or holders of private land by lessors, serfs, or other dependent or semi-dependent people

♠ **Corvée labor to the state** ♣ ♥ absent/present/unknown

## Restraints

♠ **Owners can execute slaves** ♣ ♥ yes/no/unknown. This is either legal or customary right

♠ **Owners can impose corporal punishment on slaves** ♣ ♥ yes/no/unknown. This is either legal or customary right to inflict severe pain, e.g. flogging

♠ **Corporal punishment by the state** ♣ ♥ yes/no/unknown. This is either legal or customary right of state agents or officials to inflict severe pain or death, e.g. flogging, mutilation, execution, on criminals or dissidents.

## Religion and Normative Ideology

### Description of Religious or Normative Ideology System

We are interested here in any systems of thought and behavior that can influence people's actions, which we term a *Normative Ideology*. Normative ideologies are thought-systems concerned with the correct behavior of people, governments/leaders, and other groups (and particularly the relationships between these groups).

Mainly, this will be a religious or ritual system. As usual, when we mention Religious or Ritual System our focus is on the 'official cult', defined the same way as in the Rituals section: With the official cult we refer to the set of collective religious practices that are most closely associated with legitimation of the power structure (including elites, if any). However, Normative Ideologies are not restricted to religious/ritual systems. They include other thought systems, such as philosophy or anything that prescribes a particular pattern of behaviour. An example is classical Greek philosophy, such as the works of Plato and Aristotle, who were concerned with correct or moral behaviour and whose thoughts influenced the actual practice of several societies (the empire of Alexander the Great, notably).

♠ **RA** ♣ ♥ The name of the research assistant or associate who coded the data. If more than one RA made a substantial contribution, list all.

♠ **Expert** ♣ ♥ The name of the historical or archaeological expert who supervised coding and checked/improved/approved the result. If more than one expert was involved, list all.

♠ **Name of Official Cult** ♣ ♥ With the official cult we refer to the set of collective ritual practices that are most closely associated with legitimation of the power structure (including elites, if any).

♠ **alternate Names of Official Cult** ♣ ♥

♠ **Name of other significant religious or ideological systems** ♣ ♥ Here, we are looking for religious or ideological systems (e.g. moralizing philosophical schools) that were practiced by a large number of inhabitants in a polity (more than 10% as a rough guide) apart from the official cult. Examples include Classical Athens, where the official polis cult was a traditional pan-hellenic form of polytheistic worship, though many citizens followed philosophical ideals such as Socratic philosophy.

♠ **Description of the Normative Ideology** ♣ ♥ Please provide here general information about the religious system and/or other ideological systems that were used to generate the codes below. This will help to orient readers in interpreting the data on specific variables coded below. Explain why this particular system was chosen for coding this polity.

## Deification of Rulers

(‘gods’ is a shorthand for ‘supernatural agents’)

♠ **Rulers are legitimated by gods** ♣ ♥ absent/present/unknown. For example, rulers are blessed by gods; the institution of kingship is ordained by heaven

♠ **Rulers control supernatural energy** ♣ ♥ absent/present/unknown. Do rulers control supernatural energy or is the energy entirely in the possession of the god/s. For example, mana.

♠ **Rulers are descendants of gods** ♣ ♥ absent/present/unknown

♠ **Rulers become gods after death** ♣ ♥ absent/present/unknown

♠ **Automatic deification** ♣ ♥ absent/present/unknown. Rulers become gods after their death as a matter of course (for instance, Egyptian pharaohs), as opposed to rulers who are posthumously deified as a special privilege, even if this privilege becomes a de facto guarantee (for instance, Roman Emperors)

♠ **Rulers are gods** ♣ ♥ absent/present/unknown.

## Normative Ideological Aspects of Equity and Prosociality

These codes refer to acts undertaken without direct compulsion from or out of adherence to a religious system (religious aspects of prosociality are coded below)

♠ **Ideological reinforcement of equality** ♣ ♥ absent/present/unknown. Religious doctrine, philosophical statements, or practice makes claims about equality. For instance, explicit statements by religious groups or influential philosophers that all humans are equal

♠ **Ideological thought equates rulers and commoners** ♣ ♥ absent/present/unknown

♠ **Ideological thought equates elites and commoners** ♣ ♥ absent/present/unknown

♠ **Ideological thought equates all ethnicities** ♣ ♥ absent/present/unknown. Includes ‘race’

♠ **Ideological thought equates men and women** ♣ ♥ absent/present/unknown

♠ **Ideological thought equates people of all locations** ♣ ♥ absent/present/unknown. People are seen as equal regardless of where they are from (regardless of whether other equalities are also observed, for instance gender)

♠ **Ideological thought distinguishes rulers and commoners** ♣ ♥ absent/present/unknown

♠ **Ideological thought distinguishes elites and commoners** ♣ ♥ absent/present/unknown

♠ **Ideological thought distinguishes all ethnicities** ♣ ♥ absent/present/unknown. Includes ‘race’

♠ **Ideological thought distinguishes men and women** ♣ ♥ absent/present/unknown

♠ **Ideological thought distinguishes people from different locations** ♣ ♥ absent/present/unknown.

People from certain areas (i.e. holy centers, such as Israel or Mecca, are seen as superior or have special privileges (tax breaks, etc.) compared to people from other places, regardless of whether other equalities are also observed, for instance gender

♠ **Ideological reinforcement of inequality** ♣ ♥ absent/present/unknown. Religious doctrine, philosophical statements, or practice makes claims about inequality. For instance, explicit statements by religious groups that a certain gender or social group is inherently superior to others

♠ **Ideological reinforcement of monogamy** ♣ ♥ absent/present/unknown. Religious doctrine, philosophical statements, or practice encourages or demands monogamy among its adherents

♠ **Ideology reinforces prosociality** ♣ ♥ absent/present/unknown. Religious doctrine, philosophical statements, or practice makes claims about engaging in activity for the benefit of a wider community, for instance Christian traditions of alms-giving or Islamic sadaqah

♠ **charity** ♣ ♥ absent/present/unknown

♠ **production of public goods** ♣ ♥ absent/present/unknown. Public Goods refer to anything that incurs cost to an individual or group of individuals, but that can be used or enjoyed by others who did not incur

any of the cost, namely the public at large. They are non-excludable and non-rivalrous goods. Examples are roads, public drinking fountains, public parks or theatres, temples open to the public, etc.

♠ **communal dining** ♣ ♥ absent/present/unknown. Religious doctrine, philosophical statements, or practice encourages or demands that members of the religious system dine communally, for instance breaking of Ramadan fasting in the Islamic tradition

♠ **morality** ♣ ♥ absent/present/unknown. Any claims made by religious doctrine, philosophical statements, or practice about proper moral behavior. Include anything that is not covered below

## Normative Ideological Aspects of Slavery

♠ **Ideology forbids slavery for co-ethnics** ♣ ♥ absent/present/unknown (includes 'race')

♠ **Ideology forbids slavery for co-religionists** ♣ ♥ absent/present/unknown

♠ **Ideology forbids slavery universally** ♣ ♥ absent/present/unknown

## Normative Ideological Aspects of Human Sacrifice

**Human sacrifice** (HS) is defined as deliberate and ritualized killing of an individual to please or placate supernatural beings. Common examples of supernatural beings are gods and ancestors, including a recently deceased one. In other words, sacrificing humans to follow a high-status individual in the afterlife is a legitimate example of HS. HS is distinct from capital punishment, however, even for offenses against religion (e.g., burning of heretics, punishment of vestals for transgressions). Such practices should be coded as **Capital Punishment for Religious Offenses**. Execution of 'witches' even if regularly occurring at funerals of a high-status individual is not HS. We can reflect such practices under **Capital Punishment for Witchcraft**. See Law, Robin. 1985. Human Sacrifice in Pre-Colonial West Africa. *African Affairs* 84 (334):53-87 for further discussion. There are several distinct categories of HS listed below. First code any special kinds of HS that are present in the (quasi)polity. Then code the general code (**Human sacrifice**) based on the codes for special kinds of HS. Note that HS is also coded under Rituals; here, however, we address general features of HS not tied to any particular ritual.

♠ **Human sacrifice** ♣ ♥ 0-5/Unknown To code this HS scale first code special kinds listed below. Then use the explanation below to assign a numerical code. Indicate uncertainty and disagreement in the usual way. 5: HS of high-status or relative is present (or both) 4: HS of low-status, but not high status/relative 3: HS of out-group only 2: HS is condemned by an influential figure 1: HS is not practiced 0: Official cult forbids HS (the official cult is defined in the Rituals section)

♠ **human sacrifice of an out-group member** ♣ ♥ i.e. an individual who is not considered part of the group performing the ritual, for example: war prisoner or member of a different religion

♠ **human sacrifice of an in-group member** ♣ ♥ This position has several special cases

♠ **human sacrifice of a low-status individual** ♣ ♥ e.g., slave or servant

♠ **human sacrifice of a criminal** ♣ ♥

♠ **human sacrifice of a high status individual** ♣ ♥ e.g., ruler's retainers; ruler's consort

♠ **human sacrifice of a relative** ♣ ♥ e.g. sacrificing the first-born son

♠ **human sacrifice of other** ♣ ♥ Leave uncoded, unless HS ritual doesn't fit any of the above categories, or the victims' status is unknown. Explain possible causes or targeted group.

♠ **Maximum known number of victims in a HS event** ♣ ♥

♠ **Capital Punishment for Religious Offenses** ♣ ♥ RA: code here any borderline cases resembling HS that you encounter in your research. This is an opportunistic code rather than something that should be actively sought.

♠ **Capital Punishment for Witchcraft** ♣ ♥ RA: code here any borderline cases resembling HS that you encounter in your research. This is an opportunistic code rather than something that should be actively sought.

♠ **Influential figure forbids human sacrifice for in-group member** ♣ ♥ An 'influential figure' can be an ideological (religious) leader, e.g. a Jewish prophet, Chinese sage. Code this 'present' if such a figure is

known and 'unknown' in most other cases (it will be rare that we can code 'absent'). If the official cult forbids HS, leave this uncoded.

♠ **Influential figure forbids human sacrifice universally** ♣ ♥

♠ **Official cult forbids human sacrifice for in-group member** ♣ ♥

♠ **Official cult forbids human sacrifice universally** ♣ ♥

## Normative Ideological precepts concerning morality/supernatural beings

### Supernatural beings (e.g., gods, spirits, ancestors)

♠ **Number of officially sanctioned supernatural beings** ♣ ♥ None/monotheistic/polytheistic/unknown.

Include numeric estimates for polytheism in the description if known. Monotheism can be coded even if there are other, non-officially sanctioned supernatural beings that are part of the tradition (e.g., Satan).

♠ **Omnipresent supernatural beings** ♣ ♥ All-seeing supernatural beings who are present everywhere and can observe all actions, but can't necessarily read minds or know the intentions underlying actions. This includes cases where multiple gods cover all areas even if no single god does or if gods are invisible and may potentially be anywhere. Specify any limitations or gradations present.

♠ **Omniscient supernatural beings** ♣ ♥ absent/present/unknown. All-knowing, mind-reading supernatural beings who have access to all socially strategic information. If they only have access to some information, specify the nature and type.

♠ **Omnipotent supernatural beings** ♣ ♥ absent/present/unknown. All-powerful supernatural beings who can intervene in human affairs at will to punish/reward. If their powers are limited, specify any limitations or gradations present.

♠ **High Gods** ♣ ♥ absent/inactive/active/moralizing/unknown. As outlined by Murdock (1967:52), a high god follows the definition of Guy Swanson (1960: chapter III and appendix 1) as "a spiritual being who is believed to have created all reality and/or to be its ultimate governor, even though his sole act was to create other spirits who, in turn, created or control the natural world"... (1) "Absent or not reported," (2) "Present but not active in human affairs," (3) "Present and active in human affairs but not supportive of human morality" and (4) "Present, active, and specifically supportive of human morality" (Divale 2000)." This composite variable is also split up in sub-variables: "Creator Gods", "Supreme Ruler Gods", and "Supernatural Enforcement of Morality". These sub-variables are listed below.

♠ **Creator Gods** ♣ ♥ absent/present/unknown. A spiritual being who is believed to have created all reality.

♠ **Supreme Ruler Gods** ♣ ♥ absent/present/unknown. A spiritual being who is believed to be the ultimate governor of all reality.

**Supernatural Enforcement of Morality** For this section, include any type of supernatural punishment or reward either in this lifetime (e.g., curses, good fortune) or in the afterlife (e.g., hell, reincarnation). This includes generalized impersonal punishment/reward (e.g., karma, mana) as well as punishment by specific supernatural beings. Include specific details of the nature and extent of punishment/reward in the description. Code "compound" moral actions (e.g., filial piety = kin + respect) in multiple categories as necessary. Morality categories are based on Moral Foundations Theory (Haidt & Graham, 2007) and Morality-As-Cooperation theory (Curry, 2016). In general, we are contrasting enforcement of "moral"/"prosocial" behaviours directed between humans with that of "amoral"/"procedural" behaviours directed by humans towards supernatural beings (e.g., prayers, rituals, sacrifices, taboos).

♠ **supernatural enforcement against harm** ♣ ♥ absent/present/unknown. Supernatural punishment/reward related to the physical health and well-being of others (e.g., killing, hurting, compassion, cruelty).

♠ **supernatural enforcement of fairness** ♣ ♥ absent/present/unknown. Supernatural punishment/reward related to "fairness" (sharing of resources; e.g., dividing disputed resources, bargaining, redistribution of wealth).

♠ **supernatural enforcement of human reciprocity** ♣ ♥ absent/present/unknown. Supernatural punishment/reward related to reciprocity (e.g., fulfilling contracts, returning gifts, repaying debts, upholding trust).



- ♠ **supernatural enforcement of property rights** ♣ ♥ absent/present/unknown. Supernatural punishment/reward related to respect for others' property, possessions, and territory (e.g., it is immoral to steal or trespass)
- ♠ **supernatural enforcement of kinship obligations** ♣ ♥ absent/present/unknown. Supernatural punishment/reward regarding relationships with relatives (e.g., caring for children/siblings/cousins, obedience to parents/aunts/uncles, other obligations to kin, prohibitions against incest).
- ♠ **supernatural enforcement of in-group loyalty** ♣ ♥ absent/present/unknown. Supernatural punishment/reward related to the need to remain loyal to UNRELATED members of the same group (e.g., helping coreligionists, going to war for one's group).
- ♠ **supernatural enforcement of respect** ♣ ♥ absent/present/unknown. Supernatural punishment/reward related to being deferential, respectful, loyal or obedient to those above you in a hierarchy (based on age, sex, class, merit, power, etc.). Include respect for human religious agents here, but do not code respect for supernatural beings here, as it is coded below.
- ♠ **supernatural enforcement of bravery** ♣ ♥ absent/present/unknown. Supernatural punishment/reward related to the need to be strong, tough, brave, courageous, or heroic in battle or physical conflicts, including putting oneself at risk to help others.
- ♠ **supernatural enforcement of purity** ♣ ♥ absent/present/unknown. Supernatural reward related to purity (e.g., chastity, cleanliness, clothing, restrictions on foods/drinks) and/or punishment related to pollution (e.g. disease contamination, violation of taboos, contact with profane or bad sacred). Explain how purity was meant to be accomplished by adherents.
- ♠ **general supernatural enforcement of morality** ♣ ♥ Code this general variable as present if ANY of the preceding types of enforcement are present (i.e., harm, sharing, reciprocity, property, kinship, loyalty, respect, bravery, purity).
- ♠ **other supernatural enforcement** ♣ ♥ absent/present/unknown. Supernatural punishment/reward related to behaviors that do not seem to fit the preceding categories of interpersonal morality. In particular, note if there is enforcement of behaviours directed to appease supernatural beings (e.g., sacrifice, prayer, or other rituals required to appease gods; obeying taboos against touching/visiting sacred objects/grounds, etc.)

## Human Enforcement of Morality

- ♠ **care/harm** ♣ ♥ absent/present/unknown. Regulations about the physical health and well-being of others
  - ♠ **fairness/cheating** ♣ ♥ absent/present/unknown
  - ♠ **in-group loyalty** ♣ ♥ absent/present/unknown. Regulations about the need to remain loyal to other members of the same religious group. Explain in paragraph instances where manifestation of loyalty is expressed
  - ♠ **respect for authority** ♣ ♥ absent/present/unknown. Regulations about respect to either secular or religious authority, though explain which one is stressed (or if both are claimed)
  - ♠ **purity** ♣ ♥ absent/present/unknown. Explain how purity was meant to be manifested by adherents
  - ♠ **kinship** ♣ ♥ absent/present/unknown. Regulations about the need to help immediate family members (e.g. duties of parents to children such as being a nurturing mother and protective father, the obedience of children, and other obligations to immediate kin)
  - ♠ **bravery** ♣ ♥ absent/present/unknown. Regulations about the need to be strong, tough, brave, courageous, or heroic in battle or physical conflicts
  - ♠ **respect for property** ♣ ♥ absent/present/unknown. Regulations about the need to respect others' property, possessions, and territory (e.g., it is immoral to steal or trespass)
- ♠ **Moralistic punishment by human religious agents** ♣ ♥ absent/present/unknown. Instances of people being punished by religious agents (defined as religious groups, their leaders, or even religiously motivated individuals who are not leaders, e.g., Buddhist monks, street preachers)

## Type of punishment this typically entailed (can be more than one):

- ♠ **physical punishment** ♣ ♥ absent/present/unknown
- ♠ **exile** ♣ ♥ absent/present/unknown
- ♠ **loss/seizure of property or wealth** ♣ ♥ absent/present/unknown

♠ **loss of status** ♣ ♥ absent/present/unknown

### Extent of punishment (can be more than one):

♠ **punishment of rulers** ♣ ♥ absent/present/unknown

♠ **punishment of elites** ♣ ♥ absent/present/unknown

♠ **punishment of commoners** ♣ ♥ absent/present/unknown

## Moralizing Supernatural Powers

♠ **Moral concern is primary** ♣ ♥ absent/present/unknown. Moralizing religion is described as 'primary' when the principal moral concerns of supernatural agents or forces pertain to cooperation in human affairs. It is coded as absent when the primary concern is the behavior of humans towards the supernatural realm, e.g. by discharging ritual obligations such as performing sacrifices, laying out offerings, etc.

♠ **Moralizing enforcement is certain** ♣ ♥ absent/present/unknown. This variable reflects the predictability of supernatural punishment for transgression or reward for ethical behavior. A code of absence here could result from a variety of characteristics of supernatural agents: if they are fickle or capricious, if they can be bought off or tricked, or, alternatively, if they are not independently concerned about human morality and need to be persuaded or induced to punish transgressions.

♠ **Moralizing norms are broad** ♣ ♥ absent/present/unknown. This reflects how many aspects of morality deities care about and enforce. It is coded as absent when moralizing supernatural punishment/reward pertains to only very narrowly circumscribed domains, for example, kin-based moral precepts punishing incest or rewarding hospitality rather than enforcing moral norms across a broad range of social situations.

♠ **Moralizing enforcement is targeted** ♣ ♥ absent/present/unknown. This reflects whether punishment and rewards are targeted specifically at culpable individuals. It is coded as absent when the whole group is punished rather than just the individual transgressor. This reflects whether punishment and rewards are targeted specifically at culpable individuals. It is coded as absent when the whole group is punished rather than just the individual transgressor.

♠ **Moralizing enforcement of rulers** ♣ ♥ absent/present/unknown. This reflects whether supernatural forces or agents punish/reward rulers for their antisocial/prosocial behavior. It can be absent where such punishment is present generally, but rulers remain exempt.

♠ **Moralizing religion adopted by elites** ♣ ♥ absent/present/unknown. This reflects whether elites of the polity subscribe to a religion with moralizing elements. In some cases, only a vocal segment of the elites advocated a particular moralizing religion (for example, early Buddhists, some Christians, Confucians) but not entire elite populations.

♠ **Moralizing religion adopted by commoners** ♣ ♥ absent/present/unknown. This reflects the extent to which beliefs in a moralizing religion are adopted by the masses. A typical situation in which this variable is coded absent is when the state religion professed by rulers and elites, and endorsing beliefs in supernatural punishments and rewards, is different from the popular religion which lacks or professes only much weaker beliefs in supernatural enforcement. On the other hand, this variable might be coded as present, even while the Elites variable is coded absent, for example when popular religion emphasizes supernatural enforcement, but the religion of rulers and elites does not.

♠ **Moralizing enforcement in afterlife** ♣ ♥ absent/present/unknown. Reflects whether punishment is delayed until after the death of the transgressor

♠ **Moralizing enforcement in this life** ♣ ♥ absent/present/unknown. Reflects whether punishment occurs during transgressor's lifetime

♠ **Moralizing enforcement is agentic** ♣ ♥ absent/present/unknown. Reflects whether punishment/reward is administered by a supernatural agent, such as a deity or spirit (as opposed to being administered by an impersonal supernatural force, such as karma).

## Well-Being

### Economic Well-Being

### State Intervention in Economy

- ♠ **The state regulates banking** ♣ ♥ absent/present/unknown. The state sets the interest rate that can be charged or the duration of loans
- ♠ **Price controls** ♣ ♥ absent/present/unknown
- ♠ **Regulations against hoarding/stockpiling goods** ♣ ♥ absent/present/unknown
- ♠ **Regulations regarding usury** ♣ ♥ absent/present/unknown
- ♠ **Debt-relief measures** ♣ ♥ absent/present/unknown. Forgiving debts of large groups, liquidity measures (e.g. giving low- or no-interest loans to debtors), etc.
- ♠ **Pensions** ♣ ♥ absent/present/unknown
- ♠ **Standardization of weights/measures** ♣ ♥ absent/present/unknown
- ♠ **Guarantee stability of coin value** ♣ ♥ absent/present/unknown. State fixes the value of coinage, or establishes fixed exchange rate between different money denominations
- ♠ **Public markets** ♣ ♥ absent/present/unknown

## Contracts

- ♠ **State enforcement** ♣ ♥ absent/present/unknown. Contracts between individuals are enforced by the state and/or legal system
- ♠ **Non-state enforcement** ♣ ♥ absent/present/unknown. Contracts between individuals are enforced by non-state groups (communities, corporations or other economic group, religious organizations)
- ♠ **Corporate Agency** ♣ ♥ absent/present/unknown. A corporation (a collective agent) can be a legal party in contracts
- ♠ **State contracting** ♣ ♥ absent/present/unknown. Contracts can be made directly between the state and individuals and/or corporations
- ♠ **Limited Liability** ♣ ♥ absent/present/unknown. Individuals can make contracts or investments with limited liability, i.e. they are responsible to creditors only for a certain, limited sum commensurate with their investment

## Patronage

These codes refer to the access of people from different social groups to resources, both material (money, goods) and more ephemeral resources (introductions to high-ranking officials or financial mediators, aid in finding business partners, legal council, marriage brokerage etc.). Essentially, we are looking here to capture the degree of social capital or the social networks that the typical person would have access to

- ♠ **within-class formal patronage** ♣ ♥ absent/present/unknown. There is a system of patron-client relationships recognized in law, as in a patron-client relationship is established by formal contract which specifies and enforces the duties of each party, e.g. the patronus-cliens (patron-client) system in the Roman world or the keluarga angkat ('foster-family') system in Medieval and modern Indonesia. Explain in the paragraph the typical benefits thought to be received by each party
- ♠ **between-class formal patronage** ♣ ♥ absent/present/unknown. Formal patron-client relationship exists between members of different social class; i.e. an upper class patron enters a relationship with a client from a lower class or rank. This is opposed to relationships between social peers
- ♠ **within-class informal patronage** ♣ ♥ absent/present/unknown. There is a system of patron-client relationships that exists outside of any legal recognition, e.g. the semi-formalized xenia (foreign-guest friendship) in the classical Greek world or.... Explain in the paragraph the typical benefits thought to be received by each party
- ♠ **between-class informal patronage** ♣ ♥ absent/present/unknown. Informal patron-client relationship exists between members of different social class; i.e. an upper class patron enters a relationship with a client from a lower class or rank. This is opposed to relationships between social peers

## Public Goods

Note that 'Non-state' in the codes below can refer to elites, trade associations, community organizations, etc. Religious Agents refers to religious groups, their leaders, or even religiously motivated individuals who are not leaders (e.g., Buddhist monks, street preachers). When coding 'mixed' explain in the paragraph what the mix is

- ♠ **Famine relief** ♣ ♥ absent/present/unknown

♠ **provision of famine relief** ♣ ♥ state/non-state/religious-agents/mixed

♠ **Food storage** ♣ ♥ absent/present/unknown. Facilities used to store food meant for the community (village, town, particular social groups, etc.) rather than the exclusive use of the owners of the facility

♠ **provision of food storage** ♣ ♥ state/non-state/religious-agents/mixed

♠ **Alimentary supplementation** ♣ ♥ absent/present/unknown. Includes distribution of food and subsidized lower prices, also facilities used to store food meant for the community (village, town, particular social groups, etc.) rather than the exclusive use of the owners of the facility

♠ **provision of alimentary supplementation** ♣ ♥ state/non-state/religious-agents/mixed

♠ **Drinking water** ♣ ♥ absent/present/unknown. Publicly-accessible fountains, reservoirs, wells, aqueducts

♠ **provision of drinking water** ♣ ♥ state/non-state/religious-agents/mixed

♠ **Irrigation works** ♣ ♥ absent/present/unknown. Any irrigation work (reservoir, cistern, canals, etc) that serve groups of landholders, namely more than just private landowners irrigating their own property

♠ **provision of irrigation works** ♣ ♥ state/non-state/religious-agents/mixed

♠ **Health infrastructure** ♣ ♥ absent/present/unknown. Hospitals, asylums, recuperative spas or springs, public baths, etc.

♠ **Control of infectious disease** ♣ ♥ absent/present/unknown. E.g., quarantine

♠ **Care of war invalids/veterans** ♣ ♥ absent/present/unknown. This includes only care of large groups, beyond individuals providing care for one or two family members

♠ **Care of orphans** ♣ ♥ absent/present/unknown. This includes only care of large groups, beyond individuals providing care for one or two family members

♠ **Care of elderly** ♣ ♥ absent/present/unknown. This includes only care of large groups, beyond individuals providing care for one or two family members

♠ **State pensions for elites** ♣ ♥ absent/present/unknown

♠ **State pensions for non-elites** ♣ ♥ absent/present/unknown

## Entertainment and Knowledge Well-Being

♠ **Funding for festivals** ♣ ♥ absent/present/unknown

♠ **Entertainment buildings** ♣ ♥ absent/present/unknown. Theaters, conservatories, circuses, etc. (Theaters supported by the state or the elites are coded elsewhere; here it should be coded if they are simply present)

♠ **Theatres** ♣ ♥ absent/present/unknown

♠ **Arenas** ♣ ♥ absent/present/unknown. Includes race-tracks, sports arenas, gladiator fights

♠ **Ritual buildings/spaces** ♣ ♥ absent/present/unknown. Includes temples, churches, plazas, etc.

♠ **Other** ♣ ♥ Please specify.

♠ **accessibility of entertainment buildings** ♣ ♥ ruler/elite/general population

♠ **Full-time entertainment specialists** ♣ ♥ absent/present/unknown. This refers to full-time entertainment specialists, such as bards, minstrels, jongleurs, etc.

♠ **status of full-time entertainment specialists** ♣ ♥ lower/equal/higher/unknown. What is the highest social status of entertainment specialists? Code as: higher (than top nobility); equal (to top nobility); lower (than top nobility)

♠ **Access to education** ♣ ♥ Code: elite only (male and female); elite males only; all males; all people (male and female)

♠ **Publicly funded or subsidized education** ♣ ♥ absent/present/unknown. Identify what levels of education are publicly supported

♠ **Schools for children?** ♣ ♥ absent/present/unknown

♠ **Universities, “proto-universities”, or other higher education** ♣ ♥ absent/present/unknown. Colleges, seminaries, etc.

♠ **Libraries** ♣ ♥ absent/present/unknown

♠ **Museums** ♣ ♥ absent/present/unknown

♠ **Literacy rate** ♣ ♥ code as: complete/widespread/rare/absent/unknown

## Biological Well-Being

### Mortality

♠ **Life expectancy** ♣ ♥ life expectancy at some benchmark year, e.g. at 5 or 10 years (to distinguish from infant mortality, see below). Separate male from female life expectancy wherever information is known

♠ **Infant mortality** ♣ ♥ Proportion dying before 5 years old

### Disease

♠ **Endemic disease** ♣ ♥ absent/present/unknown. Fatal or debilitating disease is common and widespread. E.g. smallpox, malaria, cholera are known to have been fairly prevalent at certain times in the ancient Aegean and parts of the Near East and Africa. Explain the disease or condition and what evidence is available (osteological, historical, etc).

♠ **Disease outbreaks** ♣ ♥ absent/present/unknown. There are known instances of sporadic or one-time outbreak of fatal or debilitating disease. Explain the disease or condition and note the time-frame within which the disease was manifest

♠ **Endemic malnutrition** ♣ ♥ absent/present/unknown. Malnutrition is widespread. For example, skeletal materials reveal signs of nutritional deficiencies. E.g. disruptions in bone growth or the formation of tooth enamel and the high incidence of dental caries are suggestive of a diet overly dependent on carbohydrates.

### Physiology

♠ **Average height (male)** ♣ ♥ In meters. Separate male from female. Explain the basis of calculation (e.g., osteological data, recruit data, etc.)

♠ **Average height (female)** ♣ ♥ In meters. Separate male from female. Explain the basis of calculation (e.g., osteological data, recruit data, etc.)

## Prosocial Behavior

These codes refer to acts undertaken without direct compulsion from or out of adherence to a religious system (religious aspects of prosociality are coded above)

♠ **Volunteering** ♣ ♥ absent/present/unknown. Individuals regularly or routinely volunteer their labor for projects that benefit a larger community without direct compensation, e.g. military service, infrastructure building or upkeep, volunteering for militia or non-state police force, etc.

♠ **Charity** ♣ ♥ absent/present/unknown. Frequent and/or large-scale donations made for charitable purpose, namely an individual bears some cost (time, money, goods, physical well-being) to provide good or service to others without direct compensation. This includes acts of 'benefaction', where the patron expects an indirect

benefit from their donation (e.g. a wealthy elite giving a banquet for members of his community in the expectation, whether stated or not, that the community would then support his holding some office)

## Voluntary Associations

♠ **voluntary trade associations** ♣ ♥ absent/present/unknown. There are clubs or voluntary trade associations that people in the polity can join. Religious organizations are not included here. Describe in the paragraph what the association is, what the activities are, and roughly how ‘popular’ it is (estimate of the number of people who belong)

♠ **prestige of voluntary trade associations** ♣ ♥ lower/equal/higher/unknown. What is the lowest social status of people who can join? Code as: higher (than top nobility) as in the chief executive; equal (to top nobility); lower (than top nobility)

♠ **voluntary community organizations** ♣ ♥ absent/present/unknown. There are clubs or voluntary trade associations that people in the polity can join. Religious organizations are not included here. Describe in the paragraph what the association is, what the activities are, and roughly how ‘popular’ it is (estimate of the number of people who belong)

♠ **prestige of voluntary community organizations** ♣ ♥ lower/equal/higher/unknown. What is the lowest social status of people who can join? Code as: higher (than top nobility) as in the chief executive; equal (to top nobility); lower (than top nobility)

♠ **voluntary athletic clubs** ♣ ♥ absent/present/unknown. There are clubs or voluntary trade associations that people in the polity can join, such as sale d’armes clubs, hunting clubs, etc. Religious organizations are not included here. Describe in the paragraph what the association is, what the activities are, and roughly how ‘popular’ it is (estimate of the number of people who belong)

♠ **prestige of voluntary athletic clubs organizations** ♣ ♥ lower/equal/higher/unknown. What is the lowest social status of people who can join? Code as: higher (than top nobility) as in the chief executive; equal (to top nobility); lower (than top nobility)

♠ **other voluntary organizations** ♣ ♥ absent/present/unknown. There are clubs or voluntary trade associations that people in the polity can join. Religious organizations are not included here. Describe in the paragraph what the association is, what the activities are, and roughly how ‘popular’ it is (estimate of the number of people who belong)

♠ **prestige of other voluntary organizations** ♣ ♥ lower/equal/higher/unknown. What is the lowest social status of people who can join? Code as: higher (than top nobility) as in the chief executive; equal (to top nobility); lower (than top nobility)

♠ **voluntary religious associations** ♣ ♥ absent/present/unknown. There are religious clubs or organizations that people in the polity can join that are not connected to or supported by the state, e.g. Serapeia (places for followers of the Serapis Cult to worship) in Roman Egypt, or Jewish communities that formed and were accepted in Christian countries in Medieval Europe. Describe in the paragraph what the association is, what the activities are, and roughly how ‘popular’ it is (estimate of the number of people who belong)

♠ **prestige of voluntary religious associations** ♣ ♥ lower/equal/higher/unknown. What is the lowest social status of people who belong? Code as: higher (than top nobility) as in the chief executive; equal (to top nobility); lower (than top nobility)

## Economy variables (polity-level)

### State Income

♠ **Tribute** ♣ ♥ absent/present/unknown. Goods or services given from a group not directly under the control of the ruler or under no specific, formalized obligation to give (unlike a tax). Explain in paragraph what group was giving tribute (foreign tribe, semi-autonomous elite rulers, etc.)

♠ **Staple** ♣ ♥ absent/present/unknown. e.g. grain

♠ **Labor** ♣ ♥ absent/present/unknown. e.g. corvée

♠ **Currency** ♣ ♥ absent/present/unknown. taxes paid in money

## Debt and Indemnities

♠ **Polity has obligation to other polity or group** ♣ ♥ absent/present/unknown. I.e. a polity owes a war indemnity after defeat in battle or must pay a tribute to another state or group to prevent raid or attack (e.g. payments to Xiongnu by early imperial Chinese leaders). Explain what form the obligation took (money, goods, prisoners, etc.) and frequency of payments, if known

♠ **Polity receives obligatory payment from other polity or group** ♣ ♥ absent/present/unknown. I.e. a polity owed a war indemnity by defeated enemy or is paid a tribute by another state or group to prevent raid or attack. Explain what form the obligation took (money, goods, prisoners, etc.) and frequency of payments, if known

## Taxation

♠ **Degree of taxation** ♣ ♥ ??

**Taxes are imposed on:**

♠ **Land** ♣ ♥ absent/present/unknown

♠ **Property** ♣ ♥ absent/present/unknown. (other than land, e.g. luxury taxes, wealth taxes)

♠ **People** ♣ ♥ absent/present/unknown. (taxes are imposed on individuals, or on households These are not income taxes - see below)

♠ **Trade** ♣ ♥ absent/present/unknown

♠ **Income** ♣ ♥ absent/present/unknown

♠ **Production** ♣ ♥ absent/present/unknown. (other than agricultural production, i.e. harvest taxes)

**Taxes are imposed by:**

♠ **executive or ruling elite** ♣ ♥ absent/present/unknown

♠ **local elites** ♣ ♥ absent/present/unknown

♠ **state officials** ♣ ♥ absent/present/unknown

**Type of taxes paid:**

♠ **Staple** ♣ ♥ absent/present/unknown. (e.g. grain)

♠ **Labor** ♣ ♥ absent/present/unknown. (e.g., corvée)

♠ **Currency** ♣ ♥ absent/present/unknown. (taxes paid in money)

## Wages and Costs

♠ **Wages** ♣ ♥ typical annual salary of a laborer; describe the job and what the medium of payment is (coin, goods, vouchers, etc.). Repeat if there is wage information for multiple jobs at different rates

♠ **staple cost of principal source of carbohydrates** ♣ ♥ give known median price of the chief carbohydrate source (e.g., cost for a standardized measure of rice, wheat, maize, oats, or a loaf of bread; see list in the productivity section). Explain what form the quoted cost takes (unit of account, coinage, other good, etc.) and the amount included in the price. If the staple price of the chief carbohydrate is not given, provide the cost of an alternative staple

♠ **Top fortune** ♣ ♥ give estimate of the wealth of the 'richest' person in the polity where known (can be a relative of the ruler, but not the ruler him/herself). Explain in what form the wealth is expressed (money, property, etc.)

♠ **Other wealth distribution** ♣ ♥ provide any other information on income and wealth distribution that can be found. For instance, if there are estimates of the proportion of GDP held by the wealthiest 10% of the population, or estimates about the number of people in each 'rank' or group containing wealth requirements (i.e. Senators in the Roman Republic and Principate)

## Agriculture, Economy, and Population Variables (NGA-based)

*Note that the variables in this section are coded not by polity, but by NGA (Natural Geographic Area) Ideally these should be coded from historical or ethnographic information but make clear where codes are inferred using contemporary or ethnographic information about agricultural practices.*

## Economy and Technology variables (NGA-Level)

♠ RA ♣ ♥

♠ Expert ♣ ♥

♠ Editor ♣ ♥

### Energy Sector

#### Fuel

♠ Wood ♣ ♥ absent/present/unknown

♠ Coal ♣ ♥ absent/present/unknown

♠ Water power ♣ ♥ absent/present/unknown

♠ Wind power ♣ ♥ absent/present/unknown. This includes wind-powered mills

♠ Oils or other combustibles ♣ ♥ absent/present/unknown. Describe what combustibles are known

#### Animal Energy

♠ Animals used in transport ♣ ♥ absent/present/unknown

♠ Animals used for agricultural labor ♣ ♥ absent/present/unknown

♠ Animals used in the military ♣ ♥ absent/present/unknown

### Metals Sector

#### Mining



♠ **Domestic mining** ♣ ♥ absent/present/unknown. Mines are known to have been exploited within the NGA territory

♠ **State control over mining** ♣ ♥ absent/present/unknown. The state holds a monopoly over the extraction of metal resources (explain in paragraph which metals the state monopolizes)

♠ **Intensity of mining** ♣ ♥ absent/present/unknown. There is evidence for mines within polity territory being exhausted

## Metallurgy

♠ **Copper** ♣ ♥ absent/present/unknown

♠ **State monopoly over copper production** ♣ ♥ absent/present/unknown. The state holds a monopoly over the production of copper goods

♠ **Bronze** ♣ ♥ absent/present/unknown

♠ **State monopoly over bronze production** ♣ ♥ absent/present/unknown. The state holds a monopoly over the production of bronze goods

♠ **Iron** ♣ ♥ absent/present/unknown

♠ **State monopoly over iron production** ♣ ♥ absent/present/unknown. The state holds a monopoly over the production of iron goods

♠ **Steel** ♣ ♥ absent/present/unknown

♠ **State monopoly over steel production** ♣ ♥ absent/present/unknown. The state holds a monopoly over the production of steel goods

## Armor

♠ **Metal used in armor** ♣ ♥ absent/present/unknown

♠ **Roughly what % of soldiers could afford any metal armor?** ♣ ♥

## Agricultural Tools

♠ **Metal tools** ♣ ♥ absent/present/unknown

## Food

♠ **Metal vessels or utensils used in food preparation** ♣ ♥ absent/present/unknown

## Coinage

♠ **Metal currency** ♣ ♥ absent/present/unknown

♠ **gold** ♣ ♥ absent/present/unknown

♠ **silver** ♣ ♥ absent/present/unknown

♠ **electrum** ♣ ♥ absent/present/unknown

♠ **copper** ♣ ♥ absent/present/unknown

♠ **bronze** ♣ ♥ absent/present/unknown

♠ **iron** ♣ ♥ absent/present/unknown

♠ **nickel** ♣ ♥ absent/present/unknown

♠ **tin** ♣ ♥ absent/present/unknown

♠ **billon** ♣ ♥ absent/present/unknown

♠ **Relative value of different metal currency** ♣ ♥ what is the exchange rate between gold, silver, and non-precious metal coins (e.g.: 1 gold : 25 silver : 100 bronze)

## Construction Sector

### Materials used in building industry

♠ **Wood** ♣ ♥ absent/present/unknown

♠ **Mud-Brick** ♣ ♥ absent/present/unknown

♠ **Plants** ♣ ♥ absent/present/unknown. E.g. reeds, dried leaves, etc.

♠ **Stone** ♣ ♥ absent/present/unknown

♠ **Mortar** ♣ ♥ absent/present/unknown

♠ **Metal** ♣ ♥ absent/present/unknown. E.g. nails, metal support beams or scaffolding, etc.

♠ **Plaster** ♣ ♥ absent/present/unknown

### Sophistication of building techniques

♠ **Multi-storied buildings** ♣ ♥ absent/present/unknown

♠ **Arches** ♣ ♥ absent/present/unknown

♠ **Domed roofs** ♣ ♥ absent/present/unknown

♠ **Cement mortar** ♣ ♥ absent/present/unknown

♠ **Large capacity building** ♣ ♥ absent/present/unknown. Buildings that can hold 75,00 plus people ??

♠ **Other** ♣ ♥ absent/present/unknown. Please specify

## Housing

♠ **Median residence size** ♣ ♥ estimate order of magnitude for houses of state officials, elites, and commoners

♠ **Typical household unit** ♣ ♥ immediate family/extended family/multi-family. Code for the size of a 'typical' household (i.e. median sized residence of non-elite household unit) in terms of the relationship between the people living in the residence, either parents with children (immediate), parents, children, grandparents, first and second cousins (extended), or large groups of unrelated or only loosely related, i.e. third cousins and beyond (multi-family)

♠ **Gender separation** ♣ ♥ absent/present/unknown. The 'typical' household (i.e. median sized residence of non-elite household unit) has distinct spaces for different genders. E.g. men and women in a family sleep in separate rooms, or women with young children reside in a different building or floor than the main living area

♠ **Domestic public space** ♣ ♥ absent/present/unknown. The 'typical' household (i.e. median sized residence of non-elite household unit) has an area accessible to the public, whether directly accessible from the exterior of the building or a space in the interior designated for visitors (e.g. a large atrium or reception room)

♠ **household water supply** ♣ ♥ absent/present/unknown. Code whether the 'typical' household (i.e. median sized residence of non-elite household unit) has immediate access to drinking water. The codes below specify the type of access

♠ **in-unit well** ♣ ♥ absent/present/unknown. A well located within the house for the exclusive use of the household

♠ **external well** ♣ ♥ absent/present/unknown. A well located near the house, shared with other households

♠ **in-unit basin** ♣ ♥ absent/present/unknown. Water is collected from natural source (rain water, river run-off, waterfall,

etc.) and stored within the house for the exclusive use of the household

♠ **external basin** ♣ ♥ absent/present/unknown. Water is collected from natural source (rain water, river run-off, waterfall, etc.) and stored outside of the house, shared with other households

♠ **in-unit natural water supply** ♣ ♥ absent/present/unknown. Water is brought in from a distant source by pipes or troughs (ceramic, metal, etc.) through natural force, i.e. gravity, into the house for the exclusive use of the household (e.g. qanat channels in the Middle East flowing or Greco-Roman aqueduct into a private household or housing complex)

♠ **external natural water supply** ♣ ♥ absent/present/unknown. Water is brought in from a distant source by pipes or troughs (ceramic, metal, etc.) through natural force, i.e. gravity, into a common area for the use of the multiple households (e.g. qanat channels in the Middle East flowing or Greco-Roman aqueduct into a private household or housing complex)

♠ **indoor plumbing** ♣ ♥ absent/present/unknown. Water is brought from an underground reservoir or common source into a house through mechanical processes, i.e. pressurization including saqiya-type water wheels and similar devices

## Monumental Architecture

The most impressive/costly building(s) Name and describe the most impressive/costly building(s) in the narrative paragraph. Also score all of them for:

♠ **height** ♣ ♥ in m

♠ **extent** ♣ ♥ in m (the horizontal dimension along the longest axis)

♠ **cost** ♣ ♥ in people-years.

## Funerary Construction

♠ **Urn burials** ♣ ♥ absent/present/unknown. Urns containing cremated ash are buried in the ground. Describe type of burial (shaft, niche, etc.)

♠ **Child burials** ♣ ♥ absent/present/unknown. Children given separate and fairly opulent burials

♠ **Sarcophagus** ♣ ♥ absent/present/unknown. Bodies are interred in box-like container

♠ **Stone sarcophagi** ♣ ♥ absent/present/unknown

♠ **Wood sarcophagi** ♣ ♥ absent/present/unknown

♠ **Textile sarcophagi** ♣ ♥ absent/present/unknown. Shrouds, linen wrappings, etc.

♠ **Crypt tombs** ♣ ♥ absent/present/unknown. Permanent, subterranean brick- or stone-lined structures containing one or more bodies

♠ **Burial mounds** ♣ ♥ absent/present/unknown. Large mounds of earth containing bodies above ground level

♠ **Monumental tombs** ♣ ♥ absent/present/unknown. Large, permanent above-ground structures for burial, e.g. pyramid, mausoleum, etc.

♠ **Accessibility of monumental tombs** ♣ ♥ lower/equal/higher/unknown. What is the lowest social status of people buried in monumental tombs? Code: higher than top nobility (and non-state social elite); equal to top nobility; lower than top nobility

## Opulence of funerary practices

♠ **Coins found in burials** ♣ ♥ absent/present/unknown. Metal buried alongside bodies in funerary contexts

♠ **Frequency of coins in burials** ♣ ♥ lower/equal/higher/unknown. What is the lowest social status of people buried with coinage? Code: higher than top nobility (and non-state social elite); equal to top nobility; lower than top nobility

♠ **Metal goods other than coins found in burials** ♣ ♥ absent/present/unknown. Metal goods other than coins buried alongside bodies in funerary contexts. E.g. metal vessels, mirrors, etc.

♠ **Frequency of metal goods other than coins in burials** ♣ ♥ lower/equal/higher/unknown. What is the lowest social status of people buried with metal goods other than coins? Code: higher than top nobility (and non-state social elite); equal to top nobility; lower than top nobility

♠ **Jewelry found in burials** ♣ ♥ absent/present/unknown. Jewelry buried alongside bodies in funerary contexts

♠ **Frequency of jewelry in burials** ♣ ♥ lower/equal/higher/unknown. What is the lowest social status of people buried with jewelry? Code: higher than top nobility (and non-state social elite); equal to top nobility; lower than top nobility

♠ **Weapons or armor found in burials** ♣ ♥ absent/present/unknown. Any weapons or armor buried alongside bodies in funerary contexts. Describe type of weapons / armor

♠ **Frequency of weapons or armor in burials** ♣ ♥ lower/equal/higher/unknown. What is the lowest social status of people buried with weapons / armor? Code: higher than top nobility (and non-state social elite); equal to top nobility; lower than top nobility

♠ **Ceramics found in burials** ♣ ♥ absent/present/unknown. Any ceramic goods buried alongside bodies in funerary contexts

♠ **Frequency of ceramics in burials** ♣ ♥ lower/equal/higher/unknown. What is the lowest social status of people buried with ceramic goods? Code: higher than top nobility (and non-state social elite); equal to top nobility; lower than top nobility

♠ **Retainer burials** ♣ ♥ absent/present/unknown. Any instances of retainers (slaves, servants, etc.) killed and buried alongside another person or group being buried

♠ **Frequency of retainer burials** ♣ ♥ lower/equal/higher/unknown. What is the lowest social status of people buried with retainers? Code: higher than top nobility (and non-state social elite); equal to top nobility; lower than top nobility

# Banking and Finance Sector

♠ **Deposit Banks** ♣ ♥ absent/present/unknown. There are groups, institutions, or individuals who take and manage deposits of money or other forms of wealth

♠ **Investment Banking** ♣ ♥ absent/present/unknown. There are groups, institutions, or individuals who lend money or other forms of wealth out at interest to individuals

♠ **State controlled banking** ♣ ♥ absent/present/unknown. Banks owned and operated by government agents

♠ **Impersonal banking** ♣ ♥ absent/present/unknown. Banks can be utilized by any member of the society. The alternative is that bankers only work with friends, relatives, and people in their own social networks, for instance low-interest loans made to amici (friends) by elites in the Roman Empire

♠ **Financial Intermediation** ♣ ♥ absent/present/unknown. There are groups or institutions apart from individuals, for instance investment fund firms, that invest in projects such as building projects or shipping ventures

♠ **State controlled financial intermediation** ♣ ♥ absent/present/unknown. Institutions providing financing owned and operated by government agents

♠ **Impersonal financing** ♣ ♥ absent/present/unknown. Money from financial intermediaries available to anyone with valid collateral and prospects for repayment. The alternative is that financial intermediaries only work with friends, relatives, and people in their own social networks, for instance a RoSCA (Rotating Savings and Credit Association)

♠ **Corporate activity** ♣ ♥ absent/present/unknown. There are groups who organize to conduct business, such as investing in a trade mission. The classic example is the V.O.C. (Vereenigde Oostindische Compagnie - Dutch East India Company), but could include earlier forms of corporate activity such as craft guilds buying land to let out to tenants, for example

♠ **Inflation** ♣ ♥ absent/present/unknown. Record any example of inflation noted in sources. Also indicate any instances of debasement of currency or replacement of low-denomination currency by higher denominations

♠ **Monetization of economy** ♣ ♥ complete/high/low/absent. Provide an estimate of the amount of economic activity (buying and selling goods, wages, etc.) conducted using money rather than in-kind exchanges. Complete is the level of a modern country like the USA; high is most exchanges are monetized, (roughly 59-75%), but perhaps are limited by the amount of coins circulating; low is some exchanges are monetized (below 50%), but significant exchange also occurs with in-kind transactions; absent is complete lack of a money economy

♠ **Degree of monetization** ♣ ♥ %. Provide an estimate of the monetization level above to the nearest 10% (ranges are acceptable)

# Information and Communication Sector

## Dissemination of Information

♠ **Printing** ♣ ♥ absent/present/unknown

♠ **Paper** ♣ ♥ absent/present/unknown. Describe what materials are used in paper products

♠ **Other writing media** ♣ ♥ absent/present/unknown. Describe other materials used for written documentation, such as papyrus, birch bark, wax tablets, ostraca (shards of ceramics inscribed with writing)

# Public Infrastructure

## Entertainment Sector

♠ Theatres ♣ ♥ absent/present/unknown

♠ theatres built by ♣ ♥ state/non-state elite/community/other. What group or individual oversaw the construction in terms of paying for the work, choosing the location, etc. Explain in paragraph

♠ Arenas ♣ ♥ absent/present/unknown

♠ arenas built by ♣ ♥ state/non-state elite/community/other. What group or individual oversaw the construction in terms of paying for the work, choosing the location, etc. Explain in paragraph

♠ Racetracks ♣ ♥ absent/present/unknown

♠ racetracks built by ♣ ♥ state/non-state elite/community/other. What group or individual oversaw the construction in terms of paying for the work, choosing the location, etc. Explain in paragraph

♠ Other performance space ♣ ♥ absent/present/unknown

♠ other performance space built by ♣ ♥ state/non-state elite/community/other. What group or individual oversaw the construction in terms of paying for the work, choosing the location, etc. Explain in paragraph

## Transport infrastructure

♠ Roads ♣ ♥ absent/present/unknown

♠ roads built by ♣ ♥ state/non-state elite/community/other. What group or individual oversaw the construction in terms of paying for the work, choosing the location, etc. Explain in paragraph

♠ Bridges ♣ ♥ absent/present/unknown

♠ bridges built by ♣ ♥ state/non-state elite/community/other. What group or individual oversaw the construction in terms of paying for the work, choosing the location, etc. Explain in paragraph

♠ Canals ♣ ♥ absent/present/unknown

♠ canals built by ♣ ♥ state/non-state elite/community/other. What group or individual oversaw the construction in terms of paying for the work, choosing the location, etc. Explain in paragraph

♠ Ports ♣ ♥ absent/present/unknown

♠ ports built by ♣ ♥ state/non-state elite/community/other. What group or individual oversaw the construction in terms of paying for the work, choosing the location, etc. Explain in paragraph

♠ Fueling stations ♣ ♥ absent/present/unknown

♠ fueling stations built by ♣ ♥ Includes areas along communication routes for storage and distribution of water, fodder for animals, rest areas, etc.

## Transport and Trade Sector

### Domestic transport

♠ **Human carriers** ♣ ♥ absent/present/unknown

♠ **Pack animals** ♣ ♥ absent/present/unknown

♠ **Draft animals** ♣ ♥ absent/present/unknown

♠ **River boats used for transporting goods** ♣ ♥ absent/present/unknown. Boats used to transport goods over navigable rivers within the polity. Explain if the boats are powered by human energy, wind power, combustibles, or a combination

♠ **Sea boats used for transporting goods** ♣ ♥ absent/present/unknown. Boats used to transport goods across seas and large lakes. Explain if the boats are powered by human energy, wind power, combustibles, or a combination

♠ **Carts or wagons used for transporting goods** ♣ ♥ absent/present/unknown

## **International Trade**

♠ **Agricultural goods are exported to other polities** ♣ ♥ absent/present/unknown. Describe main goods involved in this trade

♠ **Distance of furthest place to where exported** ♣ ♥ in km.

♠ **Agricultural goods are imported from other polities** ♣ ♥ absent/present/unknown. Describe main goods involved in this trade

♠ **Distance of furthest place from where imported** ♣ ♥ in km.

♠ **Manufactured goods are exported to other polities** ♣ ♥ absent/present/unknown. Describe main goods involved in this trade

♠ **Distance of furthest place to where exported** ♣ ♥ in km.

♠ **Manufactured goods are imported from other polities** ♣ ♥ absent/present/unknown. Describe main goods involved in this trade

♠ **Distance of furthest place from where imported** ♣ ♥ in km.

♠ **Other goods exported to other polities** ♣ ♥ absent/present/unknown. Describe main goods involved in this trade

♠ **Distance of furthest place to where exported** ♣ ♥ in km.

♠ **Other goods imported from other polities** ♣ ♥ absent/present/unknown. Describe main goods involved in this trade

♠ **Distance of furthest place from where imported** ♣ ♥ in km.

♠ **Goods are transported across water** ♣ ♥ absent/present/unknown. Includes large rivers that separate polities, seas, or oceans

♠ **Goods are transported by independent merchants** ♣ ♥ absent/present/unknown. I.e. individuals transport goods to / from other polities for their own reasons (esp. for profitable sale)

♠ **Goods are transported by the state** ♣ ♥ absent/present/unknown. Agents of the state transport goods to / from other polities for political purposes (e.g. reciprocal gift-giving between rulers)

## Domestic Trade

♠ **Agricultural goods are traded within polity** ♣ ♥ absent/present/unknown. Describe main goods involved in this trade

♠ **Furthest distance of transport** ♣ ♥ in km.

♠ **Manufactured goods are traded within polity** ♣ ♥ absent/present/unknown. Describe main goods involved in this trade

♠ **Furthest distance of transport** ♣ ♥ in km.

♠ **Other goods traded within polity** ♣ ♥ absent/present/unknown. Describe

♠ **Furthest distance of transport** ♣ ♥ in km.

♠ **Domestic gift-giving** ♣ ♥ absent/present/unknown. Reciprocal exchange of goods between groups within polity, e.g. King and regional elites

♠ **Existence of market spaces** ♣ ♥ absent/present/unknown

♠ **market spaces built by** ♣ ♥ state/non-state elite/community/other. What group or individual oversaw the construction in terms of paying for the work, choosing the location, etc. Explain in paragraph

♠ **Elite exchanges** ♣ ♥ absent/present/unknown. Frequent or large-scale exchanges of goods between elites, whether a local elite and the ruler, two local elites, a local and state-level elite, etc. Typically luxury goods, though other goods are possible (describe which in paragraph). This is specifically exchange networks between wealthy, socially prestigious people to which commoners or poorer people do not have access

## Markets

♠ **Permanent rural markets** ♣ ♥ absent/present/unknown

♠ **Permanent urban markets** ♣ ♥ absent/present/unknown

♠ **Periodic rural markets** ♣ ♥ absent/present/unknown

♠ **Periodic urban markets** ♣ ♥ absent/present/unknown

♠ **Specialized markets** ♣ ♥ absent/present/unknown. E.g. market for selling only pork, salt, certain luxury goods, etc.

♠ **State monopoly over production** ♣ ♥ absent/present/unknown. Any instance of a state monopoly over the production of any good (alcohol, military equipment, etc.). List in description

♠ **State monopoly over sale** ♣ ♥ absent/present/unknown. Any instance of a state monopoly over the sale of any good (alcohol, metal products, etc.). List in description

## Other Sectors

### Ceramics

#### Types of ceramic vessels produced

♠ **Food serving vessels** ♣ ♥ absent/present/unknown. Bowls, cups, trays, etc.



♠ **Transport vessels** ♣ ♥ absent/present/unknown. E.g. large sealed vases for holding liquids

♠ **Non-functional vessels** ♣ ♥ absent/present/unknown. I.e. ceramic vessels used as ornamentation rather than for food storage, cooking, or serving

♠ **Religious figurines** ♣ ♥ absent/present/unknown

♠ **Tools** ♣ ♥ absent/present/unknown. Agricultural or construction

♠ **Toys** ♣ ♥ absent/present/unknown

♠ **Other ceramic products** ♣ ♥ absent/present/unknown. Describe in paragraph

♠ **Standardization** ♣ ♥ absent/present/unknown. Ceramic vessels display standardization (in form, size, decoration, etc.)

## Luxury Goods

♠ **Spices, incense and dyes** ♣ ♥ absent/present/unknown

♠ **place of production** ♣ ♥ domestic/foreign/unknown

♠ **Precious stone** ♣ ♥ absent/present/unknown. Also list which kinds

♠ **place of production** ♣ ♥ domestic/foreign/unknown

♠ **Precious metal** ♣ ♥ absent/present/unknown. Also list which kinds

♠ **place of production** ♣ ♥ domestic/foreign/unknown

♠ **Glass goods** ♣ ♥ absent/present/unknown

♠ **place of production** ♣ ♥ domestic/foreign/unknown

♠ **Statuary** ♣ ♥ absent/present/unknown

♠ **place of production** ♣ ♥ domestic/foreign/unknown

♠ **Specialty food** ♣ ♥ absent/present/unknown

♠ **place of production** ♣ ♥ domestic/foreign/unknown

♠ **Specialty Drink/alcohol** ♣ ♥ absent/present/unknown

♠ **place of production** ♣ ♥ domestic/foreign/unknown

♠ **Specialty fabrics** ♣ ♥ absent/present/unknown

♠ **place of production** ♣ ♥ domestic/foreign/unknown

♠ **Specialty manufactured goods** ♣ ♥ absent/present/unknown. E.g. porcelain, high-quality stone or metal goods, etc.

♠ **place of production** ♣ ♥ domestic/foreign/unknown

## Professions and Workshops

## Textile Work

♠ **Painter** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Dyer** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

## Fiber

♠ **Worker in fiber** ♣ ♥ absent/present/unknown. Explain in paragraph what products are known (baskets, strings, thatching, etc.)

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

## Textile

♠ **Fuller** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Weaver** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Tailor** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Silk worker** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

**Hide**

♠ **Tanner** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the

paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Shoemaker** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Saddler** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

## Ceramic Work

### Clay

♠ **Potter** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Porcelain worker** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Mosaic worker with clay** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

## Construction Work

### Wood

♠ **Carpenter** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious

affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Roof-maker** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

## Stone

♠ **Mason** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

## Fine-Arts Work

♠ **Jeweler** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Sculptor** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

## Glass

♠ **Glass worker** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the

paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Mosaic worker with glass** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

## Smith Work

### Metals

♠ **Minter** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious

affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Armorer** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Copper smith** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Bronze smith** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Iron smith** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Steel smith** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown



♠ **Silver smith** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Goldsmith** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Bell maker** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Pewter worker** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

## Food Work

♠ **Thrasher** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Presser** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Preserver** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Baker** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Butcher** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Confectioner** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Spice maker/mixer** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Fisher** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **context** ♣ ♥ rural/urban/unknown

## Information Work

♠ **Cartographer** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Architect** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Engineer** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Teacher** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Perfumer** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Physician** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Lawyer** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **context** ♣ ♥ rural/urban/unknown

## Entertainment Work

♠ **Performer** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Scribe** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **context** ♣ ♥ rural/urban/unknown

## Finance Work

♠ **Money-lender** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Banker** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Tax-collector** ♣ ♥ absent/present/unknown. This refers to ‘private’ tax-collection, e.g. tax-farmers, and does not include state agents or officials who were responsible for tax collection

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Accountant** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **context** ♣ ♥ rural/urban/unknown

## Service Work

♠ **Washer** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Barber** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

## Mixing/Compound Making Work

♠ **Perfumer** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Pottery shop** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **workshop** ♣ ♥ household/specialized/industrial/unknown

♠ **ownership** ♣ ♥ state/private/community/other/unknown

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Soap maker** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Pharmacist** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph



♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **context** ♣ ♥ rural/urban/unknown

## Merchant Work

♠ **Spice merchant** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Silk merchant** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Salt merchant** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Ivory merchant** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Gold/Silver merchant** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **context** ♣ ♥ rural/urban/unknown

♠ **Slave merchant** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **context** ♣ ♥ rural/urban/unknown

## Transport

♠ **Carterer** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

## Merchant Work

♠ **Carter of dung** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **Muleteer** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **Courier** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

♠ **Hosteller** ♣ ♥ absent/present/unknown

♠ **female participation in work** ♣ ♥ absent/present/unknown

♠ **work restricted to particular group** ♣ ♥ absent/present/unknown. E.g. only people from a particular ethnic group, religious affiliation, etc. can engage in this profession. Explain the restrictions in the paragraph

♠ **organization** ♣ ♥ state/private/community/other/unknown. Identify whether this specialist an agent of the state, an individual working for profit, supported by a non-state community organization (such as a religious group), or other

## Agriculture

♠ **RA** ♣ ♥ The name of the research assistant or associate who coded the data. If more than one RA made a substantial contribution, list all.

♠ **Expert** ♣ ♥ The name of the historical or archaeological expert who supervised coding and checked/improved/approved the result. If more than one expert was involved, list all.

# Background

## General Description

A paragraph describing major features of the productive system, giving the context for the codes that follow. This part is not-machine readable but helps to orient the reader. It is not a priority and should be completed after having coded the variables below as far as possible.

## Human Geography

(not-machine readable) Provide any relevant details relating to the distribution of the human populations within the NGA in this time period, e.g. do people live in large urban areas?, are there any parts of the NGA that are uninhabited?. This part is not-machine readable but helps to orient the reader. It is not a priority and should be completed after having coded the variables below as far as possible.

## Environment

(not-machine readable) Provide any relevant details relating to the physical and natural environment of the NGA in this time period. For example, what was the climate like? Were there any substantial environmental changes during the time period examined? This part is not-machine readable but helps to orient the reader. It is not a priority and should be completed after having coded the variables below as far as possible.

## Agricultural Land Use

**Area Under Cultivation (not-machine readable):** Describe the parts of the NGA that are used for agriculture, include information about vegetation types, soil types or geographic areas (mountain slopes, river valleys etc.) on which agriculture was or was not practiced. Where possible include maps or estimates from the literature of the area under cultivation in absolute units (sq. km) (or as a % of some territory – ideally the NGA, but specify if otherwise)

**Potential Arable Area (not-machine readable):** Describe the parts of the NGA that could **potentially be used** for agriculture whether they were actually used or not. Include information about vegetation types, soil types or geographic areas (mountain slopes, river valleys etc.) on which agriculture could be practiced. Where possible include maps or estimates from the literature of the area under cultivation in absolute units (sq. km) (or as a % of some territory – ideally the NGA, but specify if otherwise)

## Features of Cultivation

♠ **Duration of field** ♣ ♥ how many years are crops grown in a field/garden before it is left fallow or abandoned? If a range of values are given, provide the range as the code and provide details after the heart symbol.

♠ **Fallow period of field** ♣ ♥ How many years is a field/garden left unused before it is re-used? If a range of values are given, provide the range as the code and provide details after the heart symbol.

♠ **Size of field** ♣ ♥ estimates of the size of fields/gardens from the literature. If a range of values are given, provide the range as the code and provide details after the heart symbol.

## Agricultural Technology and practices

### Tools

If the literature distinguishes between different dates for first appearance and widespread use, use the square bracket method to indicate the time range, and make a note after the heart symbol.

♠ **Stone tools** ♣ ♥ absent/present.

♠ **Stone tool types** ♣ ♥ list all that apply and that are used in agriculture, or for clearing/preparing fields

♠ **Wooden tools** ♣ ♥ absent/present.

♠ **Wooden tool types** ♣ ♥ list all that apply and that are used in agriculture, or for clearing/preparing fields (e.g. digging stick)

♠ **Metal tools** ♣ ♥ absent/present

♠ **Copper tools** ♣ ♥ absent/present

♠ **Bronze tools** ♣ ♥ absent/present

♠ **Iron tools** ♣ ♥ absent/present

♠ **Steel tools** ♣ ♥ absent/present

♠ **Metal tool types** ♣ ♥ list all that apply: hoes, spades, axes, plows, etc. (for use in agriculture, or for clearing/preparing fields)

### Soil Preparation

♠ **Hand weeding** ♣ ♥ absent/present

♠ **Hand hoeing** ♣ ♥ absent/present

♠ **Plow** ♣ ♥ absent/present

♠ **Light plow** ♣ ♥ absent/present (e.g., ard)

♠ **Moldboard plow** ♣ ♥ absent/present

♠ **Heavy plow** ♣ ♥ absent/present

♠ **Propulsion source in plowing** ♣ ♥ absent/humans/oxen/donkeys/horses/tractors/other (list any that were used; explain 'other')

♠ **Horse Collar** ♣ ♥ absent/present

♠ **Harrowing** ♣ ♥ absent/present. Harrowing is a technique applied to the surface of the soil to break it up and smooth it out. It often occurs after ploughing and at a shallower level in order to make the soil more suitable as a seedbed (although coarser harrowing may also serve the function of removing weeds and covering seeds after sowing).

♠ **“Slash-and-burn” field preparation** ♣ ♥ absent/present. Existing vegetation (e.g. primary or secondary forest) is cut and burned to create fields

## Conventions and Techniques

♠ **Crop Rotation** ♣ ♥ absent/present. Crop Rotation is defined as "when different cultigens are grown in a sequence in order to maximize productivity and reduce fallow". Often times this fixes nitrogen and other essential nutrients back into the soil, but not always. For example, different weeds or pest species like different crops, so rotation can minimize their harmful effects. Provide details about the sequence of crop rotation (i.e. the crops involved and their timings). Make note if nitrogen fixing or nutrient return (or other reasons for crop rotation) is mentioned. For sites known only archaeologically the evidence for crop rotation can come by having evidence of a spectrum of crops under which rotation seems plausible.

♠ **Polyculture** ♣ ♥ Present/absent The practice of growing a number of different crops in a field such that they are planted or harvested at approximately the same time. It can take the form of companion planting (sometimes used in gardening and intensive cultivation of vegetables and fruits), and intercropping (where an additional crop is planted in the spaces available between the main crop). After the heart symbol provide details about what kind of crops are grown together.

♠ **Polyculture: number of crops** ♣ ♥ The number of different crops that are grown together in the polyculture

♠ **Polyculture: Crop features increase productivity** ♣ ♥ present/absent. Provide details/justification after the heart symbol. If polyculture is practiced, do the features of the crops grown complement each other in ways that increase productivity, e.g. Corn-beans-squash: Maize provides structure for beans to grow, beans provide nitrogen-fixing, squash prevents weeds and acts a natural mulch.

♠ **Multicropping** ♣ ♥ Present/absent. Multicropping is defined as "the practice of growing two or more crops in the same space during a single year, with substantial temporal separation in the planting times of different crops." The crops can be the same type, or different types. It can commonly take the form of double-cropping (in which a second crop is planted after the first has been harvested), or relay cropping (in which the second crop is started amidst the first crop before it has been harvested). After the heart symbol provide details about what kind of crops, and what sequence (in-general).

♠ **Multicropping: Number of crops** ♣ ♥ How many crops are grown in the same field per year?

♠ **Fertilizers** ♣ ♥ absent/present

The following sub-categories are not mutually exclusive and so more than one of the following practices can be coded as present

♠ **Incidental application of fertilizers from domestic animals** ♣ ♥ absent/present. Fertilizer comes from waste from domestic animals allowed to roam in fields

♠ **Active application of fertilizers** ♣ ♥ absent/present. Deliberate application of fertilizer to fields

♠ **Fertilizer from domestic animal waste** ♣ ♥ absent/present

♠ **Fertilizer from non-domestic-animal-waste source** ♣ ♥ absent/present (e.g. Marl) Please specify

♠ **Mulching** ♣ ♥ absent/present. Mulching refers to the covering of soils to conserve water

♠ **Flooded fields** ♣ ♥ absent/present. Crops are grown in fields that are regularly flooded naturally, and where such flooding helps in increasing productivity. This can be systems where flood waters are receding (e.g. early agriculture along the Nile), or fields that are still water-logged or swamps (e.g. some forms of rice, and taro cultivation). Make a note of where in the NGA such cultivation was practiced.

♠ **Irrigation** ♣ ♥ absent/present. Deliberate application of water to fields or gardens to increase productivity

Features of irrigation systems (these are likely to be things that are visible archaeologically and can help decide if irrigation was practiced)

- ♠ **Channels** ♣ ♥ absent/present
- ♠ **Canals** ♣ ♥ absent/present (canals are generally wider and deeper than channels and may also serve a transport function)
- ♠ **Wells** ♣ ♥ absent/present
- ♠ **Dams** ♣ ♥ absent/present (to store water for irrigation)
- ♠ **Other** ♣ ♥ please specify

Scale of irrigation system

- ♠ **Land area under irrigation** ♣ ♥ provide an estimate, ideally in sq km of the total area in the NGA that is under irrigation (note any qualitative description about the extent of irrigation)
- ♠ **area of an irrigated unit** ♣ ♥ Here a unit refers to a sub-section of irrigated land that can be traced back to the main/original source of water (i.e the main river, or stream). The total irrigation system is likely to be made up of many such units, such that if you blocked off access to the main source of water of one unit the other units would still receive water.
- ♠ **extent of management** ♣ ♥ what is the largest administrative unit of an irrigation system (could be locally or centrally managed)? E.g. Is it the whole irrigation system of the NGA? A unit (as defined above), several units, part of a unit?
- ♠ **gradient** ♣ ♥ what is the difference in height (in metres) between the source of water and the lowest part of the irrigation system. If figures are not given, provide a description of the terrain in which the irrigation system is located after the heart symbol, e.g. Flat plains in the Nile, versus steep terraced hills in somewhere like Bali.
- ♠ **What is the highest authority that constructs irrigation system** ♣ ♥  
village/district/region/central authorities
- ♠ **labour required in construction of irrigation system** ♣ ♥ please provide estimates of the number of people that would be required to construct an irrigation system
- ♠ **centralized management of irrigation system** ♣ ♥ present/absent (management includes assigning rights of use, dealing with disputes, and maintenance)
- ♠ **localized management of irrigation system** ♣ ♥ present/absent (management includes assigning rights of use, dealing with disputes, and maintenance)
- ♠ **labour required in maintenance of irrigation system** ♣ ♥ please provide estimates of the number of people that would be required to maintain an irrigation system
- ♠ **largest area of management** ♣ ♥ what is the area of largest administrative unit of an irrigation system (could be locally or centrally managed)

♠ **Landscape Improvement** ♣ ♥ absent/present. This refers to enduring modifications made to the landscape that are designed to increase productivity, but not covered by the irrigation codes above. Particular examples are given below (if not listed please use the “other” category).

- ♠ **Terracing** ♣ ♥ absent/present
- ♠ **Drainage** ♣ ♥ absent/present
- ♠ **Dams** ♣ ♥ absent/present (to prevent fields flooding, not for irrigation)
- ♠ **Walls** ♣ ♥ absent/present (where these serve a function such as retaining soil rather than just marking boundaries or ownership)
- ♠ **Other** ♣ ♥ absent/present. Please describe

♠ **Nitrogen-fixing crops** ♣ ♥ absent/present. Crops that fix nitrogen are deliberately grown. It can include crops grown for human (e.g. beans) or animal (e.g. clover) consumption

♠ **Other** ♣ ♥ Note any other agricultural technologies or techniques that are used to increase productivity

**Post-Harvest, Food Storage and Preservation**

- ♠ **Threshing** ♣ ♥ absent/present
- ♠ **Winnowing** ♣ ♥ absent/present
- ♠ **Animals used in transport of crops** ♣ ♥ absent/present

♠ **Food storage** ♣ ♥ present/absent.

- ♠ **Household-level Food storage** ♣ ♥ present/absent
- ♠ **Private (non-household) Food storage** ♣ ♥ present/absent (e.g. mercantile storage for sale)
- ♠ **Village Food storage** ♣ ♥ present/absent

- ♠ **Centralized Village Food storage** ♣ ♥ present/absent. Food stored in central place and belongs to the whole community or authorities

- ♠ **Non-Centralized Village Food storage** ♣ ♥ present/absent. Food is stored in a communal building but ownership of stores is maintained by individual households

- ♠ **Supra-Village Food storage** ♣ ♥ present/absent

- ♠ **Centralized Supra-Village Food storage** ♣ ♥ present/absent. Food stored in central place and belongs to the whole polity or authorities

- ♠ **Non-Centralized Supra-Village Food storage** ♣ ♥ present/absent. Food is stored in a communal building but ownership of stores is maintained by individual villages

- ♠ **Food preservation techniques** ♣ ♥ present/absent

- ♠ **Salting** ♣ ♥ present/absent

- ♠ **Drying (non-grain crops)** ♣ ♥ present/absent

- ♠ **Drying (grain crops)** ♣ ♥ present/absent. Note the presence of things like barns or corn-dryers specifically for this purpose

- ♠ **Smoking** ♣ ♥ present/absent

- ♠ **Pickling** ♣ ♥ present/absent

- ♠ **Grinding** ♣ ♥ present/absent (e.g. to make flour)

- ♠ **Containers used for food storage** ♣ ♥ absent/present

- ♠ **Pottery used for food storage** ♣ ♥ absent/present

- ♠ **Wooden boxes or containers (e.g. barrels) used for food storage** ♣ ♥ absent/present

- ♠ **Other containers used for food storage** ♣ ♥ absent/present

## Social Scale of Food Production

### Preparation

Preparation of fields (including planting) ♠ **Individual Household** ♣ ♥ present/absent ♠ **Collective** ♣ ♥ present/absent

- ♠ **Collective – Kin groups** ♣ ♥ present/absent (Note: kin groups are “ego-based” and vary from person-to-person, whilst descent groups are based on sharing a common ancestor)

- ♠ **Collective – Descent groups** ♣ ♥ present/absent (Note: kin groups are “ego-based” and vary from person-to-person, whilst descent groups are based on sharing a common ancestor)



♠ **Collective – Village groups** ♣ ♥ present/absent

♠ **Collective – Other** ♣ ♥ present/absent. Note any other form of collective preparation of fields for agriculture. This can include things like state or religious institutions that bring people together to prepare the fields

♠ **Dependent** ♣ ♥ present/absent

♠ **Wage labour** ♣ ♥ present/absent

♠ **Slavery** ♣ ♥ present/absent

♠ **Tenancy** ♣ ♥ present/absent

♠ **Corvee Labour** ♣ ♥ present/absent

## Harvesting of Crops

♠ **Individual Household** ♣ ♥ present/absent ♠ **Collective** ♣ ♥ present/absent

♠ **Collective – Kin groups** ♣ ♥ present/absent (Note: kin groups are “ego-based” and vary from person-to-person, whilst descent groups are based on sharing a common ancestor)

♠ **Collective – Descent groups** ♣ ♥ present/absent (Note: kin groups are “ego-based” and vary from person-to-person, whilst descent groups are based on sharing a common ancestor)

♠ **Collective – Village groups** ♣ ♥ present/absent

♠ **Collective – Other** ♣ ♥ present/absent. Note any other form of collective preparation of fields for agriculture. This can include things like state or religious institutions that bring people together to harvest the fields

♠ **Dependent** ♣ ♥ present/absent

♠ **Wage labour** ♣ ♥ present/absent

♠ **Slavery** ♣ ♥ present/absent

♠ **Tenancy** ♣ ♥ present/absent

♠ **Corvee Labour** ♣ ♥ present/absent

## Agricultural Intensity

### Food Animals

♠ **Major Domestic Food Animals** ♣ ♥ list the most important sources of domestic animal protein

♠ **Major Wild Food Animals (Terrestrial)** ♣ ♥ list the most important sources of wild animal protein ♠

**Major Wild Food Animals (Aquatic)** ♣ ♥ list the most important sources of wild animal protein (including Fish)

### Food Production

*Estimate the relative production levels of the following subsistence features on a scale of 0 – 10 (0=not practiced, 10=other subsistence strategies not practiced) Don't worry about trying to be precise. We are looking for your best estimates. It may be easier to complete this by making comparisons with previous or later*

time periods Note 1: Agriculture + Animal Husbandry + Wild Foods + Trade should add up to 10, e.g. Agriculture 6 + Animal Husbandry 3 + Wild Foods 1 + Trade 0 = 10 Note 2: these estimates pertain to the commoner population, not the elites.

♠ **Importance of Agriculture** ♣ ♥ Any type of plant cultivation ♠ **Importance of Animal Husbandry** ♣ ♥ ♠ **Importance of Wild Terrestrial Animals** ♣ ♥ ♠ **Importance of Wild Aquatic Animals** ♣ ♥ ♠ **Importance of Wild Plants** ♣ ♥ ♠ **Importance of External Trade** ♣ ♥

## Dietary Importance

*Estimate the importance to the diet of the following subsistence features on a scale of 0 – 10 (0=not practiced, 10=other subsistence strategies not practiced)* Don't worry about trying to be precise. We are looking for your best estimates. It may be easier to complete this by making comparisons with previous or later time periods Note 1: Agriculture + Animal Husbandry + Wild Foods + Trade should add up to 10, e.g. Agriculture 6 + Animal Husbandry 3 + Wild Foods 1 + Trade 0 = 10 Note 2: these estimates pertain to the commoner population, not the elites.

♠ **Importance of Agriculture** ♣ ♥ Any type of plant cultivation ♠ **Importance of Animal Husbandry** ♣ ♥ ♠ **Importance of Wild Terrestrial Animals** ♣ ♥ ♠ **Importance of Wild Aquatic Animals** ♣ ♥ ♠ **Importance of Wild Plants** ♣ ♥ ♠ **Importance of External Trade** ♣ ♥

♠ **Main form of subsistence strategy** ♣ ♥ What term best describes the dominant subsistence strategy, i.e. what contributes most to the diet. Choose from:

- Foraging/hunting (terrestrial)
- Fishing and other wild aquatic foods
- Pastoralism (domestic animals provide main form of subsistence)
- Agro-pastoralism (Combination of pastoral activities and crop production in an interdependent manner)
- Horticulture (small scale gardens, usually near settlement)
- Swidden (slash-and-burn/shifting) agriculture
- Permanent agriculture (large areas of land (fields) whose primary function is related to agriculture – fields can be left fallow for a period but are eventually used for growing crops again)
- Intensive permanent agriculture (as permanent agriculture but with practices or labour inputs that lead to substantially reduced fallow or otherwise increased yields)
- Other (please specify)
- Two or more types equally dominant (please specify)

## Major Carbohydrate Sources

### Carbohydrate source #1

♠ **Carbohydrate source #1** ♣ ♥

♠ **Production** ♣ ♥ Estimate how much of food production was concerned with this source on a scale of 0 - 10

♠ **Importance to diet** ♣ ♥ Estimate the importance to the diet of this source on a scale of 0 - 10

♠ **Productivity** ♣ ♥ capture any information or estimates of the yield (in whatever units are provided, e.g. seed ratios, kCal per hectare etc. ). Provide relevant details after the heart symbol. Where estimates make a distinction between gross yield, and net yield (i.e. taking into account seed used for planting or wastage) code the gross yield between the club and heart symbols and add information about net yield calculations after the heart symbol

## Carbohydrate source #2

### ♠ Carbohydrate source #2 ♣ ♥

♠ **Production** ♣ ♥ Estimate how much of food production was concerned with this source on a scale of 0 - 10

♠ **Importance to diet** ♣ ♥ Estimate the importance to the diet of this source on a scale of 0 - 10

♠ **Productivity** ♣ ♥ capture any information or estimates of the yield (in whatever units are provided, e.g. seed ratios, kCal per hectare etc. ). Provide relevant details after the heart symbol. Where estimates make a distinction between gross yield, and net yield (i.e. taking into account seed used for planting or wastage) code the gross yield between the club and heart symbols and add information about net yield calculations after the heart symbol

## Carbohydrate source #3

### ♠ Carbohydrate source #3 ♣ ♥

♠ **Production** ♣ ♥ Estimate how much of food production was concerned with this source on a scale of 0 - 10

♠ **Importance to diet** ♣ ♥ Estimate the importance to the diet of this source on a scale of 0 - 10

♠ **Productivity** ♣ ♥ capture any information or estimates of the yield (in whatever units are provided, e.g. seed ratios, kCal per hectare etc. ). Provide relevant details after the heart symbol. Where estimates make a distinction between gross yield, and net yield (i.e. taking into account seed used for planting or wastage) code the gross yield between the club and heart symbols and add information about net yield calculations after the heart symbol

NOTE 1: Numbers entered into importance variable should not be greater than 10 when all sources are added together, e.g. No.1 (Wheat) 6 + No. 2 (Barley) 1.5 + No. 3 (Beans) 1 = 8.5

NOTE 2: Add any further carbohydrate sources if they make up a substantial part of the diet (>10%)

# Population

## General Population

♠ **RA** ♣ ♥ The name of the research assistant or associate who coded the data. If more than one RA made a substantial contribution, list all.

♠ **Expert** ♣ ♥ The name of the historical or archaeological expert who supervised coding and checked/improved/approved the result. If more than one expert was involved, list all.

♠ **Population Size** ♣ ♥ estimated number of people living in the NGA. Where estimates are given for only part of the NGA or a larger region that encompasses the NGA then make a reasonable inference for the NGA – show your working as clearly as possible. Make note of any estimates of population size, population density or other indicators of population in the literature.

♠ **Non-Agricultural Population** ♣ ♥ absent/present. Specialist groups of people living in the NGA that do not produce their own food. This includes people living in cities (who do not travel to their fields in the countryside to farm) as well as those involved in specialized market agriculture who trade for their food. This variable does not include elderly or young who do not contribute directly to food production because of their age.

♠ **Non- Agricultural Population Size** ♣ ♥ estimate the number of people in the population that do not produce their own food (to the nearest 10% if explicit calculations are not possible).

♠ **Non- Agricultural Population Size Proportion** ♣ ♥ estimate the proportion of the population that do not produce their own food (to the nearest 10% if explicit calculations are not possible).

♠ **Urban Population** ♣ ♥ absent/present. Population living in large permanent settlements such as town or cities (who may or may not practice agriculture as their main form of subsistence)

♠ **Urban Population Size** ♣ ♥ estimate the number of people in the population that live in large permanent settlements such as town or cities.

♠ **Urban Population Proportion** ♣ ♥ estimate the proportion of the population that that live in large permanent settlements such as town or cities (to the nearest 10% if explicit calculations are not possible).

Useful proxies for calculating population size (not machine readable) Note here any of the following that you find reference to in the literature: Size of archaeological site: Number of sites in a region: Settled area within the NGA (or region of the NGA for which data are available): Number of structures per ha: Estimates of number of people at a site: Estimates of house size or family size: Size of different settlements at different levels of settlement hierarchy: Population of different settlements at different levels of settlement hierarchy:

## Estimated Carrying Capacity

Carrying capacity: capture any figure or information on carrying capacity mentioned in the literature. Here carrying capacity refers to the maximum population that can be sustained in the NGA.

Other: note any other information that you think is relevant to measuring the productivity and population of the NGA

## References

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