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Classifying by phenomena, theories and methods: Examples with focused social science theories

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Abstract

This paper shows how a variety of theories employed across a range of social sciences could be classified in terms of theory type. In each case, notation within the Integrated Level Classification is provided. The paper thus illustrates how one key element of the Leon Manifesto – that scholarly documents should be classified in terms of the theory(ies) applied can be achieved in practice.

The León Manifesto <<http://www.iskoi.org/ilc/leon.htm>> argues that interdisciplinary research would benefit from a universal system of document classification that classed each work in terms of the phenomena studied, the theory(ies) and theory types applied, and the method(s) applied.

Classification by phenomena, instead of disciplines, is being experimented with in the Integrative Level Classification (ILC) project <<http://www.iskoi.org/ilc/>> (Hong 2005). In ILC, main classes of phenomena are represented by letter codes, such as:

s	communities	u5	[capital facet]
sf	families	u5b	labour
sm	tribes	u5q	equipment
t	organizations	u5s	structures
tn	states	v	cultures, technological systems
tr	federations	vd	pastoralism
tu	supra-national unions	vm	farming
u	economies	vt	industry

Theories and methods can be expressed in the form of facets, introduced by the digit indicators 04 and 03 respectively. Thus, the subject “states studied by theory x and method y ” will be notated $tn04x03y$. The theory facet has been the least developed element in this approach. Only a dozen grand theories have been classified (Szostak 2004). The purpose of this paper is to show that it is possible to classify documents employing narrowly focused theories. It will place theories from a variety of social science fields – some disciplinary and some interdisciplinary – into a typology, and develop ILC notation for classifying works using these theories.

1. Theories and theory types

Theories present a challenge to document classification because theory names are ambiguous: the same theory name can refer to quite different sorts of theoretical argument, while quite similar arguments may go under quite different names (especially in different disciplines). The researcher wondering if a particular theoretical argument has been applied to a particular set of phenomena will receive limited guidance if the

literature is classified only with respect to theory names. The recommended solution is that works also be classified in terms of a typology of theory types (Szostak 2007, 2008).

Szostak (2004) developed a simple five-dimensional typology of theory types through recourse to one of the simplest classificatory devices: asking the 5W questions, who, what, where, when, and why. These in the context of theory yield more precise questions (and in each case a mere handful of possible answers), which can be represented as facets 047, 046, 045, 043, 040:

046 *Who is the agent?* There are two immediate distinctions here: non-intentional (including volcanoes or institutions versus intentional agency (of beings that can act on purpose), each of which can take the form of individual, group, or relationship agency. This can be represented by specific classes, taking their notation from ILC main classes (*extra-defined foci*: see Gnoli 2006) like 046g matter, 046p persons, 046s groups, 046t institutions, 046w artifacts, etc.

043 *What does the agent do?* There are three broad answers: 043e passive reaction, 043i active action, 043n changes in attitude.

045 *Why does the agent do this?* With non-intentional agents, action can only be understood in terms of 045b their inherent nature. With intentional agents, scholars can explore the five distinct types of decision-making: 045y rational, 045i intuitive, 045p process (virtue) oriented, 045v rule-based, and 045w tradition-based. For groups and relationships, scholars can also ask how individual preferences are aggregated.

040 *Where does the causal process occur?* How generalizable is the theory?: there is a continuum from 040o nomothetic (highly generalizable), through 040m half generalizable, to 040k idiographic (situation- or causal-link-specific) theory.

047 *When does the causal process occur?* Though inspired by the temporal question ‘when?’, the possibilities refer ontologically to directions of change. There are five broad time-paths that a causal process might follow: 047b return to the original equilibrium, 047c cyclical oscillation, 047e movement to a new equilibrium, 047p change in a particular direction, or 047s stochastic/uncertain.

As the discussion above suggests, theories may occupy multiple cells in the typology. This may occur because a theory has changed through time, or because theorists have not provided clear answers to one or more of these questions.

Well-known and consolidated theories, like Classical political economy or Marxism, can be assigned a specific theory notation: sf(04um) will mean “families studied by Marxism”, while tn(04um) “states studied by Marxism”.¹ Their characterization in terms of theory types can be recorded as a relation of dependence (Gnoli et al. 2007) on the appropriate types 047e 046s 043i etc. On the other hand, works applying innovative, not well-agreed or more narrowly focused theories can be classified only in terms of theory types: u047e046v “economies studied by theories postulating movement to a new equilibrium and institutional agents”. If the search interface is programmed appropriately (Gnoli & Hong 2006), users will be able to search for any work postulating movement towards some new equilibrium (047e): the system will retrieve both documents applying consolidated theories like Marxism (thanks to the relationship recorded in the database between 04um and 047e), and documents applying some other, less consolidated theory implying movement to a new equilibrium.

¹ Bracketed notation means a common facet (Marxism as a general theory, by which any phenomenon can be studied) rather than a facet typical of the present class of phenomena (such as a specific theory of the state).

2. Methodology of this paper

A random selection of works housed in the library of European University Institute in Florence, Italy was used for this paper. A subject search in the online catalogue <<http://www.eui.eu/LIB/Catalogue>> under ‘social science theories’ produced thousands of hits; the first 100 books (temporally most recent) were consulted and those that surveyed several theories in a particular field were selected. Two books were added to the sample because they were located near books being investigated and fit the search criterion. This methodology yielded five books from five distinct human science fields and with a mix of single authorship, co-authorship, and edited volumes.

The strategy for theory notation in ILC is to give each widely-used theory a unique theory code, but also classify each theory in terms of the most common theory type. Works using a less common version of the theory would receive a notation that indicated the deviation from the most common theory type. In some cases, theories do not specify answers along each of the five dimensions; applications of that theory which address that dimension would then receive additional notation for that dimension. The unique notation for each theory is provided below. The discussion highlights the most common theory type, and most typical deviations from this.

3. u04 Theories of Development: (Larrain 1998)²

u04c Classical Political Economy (Smith, Ricardo, Malthus) (or more precisely u3d04c “economic development according to classical political economy”, and similarly with the following theories): These theories, which formed the basis from which modern economics developed, would be expected to be similar in type to the characteristics identified for rational choice theory in Szostak (2004): individuals, action, rationality, equilibrium, and highly generalizable: u3d047e046p045y043i040u. Certainly, both Smith and Ricardo theorize an eventual equilibrium where all possibilities for growth are exhausted, while Malthus theorized that humanity could never raise average incomes for the masses above subsistence.³ In invoking trade and division of labor as major sources of economic growth, Smith especially sometimes invokes relationship agency, but this would be the major deviation.

u04m Classical Marxism: Marx in some passages emphasized technological determinism 046w, and in others stressed the importance of class struggle. The first is a form of non-intentional individual causation, while the latter reflects intentional group agency 046s. The first invokes passive reaction 043e to technological innovations. The second argument also at times assumed inevitability but at other times Marx (and especially later Marxists) stressed active action.

Marx spoke at times of class consciousness, and thus did not neglect attitudes – though note that if the process of class conflict is assumed to be inevitable then these attitudes play no distinct causal role. When Marx assumed the inevitability of historical processes, his theory predicted the move to a new (socialist) equilibrium 047e. When he (or his followers) allowed for historical contingency, then his theory became stochastic

² While Larrain takes a Marxian perspective, and stresses the role of class conflict in different theories, his discussion notably still provides all of the information needed for classification.

³ Of course, they also speculated on the nature of the dynamic process that would take them to this new equilibrium. Ricardo stressed both forces leading to increased incomes (innovation, trade) and to decreases in income (diminishing returns as more people worked with a fixed supply of land). He might be thought of as describing dynamic processes in particular directions.

047s. At such times, his theory thus also allowed for intentional individual or relationship agency. While Marx is generally perceived as a generalist 040o, he did at one point caution that the historical process he outlined applied only 040m to Europe (Larrain 35). While Marx differs along many dimensions from classical political economy, Larrain at least would stress his emphasis on 046s class. Szostak (2004) noted that with respect to group and relationship agency one would have to classify works in terms of how individual preferences were aggregated: 045rr democratically, 045rn through negotiation, 045ra by the exercise of authority. Marx of course stresses power relationships. But the exercise of power is stressed between classes, and thus it is not always clear how decisions are made within classes. It may nevertheless be a useful addition to the typology developed in Szostak (2004) to distinguish theories of power inequalities between groups (or individuals or within relationships) from theories that assume 045ri mutually advantageous interactions.

u04n Classical Theories of Imperialism: As with the classical Marxism from which most of these theories derived, most writers saw imperialism as a prelude to the inevitable collapse of capitalism, and can thus be characterized as describing the movement to a new socialist equilibrium. But some authors (especially later) stressed that socialist revolution was not inevitable and thus described a stochastic process.

Theories of imperialism stressed the role of large corporations. These supported imperialist policies in pursuit of raw materials and/or markets (different authors stressed different motives. These theories thus stressed individual intentional agency more than did classical Marxism (though Marx also talked about the relentless pursuit of profit by individual capitalists). Note that the corporation is legally an individual, though one might still wonder how exactly corporations reach decisions: writers in the Marxian tradition would stress the exercise of power within the corporation.

With respect to generalizability, early authors tended to argue that the colonized would develop in similar directions as the colonizer, but later authors doubted this.⁴

u04o Modernization Theory: Larrain speaks of three types: sociological, psychological, and economic. All three stress the inevitable movement of poor countries toward the economic, political, and cultural attributes of rich countries. They are all thus theories of change in a particular direction (though some eventual equilibrium might be imagined). Modernization theories stressed the direction of change: sociologists emphasized the breakdown of tradition, increased division of labor, increased importance of merit; psychologists emphasized achievement motivation; and economists stressed the putting in place of institutions and infrastructure that would allow economic growth. All were vague in describing the agents, actions, and decision-making processes driving modernization (though the psychological version arguably usually stressed individuals, attitudes, and perhaps rationality). All assumed generalizability.

u04p Theories of Worsening Terms of Trade (Prebisch): Faced with sluggish economic growth especially in Latin America, these theories hypothesized that poor countries would not benefit from international trade as much as rich countries (due either to the fact that technological innovation would reduce the relative value of raw materials, or because rich countries protected local sources of raw materials), and urged states in poor countries to restrict trade in order to encourage domestic industrialization. The

⁴ If a document emphasizes real phenomena such as ‘corporations’ this emphasis will be captured within the phenomena facet. If, however, a document hypothesizes theory-specific elements such as ‘colonized mentality’ these must be captured within the theory facet.

technological determinism can be treated as above as non-intentional agency. The emphasis on the state is a particular sort of group agency (046s); these theories tended to assume that states would act in the interest of their population.

u04q Dependency Theory: These theories built upon but also critiqued the previous theories of worsening terms of trade. Palma had identified three types of these (in Larrain 112): those that assumed underdevelopment in poor countries as inevitable, those that identified problems but eschewed inevitability, and those that stressed how internal class conflicts mediated the effects of international economic relationships. Larrain (114) instead distinguishes highly generalizable theories of inevitable underdevelopment from historical analyses which tend to stress class conflict and see development as a possible outcome. Larrain's first type is equilibrium and generalizable and tends to stress non-intentional agency. The second type is non-generalizable, stochastic, and tends to stress group agency (and power relations between groups). But the first type also has important elements of group agency: it is often argued that elites in poor countries serve the interests of rich country capitalists rather than of poor country workers.

Both types stress the 'exploitative' relationships between rich countries and poor countries. Larrain is critical of the first type for often leaving the mechanisms by which this occurs vague, and compares them to modernization theory in this respect (130). The second type is diverse though it tends to emphasize the actions of classes and states.

4. t04 Theories of International Relations (Burchill and Linklater, 2005)

Most but not all of the theories discussed in this book are general political theories applied to the area of international relations. Some are economic theories likewise applied, hence they take bracketed notation (04u). The focus on international relations would be captured in the classification with respect to phenomena (tu).

This field, like many, has intense debates regarding epistemological issues: to what extent, for example do theories 'create' reality rather than merely describe this? In the former case, subject components should be represented as phenomena, while in the latter, as theories and theory types. The editors do a good job of distinguishing these types of arguments from the 'scientific' questions of how international relations works: indeed they use quite similar terminology to Szostak (2004) in distinguishing philosophical from scientific theory. Nevertheless it is clear that theoretical discussions in the field often conflate the two, and thus that works may often need to be classified in terms of each.⁵ Theories in international relations are most clearly distinguishable in terms of the results posited, and thus often provide only limited guidance for classifying with respect to questions other than 'where.' The editors stress the lack of homogeneity within the theories that they discuss.

t04i Liberalism: Liberal theory stresses how free trade supports both economic growth and world peace. Recently, the advantages of universal human rights and other 'liberal' institutions have been stressed as well. These theories can generally be characterized as outlining change in a [desirable] direction, though some works describe a future equilibrium. Less clearly, these theories generally emphasize how institutions constrain actors. The actors of chief concern are governments themselves, or sometimes individual government leaders.

⁵ Szostak (2004) discusses how philosophical theories might be classified. Discussions of critical theory and postmodernism are not treated here because they are primarily philosophical in orientation.

t041 Realism: Realism can be distinguished from liberalism primarily in being much less optimistic about the possibility of moving away from the present situation of an anarchic contest for power between states. Realist theory of international relations is thus an equilibrium theory. Like many sorts of systems theory, it is vague regarding key causal forces (though individual works may be more precise), though there is a common interest in the limited constraints on state power in the international arena.

t04j The English School: This approach seeks a middle ground between the above two.

t(04um) Marxian Approaches: In this context Marxian analysis tends to stress the nature of ‘capitalist forms of production.’ Technological determinism is key, though class relations still important.

t04s Constructivist Theory: This stresses how ‘anarchy is what states make of it.’ That is, attitude formation is given a central role. Unlike other theories, the time path is considered less predictable (stochastic), for states have the ability to fashion different futures. Elite groups are often emphasized, though other sorts of agency are possible.

t(04sx) Feminist Theory: This sees merit, but also difficulties, in all of the above approaches. Individual works may thus pursue a diverse range of types of theory.

t(04v) Green Theory: Once again the emphasis is on results. Green theorists hope to identify institutions or sometimes attitudes that would encourage better treatment of the environment. It thus seeks change in a particular direction.

5. **t04 Theories of the State** (Pressman, 2006)

Pressman starts by discussing rational choice theory 04uc (see above), and notes that, ‘The various heterodox schools of economic thought have rejected one or more of these key assumptions.’ (2006, 4). Post-Keynesian and Austrian economists stress the uncertainty that characterizes most human decisions, and thus that strict adherence to rationality is not possible. Behavioralists, feminists, and others reject the assumption that individual preferences are fixed, and thus investigate how preferences (a type of attitude) are formed. Institutionalists and radical economists emphasize the power relations between groups. [Marxian approaches are ignored here, since addressed above.]

tn(04ucp) The Polanyi School of Economic Sociology: This approach stresses that market economies actually depend on shared values of trust and responsibility, but a belief in the selfish actor of rational choice theory may weaken these values. This approach stresses relationships and the importance of tradition in decision-making.

tn(04ucs) Social Structure of Accumulation Approach: This approach stresses ‘long waves’ in economic activity: decades of rapid growth alternating with decades of relative stagnation or even decline. This cyclical sort of time path was neglected in the typology developed in Szostak (2004) but deserves to be added. The theories tend to stress technological innovation as a generator of waves, but also the sluggish evolution of institutions to cope with these technological changes. Despite these emphases on impersonal forces, theorists eschew determinism and thus maintain some place for (generally individual) intentional agency in shaping these developments.

tn(04uct) Post-Keynesian Theory: As noted above, this stresses uncertainty. States should act to decrease uncertainty by, for example, restricting business cycles and establishing a social safety net. Given that human behavior will be guided by institutions and attitudes, states can also usefully strive to shape these.

tn(04sx) Feminist Theory of the State: The state is seen as the nexus for determination of gender roles (with different theorists suggesting different paths). Yet the emphasis is on the individual agency of voting.

tn(04sc) Public Choice: How do states make decisions? These theories investigate how networks of agents interact to generate decisions.

6. **u5b04 Theories of Industrial Relations** (Muller-Jentsch, 2004)

u5b) 04aw Systems Theory: The stress is on how institutions and culture generate equilibrium in labor relations, but the precise causal mechanisms are not well specified.

u5b) 04um Marxian Approaches: There are different approaches. Many scholars have looked at the effects of unions (a form of group agency). Some of these have worked within an equilibrium framework, while others have emphasized the possibility of dynamic improvement in the condition of workers. Still other theorists have addressed the question of how workers come to sense injustice (that is, how they form attitudes). One strand of this theorizing argues that attitudes change through long wave cycles (see above).

u5b04s Institutionalism: These scholars stress path dependence: the path of institutional change is sensitive to small events and thus stochastic. While institutions are appreciated as both cause and effect, theorists stress how particular institutions constrain labor relations. A variety of causal forces are possible, though individual agency is downplayed. Social institutionalists criticize rational choice theory and stress how culture influences human behavior.

u5b04t Action Theory: Individual agents are able to shape outcomes. (At times, relationship agency is stressed.) The possibility of diverse outcomes is thus stressed.

u5b04cv Transaction Costs Analysis: This is an offshoot of rational choice theory. It emphasizes the costs associated with any sort of interaction, and might thus be conceived as a theory of relationships. With respect to labor relations in particular it stresses how power relationships can minimize transactions costs. Muller-Jentsch (2004) closes by urging a synthesis of many of these approaches: in particular he wants to theorize both how individuals shape institutions and how institutions shape individual behavior. Such a combination of theories – a ‘theory cluster’ in the terminology of Szostak (2004) – would inevitably sprawl across many of the cells in the typology of theory.

7. **s04 Contemporary Social Psychological Theories** Burke (2006)⁶

s04e Social Exchange Theory: The emphasis is on exchange (an action), and all types of agent are treated in different versions of the theory. Decision-making is either by rational choice or by learning (that is the development through time of decision rules based on trial and error). The focus is on new equilibria wherein agents are each satisfied with an exchange.

s04ef Affect Theory of Social Exchange: This differs from the preceding theory only in stressing the role of emotion (intuition) in decision-making.

s04j Justice Theory: The focus is on how individuals decide that something is ‘just.’ (that is, the concern is with attitude formation). Individuals follow either rules or virtues. The main (though not exclusive) interest is in when agents sense injustice and thus do not comply: this would suggest a time path of change in one direction.

⁶ Three of the theories surveyed in this book – rational choice, symbolic interactionism, and affective contribution (an offshoot of symbolic interactionism) are ignored here as already addressed in Szostak (2004).

s041 Identity Theory: Personal identity (an attitude) reflects the individual's personality and/or their place in the social structure. Our identity and sense of other's identity then shapes our actions. Virtues – especially respect for others – play a key role in decision-making. The focus is sometimes on individuals and other times on relationships. Since agents seek to maintain identity the theories stress equilibrium.

s04o Social Identity Theory: This theory stresses how individual identity reflects group membership. The emphasis is on group causation (including competition between groups). Stereotypes of others (an attitude) shape behaviors toward them. The stereotypes appear to be grounded in tradition (but might be thought of as decision rules). The stress on group conflict generates stochastic outcomes.

s04p Theory of Comparative Processes: The theory stresses how people make comparisons (a form of attitude); various ways of making these decisions are suggested. The theory stresses how people compare more about relative than absolute levels of well-being, and it thus best thought of as a relationship-based theory. The time path varies by context.

s04r Elementary Theory: The theory stresses (structures of) relationships. Actions are shaped by values associated with the relationship (such as how slaves and masters should interact), but the values are in turn shaped by the relationship. Theorists sometimes stress how attitudes affect actions, and sometimes the reverse. Early versions of the theory focused on equilibrium outcomes, but the theory has more recently been extended to situations of conflict.

s04s Expectations, Status, and Behavior: The concern is with how expectations (an attitude) are formed. The usual focus has been on how individuals embedded in a small number of related relationships (as in small working groups) decide on relative status (and sometimes how these shape actions). The stability (equilibrium) of such status hierarchies is stressed. The decision-making process seems to be one of developing rules through interaction.

s04t Status Construction Theory: These theories instead focus on how status is embedded in group membership (and the differences between groups in economic and other resources). Relationships across groups serve to shape and reinforce status perceptions. In other respects, the theory is similar to the previous one, it seems.

s04y Legitimacy Theory: Attitudes regarding the legitimate exercise of power are forged within unequal relationships, but in turn shape how power is exercised. Decisions are based on values, but there seems to be some role for rational reflection as well. An equilibrium in which power is exercised in a way thought to be legitimate is common, but conflicts regarding legitimacy can also be treated.

Discussion

This paper has surveyed a handful of research areas in social science, and shown that the theories encountered in each can be reliably classified in terms of theory types and provided with appropriate ILC notation. Such a classification would aid researchers in identifying works that apply a particular theory type to a particular phenomenon.

In some cases, classification is rendered difficult by the vagueness with which certain theories are expressed, or by ambiguity in how a particular theory is interpreted by different theorists. Theory classification should thus act as a tool, and at the same time as a stimulus, for a more clear description and definition of theories. Authors could be encouraged to classify their own theories in terms of theory types and as compared with

other existing theories. Author classification could then be overseen by classificationists to ensure that works are placed in suitable places in classification schemes.

The approach outlined in this paper, of classifying works in terms of phenomena studied and theories and theory types (and methods) applied is part of a larger model, which is described programmatically in the León manifesto (cited above). It may be that, at least for some uses, works should also be classified along other dimensions such as local viewpoint (Beghtol 1988), epoch of knowledge (Tennis 2002), application to human activity (Vickery 2008), and disciplines; ILC notation is available in each case. First experiences with indexing bibliographies by ILC suggest that dimensions occur with different frequencies in different domains: in a natural science domain like bioacoustics, method is expressed far more frequently than theory (Gnoli et al. 2008), while the opposite seems to happen in human sciences.

More experimentation is obviously needed to assess the effectiveness and the details of this approach, as well as the expression of theories and methods in domains other than social sciences.

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