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The (Ab)Normal-Social-Personality Catena:

Exploring *The Journal of Abnormal and Social Psychology* During the Interwar Years

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Abstract

This paper is a co-citation network analysis of *The Journal of Abnormal and Social Psychology* (JASP) from 1925 to 1942. The analysis was conducted to help shed light on the historical roots of the intellectual and institutional relationships between social, personality, and abnormal psychology. JASP was a main venue for the boundary work of early-to-mid twentieth-century American psychologists. One of the main goals of these various research communities was to appropriate psychoanalytic and sociological concepts into preferred methods and approaches that favoured an individualistic, quantifiable, and normal subject. Five major research communities are identified and historically contextualized: Community #1: Measuring Social Aspects; Community #2: Psychometrics; Community #3: Operationalizing Psychoanalysis; Community #4: Introversion Studies; and Community #5: Experimental Social Psychology. This analysis demonstrates how disciplinary psychologists, at least within JASP, were united by the work of delimiting their work from closely aligned fields studying the same concepts--even if their methodological commitments to experimentalism or psychological testing might have ostensibly divided them. Possible future research incorporating post-WWII research and dynamic networking approaches is recommended.

Keywords: Personality psychology, social psychology, abnormal psychology, network analysis, bibliometrics.

The (Ab)Normal-Social-Personality Catena:
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“No worker can wholly escape the ideology of his time.”

- Clark L. Hull (1933)

I conducted a co-citation network analysis of *The Journal of Abnormal and Social Psychology (JASP)* from 1925 to 1942 to examine the historical roots of the intellectual and institutional relationships between social and personality psychology. This seminal mid-twentieth century journal was the precursor to both the *Journal of Personality and Social Psychology* and the *Journal of Abnormal Psychology*, as those two journals rose from the demise of *JASP* in 1965. This investigation of *JASP* should reflect the confluence of American social, personality, and clinical psychologies from the interwar period up to today. In this study I discuss five research communities within a co-citation network that shed light on the institutional goals and epistemological values of American psychologists during this time—with an emphasis on research focused on the individual that was amenable to experimental operationism and quantitative measurement.

JASP was an essential venue for the institutional and intellectual process and ideology I call the (ab)normal-social-personality catenaⁱ. By this, I mean a number of deliberate connections strung together by a particular epistemology. The most obvious of this is connecting the abnormal to the social within Cooperating Editor Floyd Allport's individualistic adaptation of preceding and contemporary social psychology. Later on, as Editor Gordon Allport supported the transition of personality from a topic of research in psychology, psychoanalysis, and sociology, to an independent subfield within disciplinary psychology, he also bolstered individualism as a foundational value. Unfortunately, this brand of individualism was associated with an epistemology that emphasized measurement, experimentation, and statistics as arbiters of truth—

values opposed to the case and single-life studies that Allport promoted in his calls for appreciating the unique individual. It was also within this stage of the catena that personality was confidently moving from typology to dimensional traits within psychological research, reflecting an embrace of not only half of Gordon Allport's trait psychology but also the epistemological virtues of psychometric tools that modified our theorizing of personality itself.

The blossoming of personality within the (ab)normal-social-personality catena also marked the ongoing transition from investigating abnormal to investigating normal persons. Investigations of the abnormal, the social, and the person represent psychologists' boundary work: delimiting their research programme's increasingly methodologically rigid take on these topics while appropriating, relabeling, and transforming phenomena from adjacent human sciences. This appropriative project is found in all five communities I discuss below, spearheaded by figures such as Louis Leon Thurstone and Clark Hull who demonstrated how psychoanalytic and sociological concepts can be psychologized. Although the analysis begins under the editorship of Henry Moore rather than Floyd Allport, the commitment to these values remained. Even when Gordon Allport took over the journal in 1937, his promotion of personality psychology only reinforced the ongoing conceptual appropriation with epistemologically appropriate tools. Although the communities outlined below in some ways demarcate distinct research projects, such as behaviourist experimentalism versus psychological testing, they are united in their epistemological values and aims. These connections enrich our understanding of the present day nominal union of social and personality psychology, as well as the social and abnormal roots of personality psychology. The progression of the (ab)normal-social-personality catena, moving along these three ultimately entangled aspects, is an essential part of the disciplining of interwar American psychology.

Previous Work on Disciplinary Structure

A recent bibliometric study of nine major international personality psychology journals revealed the dominance of American researchers in terms of publications and citations up until the millennium (Allik, 2013). Exploring the co-citation structure of *JASP* can help us understand the research landscape of what would ultimately become recognized fields of American psychology. I opted to focus on the specific time period of 1925 through to the end of 1942. The latter year, as with any historical cut-off point, is somewhat arbitrary—its purpose is to conclude this analysis slightly before the influences of WWII can begin to be seen. WWII had an immense impact on the structure and aims of disciplinary psychology—which has been written about extensively (e.g., Capshew, 1999; Herman, 1995; Napoli, 1981)—and the particular temporal bracketing in this project is an attempt at precluding this important historical event and its ramifications

The person in society is one of the foundational topics of research in psychological science. Currently, the person and society are at least nominally joined in many esteemed academic journals, including the *Journal of Personality and Social Psychology*, *Personality and Social Psychology Bulletin*, *Personality and Social Psychology Review*, and *Social Psychological Personality Science*. In the American Psychological Association (APA), the Society for Personality and Social Psychology (SPSP) has a large membership of more than 7,500 and their website explains that although the traditional foci of personality and social psychologies on the individual and the situation seem distinct, “the two perspectives are tightly interwoven in psychological explanations of human behavior” (What is Social/Personality Psychology?, n.d.). Though the marriage between social and personality psychology has not been without its tensions, the contemporary sub-disciplinary duo is robust and ubiquitous enough that researchers

have investigated its contemporary academic structure.

For example, Lanning (2017) used a series of network, community, and text analyses of key journals and other sources of data to elucidate our current social-personality disciplinary landscape. He found the current structure of the discipline has Five-Factor Model research anchoring a large personality community and interpersonal relations anchoring the social/personality community. Additionally, attitudes are a more broadly studied area without a simple centre. This supports the view that even though social and personality psychologists do publish research in shared social/personality venues, personality psychologists have a distinct field where publications more often focus on correlational than experimental research, echoing Cronbach's (1957; 1975) two disciplines—a distinction recently explored discipline-wide by analysing over half a million article titles and abstracts from 1950 to 1999 (Flis & van Eck, 2017). Lanning (2017) provides a historical backdrop, explaining that *JPSP* was born from the dissolution of the *Journal of Abnormal and Social Psychology* in 1965, playing a key role in complex marriage between the social and personality psychology fields.

But Lanning understandably omits much of the twentieth century history in explaining our current disciplinary landscape, briefly alluding to the Gordon Allport as a common root for the social and personality. It was Floyd Allport, Gordon's brother, and his role expanding *JAP* to *JASP*, that was one of the vital roots of the sub-disciplines as we recognize them today. This expansion was undeniably entangled with the journal's roots in abnormal psychology. This current paper's analysis helps us understand the disciplinary connection between the person and society (the individual and the group), and how it is entangled with the normal and the abnormal.

Disciplinary Boundaries

As alluded to earlier, boundaries are a key aspect of this analysis of five communities that

reflect the (ab)normal-social-personalitycatena. Boundary work is a useful theoretical tool stemming from the sociology of scientific knowledge (e.g., Gieryn, 1983). Although it can be viewed as the Popperian process of delimiting science from pseudoscience, boundary work also occurs within disciplines—how a discipline’s authority is “restricted, protected, expanded, and enforced” (Good, 2000, p. 387). Delimiting psychological social psychology from sociological approaches was an important part in developing the social psychology discipline (Barenbaum, 2000; Good, 2000). I argue that during this period in *JASP*, the boundary work developed as such: beginning with a psychological approach to the abnormal, to an individualistic approach to social psychology, to an individualistic approach to the person, and ultimately looping back to the abnormal through the shift toward the normal personality.

It was not a perfectly chronological progression but the sequencing roughly maps onto the main boundaries. A set of epistemological values—that emphasized the experimental, measurable, and eventually statistical—also tied together the boundary process that unfolded during this time span. As explained above, I have named this boundary process and its ideology the (ab)normal-social-personalitycatena in an attempt to represent the entanglement and complexity of these three aspects. Before exploring the five communities that represent this catena, I will begin with an outline of the journal’s publication history.

The Changing Editorship of the *Journal of Abnormal and Social Psychology*

Morton Prince was a respected Boston physician who had been editing the original *Journal of Abnormal Psychology (JAP)* since 1906 and founded the Harvard Psychological Clinic twenty years later (Triplet, 1992). Prince apparently wanted the Clinic to stand as a monument to his legacy the same way that La Salpêtrière stood as a monument to Charcot in Paris (Murray, 1956, p. 295). After earning his medical degree at Harvard in 1879, Prince left

New England for “the traditional tour of Europe” (p. 291) that graduates took to supplement their clinical education. Shortly after, he transported his mother, ill from a “mysterious neurotic ailment” (p. 291), to Paris in order to see Charcot himself for consultation and cure. Prince’s experiences with French thought cemented his interests in the abnormal (such as neuroses and their hypnotic treatments) and eventually even the parapsychological. The *JAP* was a publication where distinguished and controversial Old World researchers of the abnormal were published and discussed, such as Pierre Janet and Sigmund Freud. It was the official organ of the American Psychopathological Association from 1914 to 1921 (see Taylor, 1986 for an overview of Prince’s role in the association) before it also became the official organ of the Psycho-Medical Society of England.

After his wartime experiences, and upon the recommendation of his colleague William McDougall, Morton Prince wanted to expand the scope of his journal to include social psychology (Barenbaum 2000). In April, 1921, with new Cooperating Editor Floyd Allport, the duo unveiled the sixteenth volume of *JAP* under a revised name: *The Journal of Abnormal Psychology and Social Psychology (JASP)*¹. This revamped version of the journal was considered an extension of the original (The Editors, 1921)—with Prince remaining the expert on abnormal psychology and newcomer Allport serving as expert on the nascent field of social psychology (Faye, 2013, p. 69). Though according to Gordon Allport (1938), Prince was a nominal editor occasionally contributing pieces until his death in 1929. As historian Roger Smith (2013) points out, this updated journal title signalled that American psychologists were still anchored to the promise of diagnosing and treating the pathological or abnormal individual—pathologies that would eventually become normalized (Herman, 1995). The titular revision

¹ Later simply retitled *The Journal of Abnormal and Social Psychology* once it was gifted to the American Psychological Association in 1925.

carried much weight, as it signalled important connections among the abnormal and the social, the abnormal and the normal, the individual and the group, personality types and traits, and finally, the experimenter, the tester, and the clinician. Personality was becoming a major consideration within the developing social psychology sub-discipline.

Prince and Allport immediately set out to distinguish their venture from previous and concurrent work on abnormal, personality, and social psychology in psychology, sociology, and psychoanalysis (Barenbaum, 2000). In their inaugural editorial announcement, the duo reassured journal subscribers that although this was a progressive period for social psychology, including “rapid development” in “[t]he technique of personality study and measurement” (The Editors, 1921, p. 2), they still owed many debts to the foundational work of abnormal psychologists. Pathology is claimed as having a mediating role between an individual’s personality and the social order, while the individual is a necessary “point of departure” (p. 2) before studying the interaction between the individual and groups, as well as social behaviour. Even though Floyd Allport would promote the developing areas as objective science, his psychology actually reflected two political desires: solving social problems through experimental control and psychological measurement; and protecting against the loss of the individual in American mass culture (Nicholson, 2000, pp. 464-5). Some of the listed applications of such a psychology included helping the nation with problems of national and racial stock, and problems of socialization more broadly. In selling the reader on the virtues of this new triumvirate of science, contemporary social and political concerns are explicitly addressed: “The psychology of ultra-radical movements, of Bolshevism, spiritualistic fanaticism and the like, is really that of the abnormal personality and its ‘falling out’ with the regime of society” (p. 3). Thus, in the inaugural issue of *JASP*, Prince and Allport highlighted some of the key values of the

(ab)normal-social-personality catena and marketed its untapped usefulness for societal betterment.

Shortly after, Floyd Allport also promoted his approach to these areas and topics in his book *Social Psychology* (1924). In the early twentieth century, ownership over social psychology was still unsettled between psychologists and sociologists, who had distinct conceptualizations and methods when studying the person in society (Smith, 2013, pp. 204-5, 217-19). During the interwar years, Allport's 1924 textbook delimited a psychological from a sociological social psychology—the former being the study of core activities (e.g., perception, memory, attitudes) “in *special* social settings, for example, in friendship, school, or work” (Smith, 2013, p. 217). Allport's *Social Psychology* book focused on fitting “the subject into the psychology curriculum and suggested experimental research programme on the behavior of individuals in interaction with other individuals” (Smith, 2013, p. 219), and can be seen as an alternative to the sociological writings of George Herbert Mead. Allport's textbook and his other writings during the 1920s were part of his “almost fanatical war on collective concepts prevalent in the social scientific literature” (Faye, 2013, p. 70). He proselytized a social psychology focusing on the individual; his approach served to de-contextualize the person from history and culture, and bring his version of social psychology into the established disciplinary fold rather than the social psychologies of differently-minded psychologists and sociologists (Graumann, 1986; Greenwood, 2003; Smith, 2013).

Allport's aim in this book was to succinctly introduce “the most recent psychological investigation and theory” to all those interested in “social relationships” (Allport, 1924, p. v), as it was previously within the purview of sociologists and some psychologists. Allport was especially concerned with bridging the gap between social psychological research and what he

viewed as the two most prominent and fruitful theoretical viewpoints in contemporary psychology: the behavioural and the experimental. In sync with the inaugural editorial announcement three years earlier, Allport echoed the message: the foundation for understanding interactions (i.e., social behaviour) is necessarily individual behaviour and consciousness. This extends to what he terms “The Group Fallacy,” in which a psychology is misattributed to the group instead of appropriately attributing it to the individuals and their social behaviour. In this way, Allport (1924) positioned social psychology as necessarily the foundation of sociology—though he concedes that the former had “grown largely through the labors of the sociologists” (p. 9). Floyd Allport pushed for a psychology that favours the individual throughout the text. For example, he defined personality as “the individual’s characteristic reactions to social stimuli, the quality of his adaptation to the social features of his environment” (p. 101)—the quality of social adjustment of course signifying either a normal or pathological response.

In 1925, Floyd Allport stepped down as Cooperating Editor and the position was given to Henry T. Moore, moving the journal to Dartmouth College, Hanover, New Hampshire (Editorial Board, 1925). The following year, Prince gifted *JASP* to the American Psychological Association free of charge hoping to maintain the journal’s high scientific standards (Allport, 1938; Katz, 1964). Following Prince’s death, Moore became full Editor in 1930—working this position while he was also college president (Katz, 1964). Under Moore’s editorship, the flavour of *JASP*’s shifted away a traditional aspect of medicine, psychoanalysis, and abnormal psychology: the case study. Moore apparently applied a rigid standard for accepting manuscripts; they would ideally make use of statistics on group data, such as experimental or psychometric work (Barenbaum & Winter, 2003).

There was not a change in the guard until 1937, when Gordon Allport began official

editing duties on July 1, with his brother Floyd and Moore staying on the editorial board. By 1938, in his inaugural issue as editor, Gordon Allport admitted that the journal receives far more social psychology submissions than abnormal psychology but he attempts to strike a balance in what is published. He also opined that the social/personality aspect of *JASP* will eventually break off into its own journal, given the aforementioned imbalanced as well as how nearly all submissions are either abnormal or social, never both (Allport, 1938). Nevertheless, Allport defended the journal's dual nature as important connections among the abnormal, the social, and his recently proposed subfield of personality psychology (see his book, Allport, 1937). In a paper analyzing the past fifty years of psychological research in major journals, Jerome Bruner and Gordon Allport (1940) reported many trends in topics and perspective. Among their findings, they reported the normal, adult human as the preferred research subject—with a momentary slip around 1908 possibly due to “speculative” (i.e., psychoanalytic) forms of psychology and venues such as *JAP*. They also found that around 1928, there was a dramatic increase in experimental activity and preference for statistical counting. Noting the expansive and lively state of disciplinary psychology at this time, they wrote: “Psychology had mounted the steed of prosperity and had dashed off in all directions at once. It was the predepression [sic] era, and the universe—so it seemed—was endless expanding” (Bruner & Allport, 1940, p. 773). It is roughly this time and after that I will explore below with an analysis of *JASP*.

Method

Network analyses have been fruitfully applied to various contexts of the history of psychology, such as the relationship between institutions, psychologists, and animals (Pettit, Serykh, & Green, 2015). But it has been predominantly applied to academic journals (e.g., Green et al., 2013; 2014; 2015a; 2015b). Conducting a co-citation analysis of *JASP* during the years in

question will provide the skeletal structure of the journal's research communities, which will be fleshed out by a closer historical examination. Within bibliometric techniques, citation and co-citation analyses serve different purposes. The former is particularly useful when one is interested in a single document's impact within a corpus of texts (e.g., how often a research article is cited with a certain database).

Whereas a co-citation analysis is particularly suited for identifying discursive communities and specializations within a corpus of texts, as it indicates how authors tend to group together other publications within their citations (Small, 1973). I extracted and visualized a co-citation network from *The Journal of Abnormal and Social Psychology* during years 1925 to 1942. This means the reference list was pulled for each research article published in *JASP* during that time period. Each time two publications were cited together within a reference list, they were included for analysis in the co-citation network as nodes connected by an edge.

The scientific citation indexing service Web of Science (WoS), particularly its Core Collection, was used to retrieve these metadata. The analysis began at 1925, rather than 1921, due to WoS's collection beginning that year. Excluding book reviews and commentaries, this resulted in 736 articles for use in analysis. As explained earlier, 1942 was chosen as an upper boundary in an attempt to preclude some of the major effects of WWII on American psychological research. Ending this initial analysis here also leaves another 18 years of *JASP* articles for future research, making the two analyses equivalent in number of years.

Science of Science (Sci²) software (Sci2 Team, 2009) was used to import these metadata for analysis. This software is designed to prepare data for various analyses, including network analysis, and is capable of creating a co-citation network from the ISI metadata provided by Web of Science. A co-citation network was extracted from the metadata, resulting in a network of

5,764 nodes (483 isolated) and 71,087 edges. In the case of a co-citation network, each node is a publication from a *JASP* article's reference list and the weight of the edge between them indicates how often they were cited together. After removing the isolated nodes, in order to find the most established research communities and thinning the network to ease interpretation, I then retained only nodes that had been cited together at least twice. The final extracted co-citation network for *JASP* consisted of 172 nodes and 255 edges. It was then exported to a network visualization tool called Gephi.

Gephi (Bastian, Heymann, and Jacomy, 2009) is a popular software for numerous visualization purposes, particularly the creation of social networks. Sci² has a built-in method for exporting networks into Gephi's visualization program. Algorithms for network organization, community identification, and statistical calculations can be done and visualized within this Gephi. For the *JASP* network, I decided to use betweenness centrality to determine a node's size. Betweenness centrality, in simple terms, is an indication of how much a node brokers between other nodes. A node high in betweenness often serves as the shortest path between two other nodes—indicating its role as a bridge between communities, or even within communities (see Freeman, 1978, for a classic conceptual overview of centrality in social networks). As *JASP* was promoted as merging and connecting research, the intention in using betweenness was to see which researchers served as important connectors and in what ways.

It should be made clear that although quantitatively-derived visualizations are the primary method here, these are supplemental to traditional methods of historical interpretation. In other words, these methods do not provide statistical support for a position in the way that a significance test result or a confidence interval might. The visualizations herein are both mutable and open to interpretation. Psychology has long been accused of putting too much faith in the

inherent truth-value and meaning of their methods' results (e.g., see Porter, 1995, pp. 209-213). This results in a denial of the interpretive process of (usually statistical) results—a process that, in the worst circumstances, can result in epistemological violence (Teo 2008, 2010). My intention here is to be open about the limitations of my own interpretations of these visualizations and numerical results, and remind the reader that the way in which these methods are used here is to supplement and enrich historical inquiry—not to replace it.

Results & Interpretations: *JASP* 1925-1942

The initial extracted paper-citation network consisted of 5,764 nodes, meaning that these 736 articles cited nearly 6,000 unique papers or books ($M = 7.83$ citations per paper). This shows how seldom early psychologists cited the work of others as compared to the enthusiastic citation rates of current research articles. On the one hand, this will minimize the information obtainable through a citation or co-citation analysis; on the other hand, this economic rate of citation will ensure the importance of each citation to the author. Once isolated nodes were removed from the extracted co-citation network, there were 5,281 nodes and 71,087 edges; each edge between two nodes represents their co-citation. I placed a threshold on this co-citation network, extracting only edges with weight above 1 (see Figure 1 for this extremely trimmed co-citation network). This means only papers that were cited at least twice together were retained. The final co-citation network was very small and more conducive to the kind of interpretation I want to perform in this paper: 172 nodes and 255 edges. The visual groupings of nodes, along with the modularity process in Gephi that locates and colors communities, will guide my interpretations (see Figure 1).

Though the focus was on betweenness (as explained in Methods), the largest nodes in the network proved not to serve as knowledge conduits *between* communities so much as playing an

important role within their own communities. This is perhaps unsurprising in this early era of social and eventually personality psychology. There were a few other communities and dozens of much smaller islands (consisting of two to five nodes each) that will not be explored in this current analysis. These communities consist of publications that were often cited together, but exactly why these nodes are connected and placed in larger communities could be due to topical, methodological, or geographical overlap. The ensuing analysis is an attempt at understanding the central concern(s) of these five communities and why they are found in a co-citation structural analysis *JASP* during this time.

In the upcoming sections, I describe these five communities, often leading with which node(s) (i.e., articles or books) served as epistemically and socially significant for them (as defined by betweenness). In essence, this is a subjective process aided by the quantitative processes explained in the Methods section. Other researchers who wish to conduct the same or very similar network analysis may find points of convergence and divergence in their reading of their network, as the precise steps or criteria in creating their network could vary. Using bibliometric networking tools in historical analysis is not meant to yield the ultimate solution or structure to a historical inquiry. Differing networks and interpretations of the same or similar dataset are a welcome part of furthering scholarship in the history of psychology.

The 5 Communities

1. Measuring Social Aspects.

One of the most populated communities consists of research on the measurement and definition of attitudes, particularly a person's political attitudes. At the centre of this community (i.e., serving as a main knowledge connector) is Thurstone's seminal 1928 "Attitudes Can Be Measured," published in the *American Journal of Sociology*, with Betweenness Centrality [BC] =

22. According to this current analysis, the rest of the nodes in this community have a betweenness centrality of zero—reflecting the importance of Thurstone’s work in understanding Community #1. This was published at a time when some sociologists, especially at the University of Chicago, were advocating for quantitative methods (Barenbaum, 2000). Thurstone was a pioneering figure in psychological methodology. As notorious British psychometrician Cyril Burt exulted in Thurstone’s obituary, he was the “best known leader in the field of statistical psychology, he will be mourned in every country where psychology is taught” (Burt, 1956, p.1). Psychologist-historian Franz Samelson (1978) places Thurstone’s work from this period, along with fellow psychometrician Joy Paul Guilford’s work, as early examples of the discipline’s transition from racial differences research to studies of prejudice. Thurstone’s important methodological developments in the study of attitudes undoubtedly played a key internal historical role, though Samelson suggests a number of wider social-political events (such as the Great Depression) as the great impetuses toward this disciplinary shift in majority opinion on race and prejudice (see Samelson, 1978, pp. 270-273).

A former Cornell University electrical engineering student who had demonstrated his gifts for applied mathematics early in life, Thurstone eventually attended the University of Chicago to study educational psychology under Judd and general psychology under Angell (Burt, 1956). His interests in testing, measurement, and methodology are clear in the institutional legacy he left, having established the psychometric laboratory at the University of Chicago (and later directed the laboratory at University of North Carolina, Chapel Hill) and having co-founded the journal *Psychometrika* (Guilford, 1957). Having experience in traditional psychophysics, Thurstone yearned to stoke interest in the subfield—as the less-than-scintillating operations usually associated with it (e.g., lifting and comparing weights) did not match the wondrous

applied potentials. During the 1920s, he began corresponding with Floyd Allport “about the appraisal of political attitudes and social opinions” (Burt, 1956, p. 3), leading to his many early-career works of connecting experimental psychophysics to the realm of psychological measurement.

Thurstone’s 1928 article detailed his attempt at rendering social values and attitudes quantifiable. Thurstone’s appointment at the University of Chicago and his research at this time placed him in the middle of ongoing debates and controversies regarding quantitative data versus case studies in sociology (see Bulmer, 1984, ch.10). He distinguished attitude, the “sum total of a man’s inclinations and feelings, prejudice or bias, pre-conceived notions, ideas, fears, threats, and convictions” (Thurstone, 1928, p. 531), from opinion, which he conceptualized as a verbal expression of attitude. One of the main intentions behind the article was a “statistical refinement” (p. 543) of previous research by Floyd Allport (Allport & Hartman, 1925), changing rank orders to a scale consisting of a “rational unit of measurement” (p. 542) that most people would understand intuitively as an interval scale. Thurstone’s initial example of distilling an individual’s attitude from their opinions is the hypothetical case of a man opining that “we made a mistake entering the war with Germany” (p. 531)—which he explains could be interpreted as pro-German attitude. A few years after contributing to this bone of contention, Thurstone left attitude research to pursue multiple factor analysis (research present in the next co-citation research community). Thurstone’s work on social attitudes helped make the topic a concrete and legitimate area of social psychology—and buttress the political and social relevance of disciplinary psychology findings (Young, 2017, p. 36). A focus on political attitudes—either specific (e.g. proponent of a certain nationality) or abstract (e.g., a proponent of pacifism)—is present in the rest of this first community.

The remaining nodes of the first community represent various research on political and ideological attitudes published shortly before Thurstone's article. This includes the Allport and Hartman (1925) article he referred to as foundational to his article. The duo set out to measure political attitudes in certain groups (e.g., liberal, radical, or conservative), with the intention of measuring and understanding the motivation behind (and possibility of) a "radical type of personality" (Allport & Hartman, 1925, p. 735). Continuing this topic, psychoanalyst Theodore Schroeder, broadly known for writing on freedom of expression and speech, also had a paper in this community entitled "Conservatism, liberalism, and radicalism" (1920) published in the *The Psychoanalytic Review*. Concordant with this interdisciplinarity, American sociologist George A. Lundberg's (1927) article focused on developing a quantitative analysis of a group's environment rather than biological factors.

This community also had one of the most renowned female psychologists in American history, Margaret Floy Washburn. She was the first woman granted a PhD in psychology, the second female APA president, and was known for her research on animal behaviour and motor theory development (Pillsbury, 1940). In tune with the rest of the community, her article reported Vassar College laboratory research on the testing radical and conservative temperaments (Washburn et al., 1927). As seen in Washburn's article and the others, this community's interests exemplify the central tenets of the (ab)normal-social-personality catena: the development of experimental and psychometric methods from past research on extreme personalities or attitudes in individuals or groups.

2. Psychometrics.

According to Cyril Burt's obituary of L.L. Thurstone, the seminal psychometrician and methodologist had a significant turning point in his career from scaling social values (e.g.,

attitudes) toward developing factor analytic models of mental traits and personality (Burt, 1956; Young, 2017). His work's presence in the first two distinct co-citation communities outlined here, with the second community largely consisting of psychometric studies of the (ab)normal person(ality), supports this narrative. As Burt explained, after conducting research on various aspects of scaling social values—including studies of media's influence on prejudice—Thurstone decided that “‘the construction of more and more attitude scales was becoming unproductive’ ... and he therefore discouraged further work of this kind in his laboratory” (Burt, 1956, p. 3). Shortly after reading Kelley's *Crossroads in the Mind of Man* (1928), Thurstone gravitated toward the psychometric study of traits. Two of these resulting works are present in this second network.

In Thurstone's seminal 1935 psychological methodology book, *The Vectors of Mind*, he proposed a multiple-factor analysis of personality. As cleverly conveyed in the title, this marked the continuation of his career-defining endeavour to apply the methods and mathematics of the established sciences to inquire of the human mind. In this book, Thurstone rejects Spearman's two-factor solution as inadequate for fully encapsulating and analyzing the multi-dimensionality of the person and their mental traits. A previous technical book—*Computing Diagrams for the Tetrachoric Correlation Coefficient* (Chesire, Saffir, and Thurstone, 1933)—is also part of this community. Thurstone co-authored this short text to address the need for a simpler method of computing multiple-factor analysis. Additionally, fellow psychometrician and colleague Joy Paul Guilford's 1936 textbook *Psychometric Methods* (1936) is also part of this community; this textbook was intended to plainly teach psychology students about the many exciting developments in quantitative methods.

Many of the remaining nodes in this network are research articles that used these

psychometric developments in research on the (ab)normal personality. J.P. Guilford and his wife Ruth's 1936 report on their expansion of Thurstone's factor analytic methods is an important part of this community (BC = 5). Using a short 36-item questionnaire diagnostic of introversion-extraversion, they identify social, emotional, and masculine factors (S, E, and M model), along with two other less easily defined factors, and outline how to measure them (Guilford & Guilford, 1936). Another article relatively high in betweenness within this community is Mosier (1937; BC = 5) at the University of Florida also published research report on his use of Thurstone's Neurotic Inventory and his advanced psychometric methods. Rather than a single trait of neurotic tendency, Mosier proposes a series of potentially primary traits including: cycloid tendency; depression; hypersensitiveness; lack of self-confidence; social maladjustment; autistic tendency; and cognitive defect. There is still a strong overlap in clinical diagnostics and the exploration of personality trait structure at this time. The line between normal and pathological, individual differences and universal structures, are blurred in these early factor analytic researches being referenced in *JASP*, the bastion of the (ab)normal-social-personality catena.

3. Operationalizing Psychoanalysis.

The third community is a closely-knit association of researchers propelled by Hull's research on hypnosis and suggestibility at Yale's Institute of Human Relations. The IHR itself was an academic experiment, an ambitious effort at mounting a scientific enterprise (Morawski, 1986). It was also an experiment in applied human science, as the Rockefeller Foundation pledged close to \$10 million in 1929 hoping that the Institute's founding would "provide the basis for a rational management of human affairs" (Capshew, 1999, p. 20). The psychologists involved (such as Hull) were most concerned with establishing a epistemologically-sound

methodology, but the institutional experiment failed at achieving an integrated scientific enterprise; the Institute succeeded in working toward “a formal and mathematical learning theory” of human psychology (Morawski, 1986, p. 220).

Hull’s 1933 book, *Hypnosis and Suggestibility*, was the culmination of his team’s early experimental endeavours. It is far and away the highest in betweenness for Community #3 (BC = 28), and it is the third largest node (in terms of betweenness) in the entire network—following the two leading nodes of Community #5. Hull fondly devoted the book to this scientific labour: “In Remembrance of Our United Efforts to Establish Hypnotism on a Scientific Experimental Basis” (p. v). The book was the neo-behaviorist’s attempt at reporting his research to a broader academic and public audience. Hull had an unwavering faith in the power of experimental approach to rehabilitate the hypnosis research from its “dilapidated state” (p. ix). He openly lamented how past hypnosis research had been conducted in a clinical, largely psychoanalytic, setting with “its preoccupation with remedial exigencies” (p. ix); and opined that “a worse method for the establishment of scientific principles among highly elusive phenomena could hardly have been devised” (p. 18). Hull’s later key role in developing rigorous methodological systems for the Institute of Human Relations—upholding the steadfast belief in applying the rational and orderly hypothetico-deductive method to study the “irrational, impulsive, and amoral stuff of human nature” (Morawski, 1986, p. 239)—can be seen in his derision toward clinical methods.

The community unsurprisingly includes work from Hull’s pupil R.R. Sears, who would go on to specialize in child psychology at Stanford and co-author *Frustration and Aggression* (1939) with John Dollard, Neal Miller, and others. This book signalled the upcoming budding romance of American psychology during WWII and beyond (see Herman, 1995, esp. chapter 2).

Additionally, research on posthypnotic behaviour was also cited, indicating the continuing significance of hypnosis for the traditional clinical context (Erickson & Erickson, 1941). Other research topics in this community are on hypnosis per se, such as hypnosis susceptibility (Davis, 1931), or hypnosis as related to other popular psychological concepts, such as hypnotic anesthesia (Sears, 1932) and motivation in hypnosis (White, 1941).

Community #3 and the preceding community are symbolic of disciplinary boundary work: claiming strictly psychoanalytic concepts and applying psychological methods, concepts, and ideology. Yale's Institute and the ensuing *Frustration and Aggression* (Dollard et al., 1939) marked the fundamental project of reformulating psychoanalytic theories in quantitative forms, demonstrating that behaviorism and psychoanalysis could be combined toward a broader "psychological framework for the analysis of sociological problems framing from racial prejudice to political ideology itself" (Herman, 1995, p. 36). Dollard and Miller would go on to publish *Personality and Psychotherapy* (1950), a book emblematic of the late-era "behaviorist reworkings of Freud" that attempted to minimize his greatly influential psychoanalysis as ersatz learning theory (Hornstein, 1992, p. 259). From psychoanalytic tools such as hypnosis to diagnostic categories such as depression, work was being done to claim and refurbish these ideas for disciplinary psychology. Rendering these concepts experimentally elicited, operationally definable, and quantitatively measurable aspects of the normal individual and group would lead to new realms of reification. This appropriative process was also true in the case of Carl Jung's recently introduced concepts of introversion and extraversion.

4. Introversion Studies.

The fourth community consists of a mix of theory and research articles about early abnormal and personality psychology. This community includes well-known general and

experimental psychologists work on abnormal and personality psychology more generally, such as Harvard chair William McDougall's *An Outline of Abnormal Psychology* (1926; BC = 2.83) textbook (a companion piece to his general psychology outline) and Margaret Washburn's psychophysical experimental research on temperamental differences (Washburn et al, 1929). Present among this are papers devoted to clarifying and studying one of the most enduring and prevalent traits in personality psychology: extraversion. Of course, one of this trait's main origins is Carl Jung's *Psychological Types* (1923), in which the extravert and introvert were conceptualized as two distinct types—though Jung was drawing from many literary and scholarly systems of personhood when justifying his clinical observations and proposed typologies.

Some of these early personality psychologists' attempts at wrangling the unwieldy Jungian concepts of introverts and extraverts included proposals for its definition and measurement. This research highlights the partial transformation of personality type to trait, and includes University of Oregon's institutionally important but largely unknown Edmund Conklin (1923; BC = 1.5) and his proposal for the normal, adaptable, and healthy midpoint personality type: the ambivert (see Davidson, 2017). Once again, psychometrician J.P. Guilford makes an appearance, in an article that outlines the numerous definitions and approaches to introversion-extraversion thus far in psychology. In it the authors claim that given how traits such as introversion-extraversion have been established as physically real, it was time to work toward "simple objective tests and for some physiological basis for them" (Guilford and Braly, 1930, p. 105). Hans Eysenck and his disciples would answer this call for a psychobiology of personality, which is now a central part of contemporary trait psychology.

The two largest nodes in this community are early psychometric applications of

extraversion. One of the articles reports on the Neymann-Kohlstedt Diagnostic Test (NKDT), a 50 question diagnostic for the measurement of “introversion-extroversion” (Neymann, 1929; BC = 26.83). The author discusses introversion-extraversion’s origins and usefulness in psychiatry, gives its potential to explain abnormal conditions such as manic-depression, insanity, and schizophrenia—but he also rejects previous attempts at diagnostic test, such as Rorschach’s, for reasons similar to Hull’s rejection of clinical research on hypnosis. The NKDT was developed using abnormal samples from clinical contexts in Illinois. Neymann claimed that after testing a normal sample ($n > 200$), they confirmed their initial finding of a bimodal curve, grouping normal participants into “a predominance of introvertive and extrovertive traits with comparatively few borderline cases” (p. 487).

The second largest node of this community is Edna Heidbreder’s 1926 article on “Measuring Introversion and Extroversion” (BC = 20). Heidbreder took labs with Clark Hull during her MA at the University of Wisconsin in 1917 and would complete her PhD at Columbia University in 1924 where she heard many prominent speakers, including Thorndike and McDougall. While an instructor at the University of Minnesota, she became interested in psychometrics and helped develop the *Minnesota Mechanical Ability Tests* (Rodkey, 2010). Building on previous work also in Community #4 (Freyd, 1924), Heidbreder explores the measurement of “introversion-extroversion” by applying it as a rating scale to 900 normal students. A key conclusion in her results was her findings “suggest that pronounced introversion and pronounced extroversion merely represent extremes of behavior, connected by continuous gradations. In other words, the evidence points to a single, mixed type rather than to two sharply separated classes[.]” (Heidbreder, 1926, p. 123). Here is an example of explicitly rejecting introversion as exclusively psychopathological or abnormal, as well as rejecting a typology and

instead promoting a gradation. In Heidbreder's work, and in the work of Neymann and Conklin, there is a necessary connection between the definition and measurement of the normal and abnormal, the group and the individual, and the slipperiness between type and trait. This early research on what would become the personality dimension or super-trait extraversion highlights many of the (ab)normal-social-personality catena values, primarily quantifying the individual and transitioning from the abnormal to the normal person.

5. Experimental Social Psychology.

The final communities to be examined here create an archipelago of two distinct but intimately related communities—the only instance of community cooperation in this early *JASP* network. This dual-community consists of work on the experimental manipulation and measurement of individuals in groups. Muzafer Sherif's 1936 book *The Psychology of Social Norms*—a node very high in betweenness ($BC = 49$) that indicates its importance in connecting these two communities—appears to be pulling the islands of this archipelago together. In the guest-authored introduction to the book, Gardner Murphy echoed Hull's exaltations of the experimental method and its ability to create a “clear and cogent” (p. vii) science on topics heretofore outside the purview of true understanding. Believing that so long as all “essential elements of the cultural situation” could be framed and analyzed within an experiment, social psychology could begin making scientific progress rivaling “that shown to us by the astronomer, the geologist, and the biologist” (p. ix). Murphy undoubtedly saw in his student's experimental work on groups and beliefs the advent of a truly scientific psychology of the person in society.

Muzafer Sherif was born to a wealthy family in Turkey before earning a second Master's degree at Harvard in 1932, and is perhaps most famous for his Robbers Cave Experiments (Sherif et al., 1961). During his travels in Berlin in the 1930s, Gestalt psychologist Wolfgang

Kohler's lectures and the social effects of rising Nazism both made a lasting impression on his research and political positions (Harvey, 1989). He received his PhD under Gardner Murphy at Columbia in 1935, and his dissertation "Some Social Factors in Perception" quickly evolved into *The Psychology of Social Norms*. This book expands on the experimental research on and implications of the social influence on perception. For example, a group converging onto an agreed characteristic of a perceptual phenomenon (e.g., autokinetic illusion)—or more broadly, the group process of converging on a social norm of perception. The idea being that the social influence on perception is the foundation of the social influence on beliefs and values more generally. In agreement with the ethos of *JASP*, Sherif (1936) believed that a "psychology of the individual is a valid social psychology, and social psychology is a valid individual psychology. There are not two psychologies, but one" (p. 4). Sherif also truly believed in the social and political values of his research, ending the book by musing about the potential benefits toward planning safe and deliberate social revolution.

In the westerly portion of these islands there is work on the general topics and ideas of Sherif's book. Frederick Lund's multiple-part article (1925a; 1925b) reports research on the psychology of belief including support for his law of primacy in persuasion, which would be used in advertising and public communications. This influence on group ratings in experimental settings, or political attitudes in social settings, apparently had little to do with rational processes and more to do with emotion. It also includes research on defining and studying propaganda (Biddle, 1931), and the structure of political attitudes (Allport, 1929). Overall, the articles are in the vein of Sherif's central contention: that the interactions of a group can directly influence individual perception, beliefs, and attitudes

The easterly portion of these islands is very similar to the rest of the dual-community, but

is a group more concerned with the expansion, application, and method of research on social psychology. Primarily among them is Cantril's 1938 article "The Prediction of Social Events" (BC = 55). Hadley Cantril, a former student of Gordon Allport, founded The Princeton Office of Public Opinion—an office that resembled the German Psychological Institute for War and Propaganda given its governmental relationship and ambitions (Herman, 1995, p. 54). Cantril's 1938 article studies the validity of predicting social events by creating a questionnaire on presumably familiar situations, such as the Spanish Civil War, or possible future events, such as another economic depression. Of course, at that time, the prediction accuracies from respondents "awaits the course of history" (p. 387). But one of Cantril's major claims was that, similar to perceptual stimuli, social stimuli is more easily understood and predicted when its structure is simpler—the more complex and non-uniform the stimuli pattern, the more difficult it is to perceive.

Less related to the connection between visual and social perception, other research included in Community #5 reflected the broader concerns and methods of social psychology. This includes work on the dimensions of political stereotypes (Edwards, 1940) and the origins and molding attitudinal frames (Watson and Hartmann, 1939). Additionally, this community includes two of the most well-known statisticians who would influence psychological methodology: Ronald Fisher's *The Design of Experiments* (1935) and George W. Snedecor's *Calculation and Interpretation of Analysis of Variance and Covariance* (1935). The presence of their work on ANOVA and experimental design is unsurprising, as this statistical test and its related principles of design would become the defining method for quantitatively distinguishing signal from noise in the social psychological experiment.

Discussion

Historian of psychology James Capshew reminds us that in 1939, George A. Kelly traveled to the annual Indiana Academy of Science to present his paper on “The Person as a Laboratory Subject, as a Statistical Case, and as a Clinical Client.” This meta-theoretical paper reflected Kelly’s various strands of research, but also the “general trends within the discipline that had led to the emergence of experimental, correlational, and clinical studies as major lines of inquiry” (Capshew, 1999, p. 38). The modes of psychological research that Kelly outlined, along with the discipline’s constructs and methodology more generally, grew out of the (ab)normal-social-personality catena. Discerning the structure of *JASP* contributes to our historical and current understandings of the psychological outlook.

Boundaries of Social and Personality Psychology

During the earlier portion of this analysis’ time period (1925 to early 1930s), independent traditions of social psychology were developing in the established disciplines of American psychology and sociology. As social psychology grew, an “endemic disunity” became characteristic of social psychology: the contested topics and boundaries of the field reflected a variety of social psychologies, not only psychological and sociological (Good, 2000, p. 398). In reviewing three possible historical narratives of social and personality psychology, Barenbaum (2000) rejects the story of Floyd Allport fusing two separate branches of psychology (for reasons including social psychology was yet developing and personality psychology did not yet exist as a sub-discipline). More consistent with historical evidence is that Allport was building on the social psychology of other psychologists and sociologists, for whom personality was a popular research topic—as it was in psychiatry, mental hygiene, social work, education, and abnormal psychology. Through the developments of diagnostics into psychological testing, abnormal and social psychology shared personality. Allport’s “behavioristic language” and promotion of

measurement distinguished his project from the social psychology of researchers like George Herbert Mead, W.I. Thomas, and Hugo Münsterberg (Barenbaum, 2000, p. 475).

The history of *JASP* during the interwar years demonstrates the ways in which psychology delimited itself from closely aligned fields of scholarship and medicine, while still staking a claim in these areas' core concepts. These uneasy relationships and boundary work have been discussed by other historians in the context of sociology (Smith, 2013, ch. 9) and psychoanalysis (Danziger, 1997, ch. 7; Hornstein, 1992). Ironically, given disciplinary psychology's preoccupation with harnessing and normalizing psychoanalytic concepts, some of Freud's mid-career aspirations were to build toward a scientific psychology from a quantitative viewpoint: laying a foundation for a general psychology with observations from both neurotics and normal subjects (Gay, 1988, p. 78, p. 118). From this perspective, the boundary work of early disciplinary psychologists in outlets such as *JASP* was helping the Freudian cause.

This process can be seen in all five communities, such as in Hull's strictly experimental research on suggestion and hypnosis, once thought to be the key processes in the crowd psychology of Le Bon and Tarde; in Thurstone's claim of attitudes as quantifiable and measurable in *The Journal of Sociology*, attitudes hitherto the claim of University of Chicago sociologists such as W.I. Thomas and Florian Znaniecki; and the beginnings of the transition of Jung's abnormal introvert to the normal psychometric personality trait of extraversion. During the publication of Floyd Allport's *Social Psychology* (1924) textbook and the revamping of *JASP*, this new form of social psychology "conveyed the clear message that personality is the key to social relations" (Smith, 2013, p. 219). Personality was mainly within the purview of mental hygiene, abnormality, and development. *JASP*'s 1925-1942 co-citation structure is congruent with this image of a social psychology that actively assimilated concepts of the

discipline and related areas, while eschewing methodological qualities that were anathema to the vision of the (ab)normal-social-personality catena.

Herman (1995) argues that although “boundary-breaking work” (p. 68) did occur before WWII, the war encouraged an interdisciplinary behavioural science—bolstered by rising government funding and reputation—that flung psychology into a requisite and rife science of public experts. She also argues that the incessant, but contentious, merging of clinical and research scientists led to a process of normalization that reconfigured the clinical framework from mental illness toward mental health. As described in this paper, before such disciplinary boundaries could be broken, the emerging territory of disciplinary psychology was staked with the raising of boundaries. The ongoing merging of the individual and society, and of the normal and the abnormal, was a cultural process that eventually ran across the disciplines of the human sciences. This process can be seen in *JASP*’s co-citation structure—even though the communities are sometimes distinct methodologically (e.g., experiments versus psychological testing), there were larger reasons for their union in this journal, and the nominal union between the social and personality subfields today.

The Allports’ Personalities

Floyd’s institutional position helped his younger brother with publication and later teaching opportunities. During Gordon’s time at Harvard as a graduate student, it was originally upon Floyd’s suggestion that Gordon began working on personality. The brothers’ early and seminal paper “Personality Traits: Their Classification and Measurement” (Allport & Allport, 1921) was the lead article in Floyd’s very first issue of *JASP* as a co-operating editor. Floyd’s interests in personality lay in how it could be “measured and mobilized” (Nicholson, 2003, p. 79), another lead his younger brother most likely shared. But gradually Gordon developed his

own ideas of personality and trait psychology, feeling the need to theorize about the individual without much consideration of the societal context nor the abnormal behaviour. He had begun the promotion of personality as not only a topic but an entire field of psychology: one that appreciated the normal individual. Beginning in late 1922, the work of German psychologist and philosopher William Stern began to usurp Floyd's influence on his younger brother's vision of personality psychology (Nicholson, 2000).

A dual-pronged trait psychology was required. Along one path was the natural science research that revealed population-relevant (or inter-individual) trait information—traits that are commonly held among persons to one degree or another. Along the other path was the case study and life history research that revealed individual-relevant trait information—particular colours or flavours of traits unique to each individual. These two approaches were necessary to capture the “undivided personality” (Allport, 1924). His older brother's methods and approaches to personality overemphasized the relational aspects—the departure from an average or the sociality (Barenbaum, 2000; Nicholson, 2000). But Gordon Allport's support of an individualized personality psychology—in an attempt to break away from social psychology—only reinforced the favoured the natural science approach that valued experimentation and measurement (Barenbaum, 2000; Nicholson, 1998). Traditionally British psychometric methods would come to engulf and eventually dominate trait psychology. Despite Gordon Allport's relentless promotion of an idiographic approach, the ideological boundaries of the (ab)normal-social personality catena circumscribed the growth of the gestating field of personality psychology. Near the end of his life, Allport conceded his idealized view of the self and his distinctions between common and individual traits had been largely ignored: “Well, if this is so in spite of 4 decades of labor on my part, and in spite of my efforts in the present paper—I

suppose I should in all decency cry ‘uncle’ and retire to my corner” (Allport, 1966, p. 9).

Concluding considerations

This paper provides a possible sketch of the disciplining of early- to mid-twentieth century American psychology. Preceding and concurrent areas and topics, such as abnormal and social psychologies, and their shared focus on personality, were appropriated and assimilated into the developing fields of psychological social and personality psychology. The (ab)normal-social-personality catena is merely theoretical shorthand for these complex processes and their guiding principles. Further research on *JASP* and related institutions will help clarify these ongoing changes and perhaps better situate them within the broader historical-cultural context. One potentially enlightening approach would be to map the precise changes within *JASP* along with the changing editorship. As this current network analysis provides a static view of the journal from 1925 to 1942, I cannot speak to these changes with the current evidence. A diachronic approach—for example, creating a dynamic (co-)citation network that changes with each passing year—could support or deny some of my broad conclusions; I welcome the confirmations or rectifications.

Another possible historical avenue to follow is how these relationships change as the disciplines moves toward WWII and beyond. For example, *The Authoritarian Personality* (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950) is a particularly influential and highly-cited book that would be interesting to understand in the developing (ab)normal-social-personality catena. The transition from projective to objective tests, as discussed by Buchanan (1997) in the case of the Rorschach ink blot and the Minnesota Multiphasic Personality Inventory, as well as the development of inherent methods designed to filter unwanted aspects of the self (e.g., social desirability and lie subscales), may be part of this larger story. Where early

applied psychology and the dramatic professionalization of the field fits into this picture are also worthwhile aspects to consider that are beyond the scope of this piece. Ideally this current paper has offered a way of thinking about interwar American psychology that is not strictly about the important rise of behaviourism and the parallel development in applied psychologies. Though the behaviouristic principles of prediction and control—observation and experimentation—are present, the developments described here are about the shaping and staking of a disciplinary territory that extended far beyond stimulus and response.

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Figure 1: An overall view of the *JASP* (1925-1942) co-citation network used for interpretation.

Community # 1: Measuring Social Aspects; Community #2: Psychometrics; Community #3:

Operationalizing Psychoanalysis; Community #4: Introversion Studies; Community #5:

Experimental Social Psychology.

ⁱ A helpful reviewer recommended I include a definition. A “catena,” coming from the Latin word for “chain,” is a connected series (of related things). Although a somewhat obscure word, it is the most apt for describing the chain of epistemological values and boundary work found in *JASP* during this time.