

The Banff meetings



Banff centre for conferences

Chris Bellamy

The Banff meetings



Banff centre for conferences



Kim Solez at Banff, 1991

- Inception of a worldwide standard
- Timeline, grouped by liver consensus paper
- Success of the Banff liver sessions

30 years of Banff

Kim Solez & Lorraine Racusen



- Inspired by 1990 consensus grading of cardiac rejection (Margaret Billingham)
- The first Banff meeting of 20 people occurred August 2-4, 1991
[interdisciplinary](#) (nephrologists, transplant surgeons, pathologists, tissue typing)
- “The kidney transplant pathology [classification that emerged](#) was very different from any of the drafts that individuals had created before the consensus discussions began.
It was a [true creation of the meeting itself](#), based on international expertise, the existing literature, and facilitated discussions.
The classification was designed as a dynamic working document that could be modified as the need for future changes was demonstrated. “
- A similar effort was initiated to **create a classification for liver transplant pathology**, and this became a major focus of the Third Banff Conference held in July 1995.

The Banff conferences (i)

- 1991 1 Banff Kidney
- 1993 2 Banff Kidney
- 1995 3 Banff First Liver meeting: acute rejection diagnosis & grading. [Consensus paper](#) (1997, Hepatology)



Inception

1st Banff liver meeting, July 1995



- Liver Allograft Rejection: Current Status of Classification and Grading
 - Kenneth Batts
- Diagnosis and Grading of Liver Allograft Rejection A European Perspective
 - Stefan Hubscher
- Clinical and Immunological Aspects of Liver Allograft Rejection
 - Hans Schlitt
- Chronic Liver Transplant Rejection: Definition and Diagnosis
 - DGD Wight

Hepatology 1997

Banff Schema for Grading Liver Allograft Rejection: An International Consensus Document

AN INTERNATIONAL PANEL COMPRISED OF ANTHONY J. DEMETRIS, KENNETH P. BATTS, AMAR P. DHILLON, LINDA FERRELL, JOHN FUNG, STEPHEN A. GELLER, JOHN HART, PEKKA HAYRY, WALTER J. HOFMANN, STEPHAN HUBSCHER, JOSEF KEMNITZ, GEORGE KOUKOULIS, RANDALL G. LEE, KLAUS J. LEWIN, JURGEN LUDWIG, ROD S. MARKIN, LIDLJA M. PETROVIC, M. JAMES PHILLIPS, BERNARD PORTMANN, JORGE RAKELA, PARMJEET RANDHAWA, FINN P. REINHOLT, MICHEL REYNES, MARIE ROBERT, HANS SCHLITT, KIM SOLEZ, DALE SNOVER, EERO TASKINEN, SWAN N. THUNG, G. WELDON TILLERY, RUSSELL H. WIESNER, D. G. DEREK WIGHT, JAMES W. WILLIAMS, and HIROHIKO YAMABE

A panel of recognized experts in liver transplantation pathology, hepatology, and surgery was convened for the purpose of developing a consensus document for the grading of acute liver allograft rejection that is scientifically correct, simple, and reproducible and clinically useful. Over a period of 6 months pertinent issues were discussed via electronic communication media and a consensus conference was held in Banff, Canada in the summer of 1995. Based on previously published data and the combined experience of the group, the panel agreed on a common nomenclature and a set of histopathological criteria for the grading of acute liver allograft rejection, and a preferred method of reporting. Adoption of this internationally accepted, common grading system by scientific journals will minimize the problems associated with the use of multiple different local systems. Modifications of this working document to incorporate chronic rejection are expected in the future. (HEPATOLOGY 1997;25:658-663.)

an internationally acceptable grading system, which has already been developed for kidney,³ heart,⁴ and lung.⁵ At the Third Banff Conference on Allograft Pathology, a group of specialists in liver transplantation from North America, Europe, and Asia met for this purpose.

DEFINITION OF ACUTE REJECTION

In general, organ allograft rejection can be defined as, “an immunological reaction to the presence of a foreign tissue or organ, which has the potential to result in graft dysfunction and failure.”² This report is specifically concerned with acute rejection, recently defined by the international consensus document on terminology for hepatic allograft rejection² as, “inflammation of the allograft, elicited by a genetic disparity between the donor and recipient, primarily affecting interlobular bile ducts and vascular endothelia, including portal veins and hepatic venules and occasionally the hepatic artery and its branches.”² Early rejection, cellular rejection, nonductopenic rejection, rejection without duct loss, and reversible rejection are synonyms for acute rejection that appear in the



The Banff conferences (ii)

Banff Springs Hotel era

- 1997 4 Banff Chronic rejection diagnosis
- 1999 5 Banff Chronic rejection staging. [Consensus paper](#) (2001, Hepatology)



Banff Springs hotel

Photos courtesy Desley Neil

Banff, 1999

Jake Demetris, M.D., Chair

Liver

- 1:00 p.m. Prospects of developing a grading/staging system for chronic rejection - A. Jake Demetris, M.D.
- 1:20 p.m. Discussion
- 1:30 p.m. Chronic liver allograft rejection: epidemiology, evolution, and staging study based on the NIDDK and UPMC patient population - Karin Blakolmer, M.D.
- 1:50 p.m. Discussion
- 2:00 p.m. Transitional features from acute to chronic liver allograft rejection - Annette Gouw, M.D.
- 2:20 p.m. Discussion
- 2:30 p.m. Centrilobular necrosis and fibrosis in chronic rejection - Andrew Clouston, M.D.
- 2:50 p.m. Discussion
- 3:00 p.m. Break - President's Hall Foyer
- 3:20 p.m. Topics in chronic rejection of the liver - Stefan Hubscher, M.D.
- 3:40 p.m. Discussion
- 3:50 p.m. Distinct patterns of chemokine and chemokine receptor expression in acute and chronic liver allograft rejection - David Adams, M.D.
- 4:10 p.m. Discussion
- 4:20 p.m. Cytokine expression patterns in acute and chronic liver allograft rejection - Olivia Martinez, M.D.
- 4:40 p.m. Discussion
- 4:50 p.m. Studies of chronic rejection in the liver allograft - Desley Neil, M.D.
- 5:10 p.m. Discussion
- 5:20 p.m. Chronic liver allograft rejection: Clinical features and outcome - Russell Wiesner, M.D.
- 5:40 p.m. Consensus discussion
- 7:00 p.m. Dinner - Mt. Stephen Hall
- 8:00 p.m. Poetry Reading - Bert Almon
- 9:00 p.m. Amateur Poetry Reading - Participants



Goals/Theme
Basic science
Clinico-pathological study
Clinical practice

9 talks, 180mins
9 discussions, 170mins + 20mins coffee

and later ...
poetry, for quite a long time

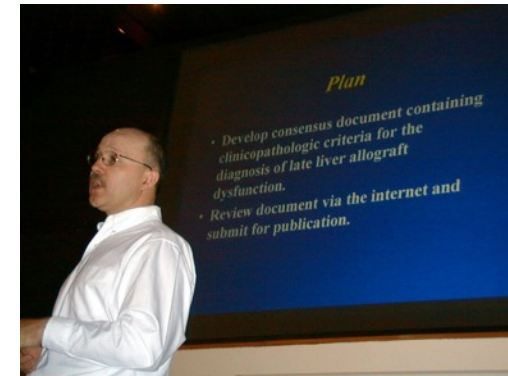
The Banff conferences (iii)

- 2001 6 Banff Late allograft biopsies – diagnosing graft dysfunction
- 2003 7 Aberdeen Late allograft biopsies – diagnosing graft dysfunction
- 2005 8 Edmonton Late allograft biopsies – diagnosing graft dysfunction. [Consensus paper](#) (2006, Hepatology)

Liver Biopsy Interpretation for Causes of Late Liver Allograft Dysfunction

Banff Working Group¹

Evaluation of needle biopsies and extensive clinicopathological correlation play an important role in the determination of liver allograft dysfunction occurring more than 1 year after transplantation. Interpretation of these biopsies can be quite difficult because of the high incidence of recurrent diseases that show histopathological, clinical, and serological features that overlap with each other and with rejection. Also, more than one insult can contribute to allograft injury. In an attempt to enable centers to compare and pool results, improve therapy, and better understand pathophysiological disease mechanisms, the Banff Working Group on Liver Allograft Pathology herein proposes a set of consensus criteria for the most common and problematic causes of late liver allograft dysfunction, including late-onset acute and chronic rejection, recurrent and new-onset viral and autoimmune hepatitis, biliary strictures, and recurrent primary biliary cirrhosis and primary sclerosing cholangitis. A discussion of differential diagnosis is also presented. (HEPATOLOGY 2006;44:489-501.)



The Banff conferences (iv)

- 2007 9 La Coruna Late graft biopsies – assessing weaning suitability/tolerance: lymphocyte biology
- 2009 10 Banff Late graft biopsies – assessing weaning suitability/tolerance: expression-based biomarkers
- 2011 11 Paris Late graft biopsies – assessing weaning suitability/tolerance: antibody. [Consensus paper](#) (2012, Liver Transpl)

Is the time right for
a liver group
consensus poem?



Importance of Liver Biopsy Findings in Immunosuppression Management: Biopsy Monitoring and Working Criteria for Patients With Operational Tolerance

Banff Working Group on Liver Allograft Pathology

The practical goal of a [stratified IS approach](#) is to improve the quality of life and outcomes through minimized exposure to the high costs and complications of chronic IS in an individually tailored manner that avoids sacrificing the allograft structure and function

Proposed [working definitions](#) for biopsy changes that

- (1) are conducive to lowering IS and are compatible with operational tolerance (OT) and
- (2) raise concern for closer follow-up and perhaps increased IS during or after IS weaning.

Guidelines should help standardize analyses of the effects of treatments and/or weaning protocols and more rigorously categorize OT.

Banff 2009 – The Year of the Hat



2009, Banff



The Banff conferences (v)

- 2013 12 Commandatuba-Bahia Antibody-mediated rejection; progressive fibrosis
- 2015 13 Vancouver Antibody-mediated rejection. [Consensus paper](#) (2016, Am J Transplant)

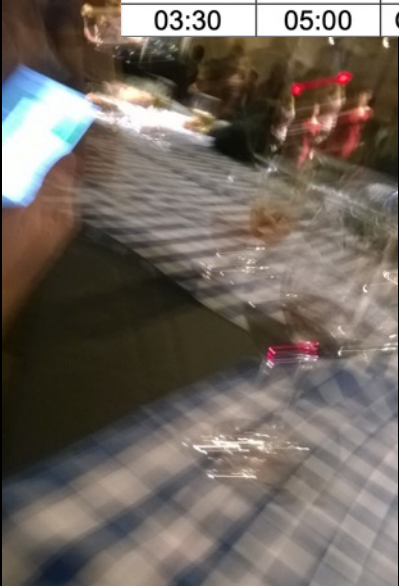
2016 Comprehensive Update of the Banff Working Group on Liver Allograft Pathology: Introduction of Antibody-Mediated Rejection

- guidelines and consensus criteria for the [diagnosis of AMR](#)
 - acute (definitive/suspicious/indeterminate)
 - chronic (probable/possible)
- recommendations for
 - [C4d tissue staining](#) and interpretation
 - [staging liver allograft fibrosis](#)
 - findings related to [immunosuppression minimization](#)
- update of all Banff Schema recommendations
 - Newer terminology (AMR, TCMR, plasma cell rejection + criteria)
 - a [single reference document](#) with unchanged criteria included

2013: Commandatuba-Bahia, Brazil



2015: Vancouver



BANFF LIVER CONCURRENT I

GRAND BALLROOM D (MODERATORS: JACQUELINE O'LEARY, MAX SMITH)

Start	End	Description
01:00	01:30	Jake Demetris Welcome & Session Goals
01:30	02:00	Luis G. Hidalgo Eosinophils and NK cells in ADCC and Liver Injury
02:00	02:30	Christopher Bellamy Macrophages in Liver Allografts
02:30	03:00	Delsey Neil C4d TMA Concordance Study Results <i>Coffee Break</i>
03:30	04:00	Geoff McCaughan Liver Allograft Pathology After Effective Anti-HCV Therapies - Changes and Challenges
04:00	04:30	Arnaud Del Bello De Novo DSA: Clinical and Histopathological Manifestations

BANFF LIVER CONCURRENT II

FINBACK (MODERATORS: CHRISTOPHER BELLAMY, STEFAN HUBSCHER)

Start	End	Description
01:00	01:30	Stefan Hubscher Pathophysiologic Mechanisms of Liver Allograft Injury/Fibrosis
01:30	02:00	Sandy Feng Long-Term Follow-up and Weaning Immunosuppression in Pediatric Recipients: Factors Influencing the Graft
02:00	02:30	Jacqueline O'Leary Chronic Antibody-Mediated Rejection: Perspectives and Issues <i>Coffee Break among Posters</i>
03:30	05:00	Group Discussion

The Banff conferences (vi)

- 2017 14 Barcelona DSA & chronic AMR; extra-corporeal perfusion; multiplex & molecular
- 2019 15 Pittsburgh Progressive graft injury: multiplex & molecular; Donor steatosis. [Consensus paper](#) (2022, Hepatology)



Banff consensus recommendations for steatosis assessment in donor livers

Desley A. H. Neil^{1,2}  | Marta Minervini³ | Maxwell L. Smith⁴ |
Stefan G. Hubscher^{1,2} | Elizabeth M. Brunt⁵ | A. Jake Demetris^{3,6}

¹Department of Cellular Pathology,
Queen Elizabeth Hospital Birmingham,
Birmingham, UK

²Institute of Immunology and
Immunotherapy, University of Birmingham,
Birmingham, UK

³Division of Transplant Pathology,
University of Pittsburgh Medical Centre,
Pittsburgh, Pennsylvania, USA

⁴Department of Pathology and Laboratory
Medicine, Mayo Clinic Arizona,
Scottsdale, Arizona, USA

⁵Department of Pathology and
Immunology, Washington University
School of Medicine, St Louis, Missouri,
USA

⁶Division of Liver and Transplantation
Pathology, University of Pittsburgh,
Pittsburgh, Pennsylvania, USA

Correspondence

Desley Neil, Department of Cellular
Pathology, Queen Elizabeth Hospital
Birmingham, Mindelsohn Road,
Edgbaston, Birmingham, UK B15 2GW.
Email: Desley.neil@uhb.nhs.uk

Abstract

Background and Aims: No consensus criteria or approaches exist regarding assessment of steatosis in the setting of human donor liver suitability for transplantation. The Banff Working Group on Liver Allograft Pathology undertook a study to determine the consistency with which steatosis is assessed and reported in frozen sections of potential donor livers.

Approach and Results: A panel of 59 pathologists from 16 countries completed a questionnaire covering criteria used to assess steatosis in donor liver biopsies, including droplet size and magnification used; subsequently, steatosis severity was assessed in 18 whole slide images of donor liver frozen sections ($n = 59$). Survey results (from 56/59) indicated a wide variation in definitions and approaches used to assess and report steatosis. Whole slide image assessment led to a broad range in the scores. Findings were discussed at a workshop held at the 15th Banff Conference on Allograft Pathology, September 2019. The aims of discussions were to (i) establish consensus criteria for defining “large droplet fat” (LDF) that predisposes to increased risk of initial poor graft function and (ii) develop an algorithmic approach to determine fat droplet size and the percentage of hepatocytes involved. LDF was defined as typically a single fat droplet that expands the involved hepatocyte and is larger than adjacent nonsteatotic hepatocytes. Estimating severity of steatosis involves (i) low magnification estimate of the approximate surface area of the biopsy occupied by fat, (ii) higher magnification determination of the percentage of hepatocytes within the fatty area with LDF, and (iii) final score calculation.

Conclusions: The proposed guidelines herein are intended to improve standardization in steatosis assessment of donor liver biopsies. The calculated percent LDF should be provided to the surgeon.

The Banff allograft pathology conferences

- 1991 1 Banff Kidney
- 1993 2 Banff Kidney
- 1995 3 Banff First Liver meeting: acute rejection diagnosis & grading. [Consensus paper \(1997, Hepatology\)](#)
- 1997 4 Banff Chronic rejection diagnosis
- 1999 5 Banff Chronic rejection early recognition - staging. [Consensus paper \(2001, Hepatology\)](#)
- 2001 6 Banff Late allograft biopsies – diagnosing graft dysfunction
- 2003 7 Aberdeen Late allograft biopsies – diagnosing graft dysfunction
- 2005 8 Edmonton Late allograft biopsies – diagnosing graft dysfunction. [Consensus paper \(2006, Hepatology\)](#)
- 2007 9 La Coruna Late allograft biopsies – assessing weaning suitability/tolerance
- 2009 10 Banff Late allograft biopsies – assessing weaning suitability/tolerance
- 2011 11 Paris Late allograft biopsies – assessing weaning suitability/tolerance. [Consensus paper \(2012, Liver Transplantation\)](#)
- 2013 12 Commandatuba Antibody-mediated rejection; progressive fibrosis
- 2015 13 Vancouver Antibody-mediated rejection [Consensus paper \(2016, Am J Transplant\)](#)
- 2017 14 Barcelona DSA & chronic AMR; extra-corporeal perfusion
- 2019 15 Pittsburgh Late immune injury. Donor steatosis. [Consensus paper \(2022, Hepatology\)](#)
- 2022 16 Banff Long term monitoring. NRH.

Stefan's presentations at Banff

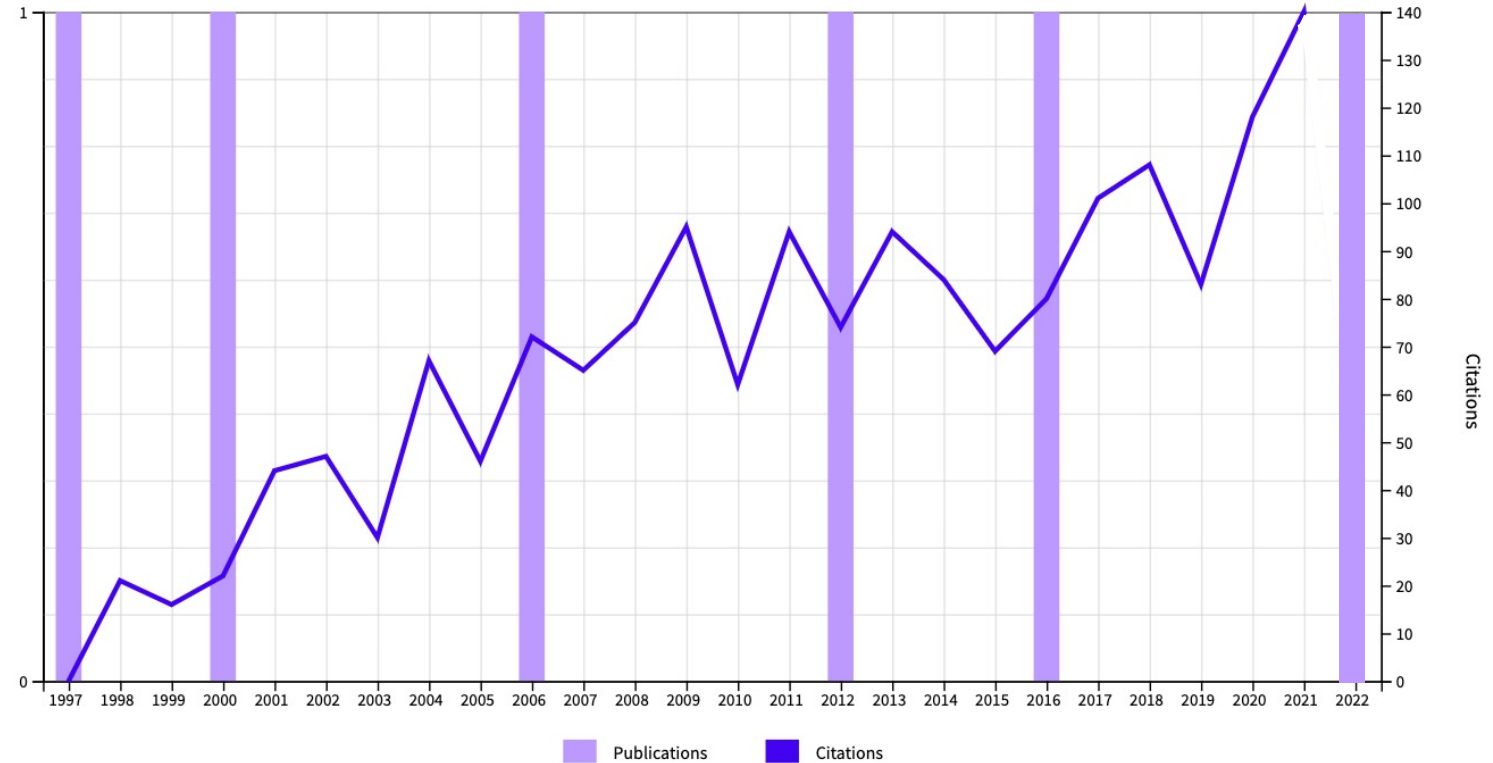
1995	Diagnosis and Grading of liver allograft rejection: a European perspective	Active TCMR
1997	Current issues in the histological diagnosis of chronic liver allograft rejection	Chronic rejection
1999	Chronic hepatitis in the liver allograft. Is this a form of chronic rejection?	Chronic allograft hepatitis
2001	Spectrum of recurrent Hepatitis C	Allograft Hepatitis C
2003	Histopathological differential diagnosis of late liver allograft dysfunction	Long term graft - diagnosis
2005	Progressive histological damage in liver allografts following paediatric liver transplantation	Paediatric allograft – evolution of injury
2007	Pathogenesis of “idiopathic” post-transplant chronic hepatitis – further considerations	Idiopathic chronic allograft hepatitis
2009	Spectrum of findings in protocol & indication biopsies in long-term liver allograft recipients with an emphasis on diagnostic challenges	Long term graft – changes and challenges
2011	Long-term biopsy findings in paediatric liver allograft recipients: similar findings but conflicting explanations from different centres	Paediatric allograft – long term injury
2013	Antibody-mediated rejection in the liver allograft: an update	AMR
2015	Pathophysiologic mechanisms of (late) liver allograft injury/fibrosis	Long term graft – injury mechanisms
2017	A Pathologists Guide to Evaluating the Long-Surviving Allograft: important features, stains, and approach to better understanding of chronic AMR	Chronic AMR - diagnosis
2019	Scoring and Interpretation of Changes in Long-Surviving Allografts: Scoring Reliability of Important Findings	Long term graft – evaluation reliability

Banff consensus liver documents

Times Cited and Publications Over Time

	Total
1	<p>Banff schema for grading liver allograft rejection: An international consensus document Demetris, A.J.; Batts, K.P.; (...); Yamabe, H Mar 1997 HEPATOLOGY 25 (3), pp.658-663</p>
2	<p>Update of the International Banff Schema for Liver Allograft Rejection: working recommendations for the histopathologic staging and reporting of chronic rejection. An International Panel. Demetris, A.; Adams, D.; (...); Yamabe, H 2000-Mar Hepatology (Baltimore, Md.) 31 (3), pp.792-9</p>
3	<p>2016 Comprehensive Update of the Banff Working Group on Liver Allograft Pathology: Introduction of Antibody-Mediated Rejection Demetris, A.J.; Bellamy, C.; (...); Zen, Y Oct 2016 AMERICAN JOURNAL OF TRANSPLANTATION 16 (10), pp.2816-2835</p>
4	<p>Liver biopsy interpretation for causes of late liver allograft dysfunction Demetris, A.J.; Adeyi, O.; (...); Yilmaz, F Aug 2006 HEPATOLOGY 44 (2), pp.489-501</p>
5	<p>Importance of liver biopsy findings in immunosuppression management: Biopsy monitoring and working criteria for patients with operational tolerance Adeyi, O.; Alexander, G.; (...); Yilmaz, F Oct 2012 LIVER TRANSPLANTATION 18 (10), pp.1154-1170</p>

Citation Report Publications Table



1747 citations, average 350 per paper

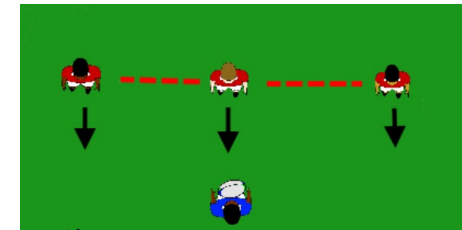
Success of the Banff liver sessions

- Community

- *'Thought community'* (Ludwig Fleck) [Pena2011 AJT]
 - 'carrier' for the historical development of a field of thought
 - "Nobody owns Banff: it has been a moderated self-organizing system from the beginning. It is not the classification of 'Dr. Banff', nor of one center, but of the community" [Mengel2007 AJT]

- Stewardship: *not* a typical medical meeting


- Pathologist & hepatologist advocates
- Inclusive (individuals + fields) & convivial
- The 'gaps'



'what do you see?'

- Scholarship

- rigor arising from the programme, speakers (who self-fund), objectives
- dialectics: discourse by reasoned argumentation (vs. debate)
 - *Aufhebung* (Georg Hegel)
 - movement to new determinations is driven by the very nature of earlier determinations
 - ~sublation: preserving the useful portion of an idea/thing, while moving beyond its limitations
 - *Measure*: transition *from* quantity *to* quality



**And,
finally.....**

Saturday 17th November 2012
West Bromwich Albion 2 – Chelsea 1



1. Name the player heading a goal
2. What s the name of the Brazilian defender?
3. Who was relieved of his managerial position a few days later?

Saturday 17th November 2012
West Bromwich Albion 2 – Chelsea 1



1. Name the player heading a goal
2. What s the name of the Brazilian defender?
3. Who was relieved of his managerial position a few days later?

- 1. Shane Long**
- 2. David Luiz**
- 3. Roberto di Matteo**