WELL-FOUNDED OPINIONS, AN INDEX

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1. Introduction

Newspaper information can be divided in at least two components: facts
and comment. Contributing to the "cognitive map of the world" of their
readers, newspapers offer "news", i.e. factual information characteri-
zed by its non-evaluative content. Furthermore, they contain back-
ground-information, consisting of analysis and comment, which are cha-
racterized by their more or less evaluative content. With regard to
opinion formation in a democratic society, newspapers are essential
"media" and therefore a good deal of research has been done into their
functions and contents.

Speaking of mass media and their presumed democratic functions, it is
not only interesting to study "what" is being said in media, but the
question "how" it is said is both interesting and relevant as well. In
this article, [1] we concentrate on the question whether and to what
extent opinions appearing in background-information about "politics
in Holland" are founded. In other words: assertions put forward by
newspapers about political actors and events, are they supported by
argumentation and informational context?

In our view, whether opinions are well-founded depends on the range of
arguments provided. Therefore we define this content characteristic as
the degree to which data and informational context are used as grounds
for justification of assertions on politics, as they appear in news-
papers'background-information. Opinions are considered to be well-
founded if they are not based on "self-evidence". That is to say if
they are founded on a basis which can be dealt with intersubjectively.
This conception bears a slight resemblance to the one S.E.Toulmin is
giving in his "The Uses of Argument". Especially with regard to the
question "What then is involved in establishing conclusions by the
production of arguments?" In answering this question he is drawing a
distinction between "...the claim or conclusions whose merits we are
seeking to establish (C) and the facts we appeal to as a foundation
for the claim what I shall refer to as our data (D)". [2]

In our terminology Toulmin's "claims" can be regarded as assertions, his "data" consisting of "argumentation" and "informational context".

2. The operational concept

Our concept consists of two dimensions, "density of argumentation" and "density of assertions", both of which are content characteristics on the level of newspaper articles (e.g. editorials on political affairs). Theoretically an article is considered to be more well-founded if the density of argumentation is relatively high and/ or if the density of assertions is relatively low. In formula:

(1) $W = D \, / \, A$

(2) $D = A_r \, / \, A_s$

(3) $A = A_s \, / \, N$

> where $W =$ degree to which opinions are founded
> $D =$ density of argumentation
> $A_r =$ amount of argumentation in an article
> $A_s =$ number of assertions in that article
> $A =$ density of assertions
> $N =$ total amount of relevant information in that article

Looking at these definitions three elements claim to be relevant: (1) assertions; (2) argumentation and (3) total amount of relevant information including informational context. The concept of asser-tions has been defined as a person's cognitive or affective opinion on some object which might be judged otherwise. Argumentation refers to all that kind of information in an article supporting an asser-tion. Context-information, finally, refers to information about persons, objects and events being judged in an article, which themselves are not assertions and arguments supporting assertions.

In the coding stage, sentences were used as recording units. Sentence by sentence judges had to find out whether it contained an assertion or argument to an assertion on pre-defined attitude-objects, i.e. political parties in Holland and the Dutch government. The analysis was performed on a representative sample of editorials and articles

containing background-information on domestic political affairs in 11
national and regional Dutch dailies.

3. Measurement procedure

Pairs of two judges ("pair I"), regularly changing in composition in
order to prevent as much possible "pair-bias", performed the measure-
ment by identifying sentences containing assertions, argumentation
and informational context.

1. First of all, judges had to identify relevant attitude objects,
   this being the subject matter of the article. In this case
   search was therefore restricted to sentences about Dutch poli-
   tical parties and the Dutch government.

2. Having identified relevant sentences, again sentence by sentence,
   judges had to check whether a positive, negative or neutral atti-
   tude was expressed towards the political actors of (1). Operatio-
   nally, positive and negative sentences were considered to be as-
   sertions on corresponding attitude objects.

3. Subsequently, judges had to look for sentences containing argu-
   ments to those identified assertions. In order to prevent very
   extensive interpretation, only those argumentation- sentences
   were to be considered which where near to the assertion-senten-
   ces, i.e. in the same or in the immediately preceding or sub-
   sequent paragraph. This kind of sentences too had to be regis-
   tered on a coding form, producing one sentence containing the
   identified assertion and supporting argumentation(s).

4. Having identified argumentation-sentences, judges had to elimi-
   nate "pseudo-argumentation"-sentences. These are sentences con-
   taining subjective, evaluative argumentation, consequently
   constituting assertion-sentences.

5. The procedure was completed by identifying the informational
   context, i.e. sentences about attitude objects, which were not
   argumentations or assertions and by counting the total number
   of sentences relevant to the analysis, namely assertion-, argu-
   mentation- and informational context-sentences (N).

Within each pair judges performed these stepwise procedures indepen-
dently from each other. Once finished with their identification pro-

cess, judges of each pair were obliged to compare their results, to reach agreement on noted differences and to arrive at a unanimous version. In the same way, other pairs of judges ("pair II") performed this operation, so that inter-judge-reliability could be determined. Expressing reliability in terms of Pearson's coefficient of correlation(r), we reached in this analysis r= .93 reliability for identification of assertion-sentences; r= .62 reliability for identification of argumentation-sentences; r= .48 reliability for identification of "pseudo-argumentation"-sentences and r= .89 reliability for identification of the total number of relevant sentences.

This reliability therefore is expressed in terms of the correlation between two series of numbers, i.e. the scores of the pairs I and of the pairs II. The reliability-coefficient (r_R) is hence the coefficient of stability between the two series of scores $(r_{1.2})$.

4. Index-construction

The formula W has a minimum and a maximum value. Formula (1) can be written as:

$$(4) \quad W = D \: / \: A = \frac{(A_r - A_r') \: / \: A_s}{A_s \: / \: N} = \frac{(A_r - A_r') \: N}{A_s^2}$$

where A_r = the total number of argumentation-sentences
in an article, including A_r'

A_r' = number of "pseudo-argumentation"-sentences
A_s = number of assertion-sentences
N = total number of relevant sentences

Since N is always $>$ 0, it follows that W= 0 if $(A_r - A_r')$= 0, i.e. if assertions are not supported by any argumentation-sentence. W reaches its minimum if the total number of relevant sentences can be regarded as assertion-sentences $(N = A_s)$. Regarding its maximum value, mathematically W can get an infinite score. We have, however, placed a theoretical limit on the possible range of score, i.e. We assumed that opinions are extremely well-founded if each assertion is supported by an argumentation. W reaches, its maximum if the total number of relevant sentences is being equally divided into assertions- and argumen-

tation-sentences ($N = A_s + A_r$).

Consequently and on this basis W has a maximum value of two (2). The maximum's computation can be readily persued:

- an article is extremely well-founded if $A_s = A_r$ on condition that $(A_s + A_r) = N$. In that case:

$$W = A_r \times N / A_s^2 =$$
$$= A_r \times (A_s + A_r) / A_s^2 =$$
$$= (A_r^2 + A_r A_s) / A_s^2 =$$
$$= A_r^2 + A_r^2 / A_r^2 = 2$$

Commencing from the later- balanced - situation, any change can bring about effects in two opposite directions:

(1) an increasing number of argumentation-sentences will result in an increasing number of well-founded opinions, because of an increase of the density of argumentation and a decrease of the density of assertions;

(2) a decreasing number of argumentation-sentences will result in a decreasing number of well-founded opinions, because of a decrease of the density of argumentation and an increase of the density of assertions.

As to the assumed maximum value of W= 2, from the analyzed material it appears that only 7% of the cases (n=579) reaches a score beyond this theoretically defined maximum.

5. Computation of the index

The index of the degree opinions are well-founded has been computed by the following division: the ratio "density of argumentation" (D) / "density of assertions"(A) where the computation is made at the aggregate level of a paper. That's to say, the final score of well foundedness is mot a mean score, computed on the basis of the scores of the total of analyzed articles, but it is an overall score, based on relations between the different kinds of identified sentences.

We computed this ratio as follows:

(5) $W = \overline{A}_r \times \overline{N} / \overline{A}_s^2$

> where W= the degree to which opinions about politics in Holland
> are well-founded
>
> A_r=the total number of argumentation-sentences (correc-
> ted for "pseudo-argumentation") of all articles
>
> A_s=the total number of assertion-sentences of all ar-
> ticles
>
> N =the total number of relevant sentences in thode ar-
> ticles

The derivation of this formula (5) is:

(6) $\quad D = \dfrac{\sum A_r}{\sum A_s} = \dfrac{\overline{A}_r}{\overline{A}_s}$

(7) $\quad A = \dfrac{\sum A_s}{\sum N} = \dfrac{\overline{A}_s}{\overline{N}}$

(8) $\quad W = \dfrac{\dfrac{\sum A_r}{\sum A_s}}{\dfrac{\sum A_s}{\sum N}} = \dfrac{\sum A_r \sum N}{(\sum A_s)\,(\sum A_s)} = \dfrac{\overline{A}_r \times \overline{N}}{\overline{A}_s^2}$

Using Cochran's formula for the estimation of the standard error of a
ratio we estimated the degree of accuracy of our generalization for
the research population. [3)]

It is:

(9) $\quad s(\hat{R}) = \dfrac{\sqrt{1-f}}{\sqrt{n}} \ \dfrac{1}{\overline{X}} \sqrt{\dfrac{(y_i - \hat{R}x_i)^2}{n-1}}$

> where $(\hat{R}) = \dfrac{\sum y_i}{\sum x_i}$

> > where y= the ratio "density of argumentation"
> > x= the ratio "density of assertions"

6. Some selected results

In conclusion some of our results follow. In the first place the degree
to which opinions are well-founded discriminates among newspapers. In

other words, our index proves to be an instrument which is suitable
for measurement of newspaper's performances in opinion formation. Table
1 registers the degree to which opinions are well-founded among news-
papers from least to most.

table 1   The degree to which opinions about politics in Holland are
           founded in 11 Dutch dailies

newspaper	well-founded[1] opinions-score	degree of[2] accuracy	n[3]
De Telegraaf	.21	($\pm$ .08)	68
Algemeen Dagblad	.30	($\pm$ .08)	66
De Stem	.43	($\pm$ .06)	42
Het Vrije Volk	.55	($\pm$ .45)	30
De Gelderlander	.60	($\pm$ .20)	44
Eindhovens Dagblad	.75	($\pm$ .20)	49
Het Parool	.88	($\pm$ .25)	46
de Volkskrant	.89	($\pm$ .26)	60
NRC/Handelsblad	.90	($\pm$ .32)	59
Trouw	.97	($\pm$ .19)	51
De Tijd	1.30	($\pm$ .22)	64

1) index ranging from 0 pt= extremely ill-founded to 2 pt=
   extremely well-founded
2) confidence limits : p=.05
3) number of articles in analysis

Even though these figures are interesting in themselves (exept for
the score of Het Vrije Volk because of the size of its confidence li-
mits), it is of greater interest to relate them to another content
characteristic, namely the newspaper's political stance (cf. the
contribution to this volume by J.J. van Cuilenburg). [4]

The degree to which opinions are well-founded proves to be correla-
ted in a special way: the more extreme a newspaper's political stance
in both a progressive or conservative direction, the lesser founded
its opinions are as measured by our index:

table 2   Relationship between newspaper's political stance and their degree of well-foundedness

newspaper[1]	political stance (X) [2]	predicted degree of well-founded opinions (Y) [3]	observed degree of well-founded opinions (Y) [4]
De Stem	2.33	.61	.43
Het Vrije Volk	2.46	.67	.55
de Volkskrant	2.63	.74	.89
NRC/Handelsblad	2.68	.76	.90
De Tijd	3.21	.89	1.30
De Gelderlander	3.46	.91	.60
Trouw	3.47	.91	.97
Eindhovens Dagblad	3.57	.91	.75
Het Parool	3.85	.89	.88
Algemeen Dagblad	5.14	.38	.30
De Telegraaf	5.49	.12	.21

1) ranged from most progressive to most conservative

2) scale ranging from 1 point= extremely progressive to 7 points= extremely conservative

3) $Y = 1.464X - .207X^2 - 1.681$; $R = .79$ (computed with least squares method after transformation)

4) scale ranging from 0 points= extremely ill-founded to 2 points= extremely well-founded

A possible explanation of this curvilinear relationship may be found in the judgment-intensity of the political attitude objects being the subject matter of the articles, judgment scores ranging from -1 point to +1 point, 0 points meaning a neutral judgment. Judgment-intensity scores being higher in the case of political more extreme newspapers, we subsequently computed a correlation between judgment-intensity and the degree to which opinions are founded. Ranging from lowest to highest intensity of judgment scores, table 3 registers the relationship between intensity of judgment scores and the degree to which opinions are founded in our 11 newspapers.

table 3   The relationship between the intensity of judgment scores
           and the degree to which opinions are well-founded in 11
           Dutch dailies[1]

newspaper	judgment-intensity[2]	degree to which opinions are founded[3]
De Tijd	.07	1.30
Trouw	.08	.97
Het Parool	.11	.88
De Gelderlander	.12	.60
Het Vrije Volk	.13	.55
de Volkskrant	.17	.89
NRC/Handelsblad	.17	.90
De Stem	.18	.43
Eindhovens Dagblad	.21	.75
Algemeen Dagblad	.22	.30
De Telegraaf	.43	.21

1) $r = -.73$; n=11

2) absolute values, direction of judgment being not relevant here

3) index ranging from 0 pt= extremely ill-founded to 2 pt= extremely
   well-founded

Interpreting this negative coefficient of correlation at the aggregate
level of the newspapers concerned, we can say that an increasing degree
of judgment-intensity is accompanied by a decreasing degree to which
opinions are well-founded. Judgment scores of political more extreme
newspapers being more intense as well, the curvilinear relationship
can be explained in terms of judgment-intensity of the political atti-
tude objects, being the subject matter of our analysis.

References

1) This article is a summary of:

G.W. Noomen, "Beweren en Motiveren" (Assertions and Argumentation), Amsterdam 1977, especially Part II, ch. 2, pp.81-99 and Appendix 1, pp. 255-61

2) S.E. Toulmin, The Uses of Argument, 1969 (1958), p.97

3) W.G. Cochran, Sampling Techniques, New York, 1963 (1953)

4) J.J. van Cuilenburg, Lezer, Krant en Politiek (Reader, Newspaper and Politics), Amsterdam, 1977, p.77 and Appendix 2,pp. 286-88