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Definition of cyberbullying among Italian adolescents: to what extent do criteria and type of behaviour matter? An investigation through

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Definition of cyberbullying among Italian adolescents: to what extent do criteria and type of behaviour matter? An investigation through COST scenarios

Definition of cyberbullying among Italian adolescents: to what extent do criteria and type of behaviour matter? An investigation through COST scenarios. Many studies used a cyberbullying definition based on that of traditional bullying where intentionality, repetition and power imbalance are highlighted as fundamental aspects. Recently, these characteristics have become a subject of controversy among experts. Furthermore, new criteria have been proposed such as anonymity and publicity, which are specific of the virtual context. This study aims to investigate adolescents' definition of cyberbullying, in relation to different criteria (intention, imbalance of power, repetitiveness, anonymity, public or private attack) and to different forms of attacks (written verbal, visual, exclusion and impersonation). A questionnaire on cyberbullying definition was developed in collaboration with other colleagues of a European project (COST ACTION IS0801). It is based on 32 scenarios and covers all the possible combinations of the 5 criteria by the four types of behaviour. For each scenario participants were requested to state if it was cyberbullying or not. Different randomized versions were presented to 299 adolescents from grade 7th to 10th (59% were females). Descriptive data underlined that the presence of fewer criteria is associated with lower percentages of cyberbullying and that exclusion is defined as cyberbullying at a lower extent. Using the MDS approach we found that adolescents define a situation as cyberbullying for the joint presence of two traditional bullying criteria (intention and imbalance of power) and subsequently for the joint presence of the new cyberbullying criteria (anonymity and public). The strong relevance of intention/imbalance of power in the evaluation of scenarios was confirmed for each type of behaviour considered. On the contrary, the second dimension has a greater relevance in the definition of cyberbullying for written-verbal and visual scenarios as compared to exclusion and impersonation.

Introduction*

In recent years the use of new communication technologies has become a major compo-

nent of adolescents' social life also in Italy (Menesini, Calussi & Nocentini, 2012). Although young people make frequent use of technologies, they may not necessarily understand all the risks involved. Cyberbullying can be one of these risks and it is becoming an issue of great concern among psychologists, educators and adults working with young people. Led especially by Anglophone countries,

cyberbullying research quickly spread to many other countries of the world, raising the need for a common understanding of the phenomenon. Up until now, several cyberbullying definitions have been proposed in literature and there is still a consistent debate within the scientific community about a common conceptualization (Menesini & Nocentini, 2009; Nocentini et al., 2010; Tokun-

ag, 2010). The lack of a shared cyberbullying definition, has some implications in terms of the measurement of the phenomenon, accurate statistics on the incidence and the evaluation of the effectiveness of different interventions to combat it. Thus, the need for an integrative definition of cyberbullying is crucial for both conceptual and operational clarity. Starting from these considerations, the present study aims to address the issue of cyberbullying definition considering the Italian results as belonging to a wider cross-national study developed within the European project COST Action IS0801 "Cyberbullying: coping with negative and enhancing positive uses of new technologies, in relationships in educational settings".

Many studies on cyberbullying used a definition of the phenomenon based on the definition of traditional bullying proposed by Dan Olweus (1993) (see Nocentini et al., 2010). In line with this approach, cyberbullying has been defined as: «An aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time, against a victim who cannot easily defend him or herself» (Smith et al., 2008). Several types of harmful behaviours characterize the phenomenon (Nocentini et al., 2010): written-verbal behaviours (phone calls, text messages, emails, instant messaging, chats, blogs, social networking communities, websites), visual behaviours (posting, sending or sharing compromising pictures and videos through mobile phone or internet), exclusion (purposefully excluding someone from an online group) and impersonation (stealing and revealing personal information, using another person's name and account).

Definitions deriving from the bullying literature highlight three fundamental aspects of cyberbullying, that are intentional harm, repetition over time and power imbalance. Recently, these definitions have become subject of controversy among experts and researchers: it is still unclear whether these criteria are applicable to cyberbullying (Nocentini et al., 2010). For example, the indirect nature of cyberbullying and specific characteristics such as the lack of non-verbal expression (Spears, Slee, Owens & Johnson, 2009) make it difficult to identify the perpetrator's intention (Menesini & Nocentini, 2009). Besides, not all the intentional acts cause harm on the victim: thus, we might ask whether the impact on or/and the perpetrator's intention perceived by the victim should be regarded as cyberbullying criteria (Nocentini et al., 2010). In relation to repetitiveness, it has been speculated that some actions, albeit unique, can repetitively affect and harm the victim (Dooley, Pyzalsky & Cross, 2009) and that some contents spread online can be forwarded and made visible to a large audience (Menesini & Nocentini, 2009). Finally, the definition of the imbalance of power within the cyber context is not so evident as in face to face context. For example it could consist on the perpetrator's higher level of media literacy or higher social status within a virtual community, or on the aggressor's anonymity, and on the other side, on the victim's inability to get away from harmful cyber acts (Dooley et al., 2009; Hinduja & Patchin, 2008; Menesini & Nocentini, 2009). Furthermore, new criteria have been proposed such as anonymity and publicity (e.g. Menesini & Nocentini, 2009; Slonje & Smith, 2008). In relation to the first criterion, only 40% to 50% of the cybervictims know the identity of the perpetrator, which can increase the sense of frustration and powerlessness (Dooley et al., 2009; Kowalski & Limber, 2007; Mitchell, Finkelhor & Wolak, 2007; Slonje & Smith, 2008). In relation to the public/private nature of the acts, some studies reported a greater severity of the public act. Besides, the public nature of the context can recall the dominance dynamics found in the traditional bullying (Dooley et al., 2009; Pellegrini, 2004; Smith et al., 2008).

From a recent qualitative study conducted across Italy, Spain and Germany by using focus groups (Nocentini et al., 2010), it seems that the three traditional criteria used

to define bullying are partially confirmed to define a cyberbullying act. In particular, adolescents said that intention is required along with the effects on the victim. Repetitiveness is needed because it makes a difference between a joke and an intentional attack and it characterises the severity of the action, with the exception for public behaviours. Definitions proposed by literature for power imbalance in the cybercontext (the perpetrator's higher levels of media literacy or the victim's inability to defend him/herself) were not fully supported by this study. The imbalance of power, defined as possible consequences on the victim who was upset and not able to defend him/herself, cannot be viewed independently from the intent to harm. In relation to the new criteria proposed by literature on cyberbullying, i.e. anonymity and publicity, results suggest that they are not necessary to label an action as cyberbullying but they can connote the context (the severity and nature of the attacks, the relationship between actor and victim and the victim's reactions).

Overall, we can see that literature on definitional criteria of cyberbullying is still controversial. Furthermore, at our knowledge no studies have yet addressed the issue of cyberbullying definition considering systematically the three "traditional criteria" and the two newly proposed "specific cyberbullying criteria".

Aims of the present study

The aim of the present study is to evaluate the adolescent's definition of cyberbullying in relation to the following 5 criteria: intention to harm, repetitiveness, power imbalance, anonymity and publicity. In line with previous research on bullying definition conducted by Smith and colleagues (2002), this aim was operationalized in terms of applicability of the label to a selection of 32 scenarios displaying situations that might or might not be cyberbullying, on the basis of the 5 criteria. The relevance of different types of behaviours will be considered through the analyses.

Method

Participants and procedures

Participants in this study were 296 adolescents from 7th to 10th grade (59% females) from two schools in Tuscany. The age of participants ranged from 11 to 17 year (mean age: 14.47 years; SD = 1.35). Assessment took place in the autumn of 2010 when trained researchers administered questionnaires to students in their classes during school time. Consent procedure for research consisted of an approval by the school and a parental consent. In agreement to the Italian law on the privacy, all questionnaires were returned anonymously.

Measure

In order to investigate the role of the 5 definitional criteria (intentionality, imbalance of power, repetitiveness, anonymity and publicity/privacy), a set of 32 scenarios was created combining the presence or absence of these criteria. The presence is defined as reported below: for intentionality " ... to intentionally hurt..." (vs " ... as a joke..."); for repetitiveness " ... several times during the last month..." (vs " ... once..."); for imbalance of power " ... C. was upset and didn't know how to defend himself/herself..." (vs " ... C. didn't care..."); for anonymity " ... C, who didn't know him/her personally..." (vs " ... to C, a familiar boy/girl..."); for publicity " ... to other people to see..." and, conversely for privacy, " ... only to C...". Besides, four types of behaviour were covered: written-verbal ("... M. sent to C. a nasty text message..."), visual ("... M. sent to C. a compromising photo..."), exclusion ("... M. took C. off their online group...") and impersonation ("... M. has got access to C.'s password or private information...") for a total number of 128 scenarios. Examples of two scenarios about impersonation are given in Figure 1: scenario n. 1 without any criteria and scenario n. 21 with the presence of all criteria (see Table A in appendix for the presence or absence of the criteria for all 32 scenarios).

Randomized versions of the questionnaire were administered to the participants: 8 versions

were created, each one evaluated 16 scenarios (8 scenarios of one type of behaviour and 8 of another). For example, in version number one participants evaluated 8 scenarios about written-verbal behaviour (scenarios 1-8 of the full list) and 8 scenarios about exclusion (scenarios 9-16 of the full list); in version number two participants evaluated 8 scenarios about impersonation (from 17 to 24 of the full version) and 8 scenarios about visual (from 25 to 32 of the full version). The 8 versions included the complete set of the scenarios. This option was chosen to avoid the risk of a cognitive overload, given the young age of some participants. For each scenario participants were asked if it was cyberbullying or not.

Data analysis

Descriptive percentages of "yes, it's cyberbullying" for the 32 scenarios were presented by type of behaviour: the χ^2 test with a significance level at p value < 0.01 was conducted to analyze differences between the 4 types of behaviour.

To analyze the underlying structure of the relationship between scenarios, Multidimensional Scaling (MDS) was used. Starting from similarity or dissimilarity data on a set of objects, MDS attempts to model such data as distance between points in a geometrical space. This technique, displaying essential information in the data, shows the data structure in a much easier to under-

stand graphical output (Borg & Groenen, 2005). Following the same method of Smith et al. (2002), we calculated the percentage of participants who defined each scenario "cyberbullying" in order to assess similarity or difference between any two scenarios by comparing the percentages profile, and to permit an analysis of the structure of the scenarios over all respondents. Besides, we calculated the percentages for the four types of behaviour separately in order to take into account differences between types of behaviour in the structure analysis. We didn't use data of scenario n. 1 because this was the control-scenario (see Appendix). Euclidean distance was employed to create four distance matrices between

Figure 1 - Examples of two scenarios about impersonation: scenario n. 1 without any criteria and scenario n. 21 with the presence of all criteria.

Scenarios	IS IT CYBERBULLYING?	
	NO	YES
1. Once M. has got access to a familiar boy/girl's - C. - password or private information as a joke. C., who noticed that, didn't care.		
21. M. has got access to C.'s password or private information sending them out for other people to see several times during the last month to intentionally hurt C. C., who noticed that but didn't know who it was , was upset and didn't know how to defend himself/herself.		

scenarios, one for each type of behaviour. Our analyses were accomplished by PROXSCAL (SPSS/PASW version 18.0) using ordinal MDS. Generalized Euclidean Model was used to weigh the underlined dimensions by each type of behaviour (Borg & Groenen, 2005).

The configuration of scenarios in the geometric space can be arranged in one (i.e. a line), two (i.e. flat space), three (i.e. a cube), or more dimensions. In order to identify the best configuration or number of dimensions, we compared one, two, three and four dimension models using the normalized Stress value for each solution. Stress value shows the degree

of fit within the number of dimensions used, with smaller Stress values meaning a better fit (a badness-of-fit measure). It's ranging from 0 to 1 and Kruskal (1964) suggested the following benchmarks for an ordinal MDS: .20 = poor; .10 = fair; .05 = good; .025 =excellent; .00 = perfect.

Results

Descriptive data

Figure 2 presents the percentages of cyberbullying by type of behaviour in each scenario ordered by an increasing average score. The χ^2 tests by types

of behaviour showed significant differences in relation to the following scenarios: n. 9 ($\chi^2_{(3,141)}$ = 11.891; $p = .008$), n. 17 ($\chi^2_{(3,146)}$ = 24.745; $p = .000$), n. 20 ($\chi^2_{(3,147)}$ =16.224; $p = .001$), n. 25 ($\chi^2_{(3,147)}$ = 20.680; $p = .000$), n. 28 ($\chi^2_{(3,144)}$ = 18.139; $p = .000$) and n. 31 ($\chi^2_{(3,138)}$ = 20.873; $p = .000$) (see Figure 2). For all of them exclusion showed the lowest percentage of frequency as compared to the other types of behaviour.

Multidimensional Scaling

The Stress values for one-, two-, three-, and four-dimensional solutions were .10, .05, .03 and .01 respectively. These val-

Figure 2 – Percentages of "Yes, it is cyberbullying" by type of behaviour in each scenario.
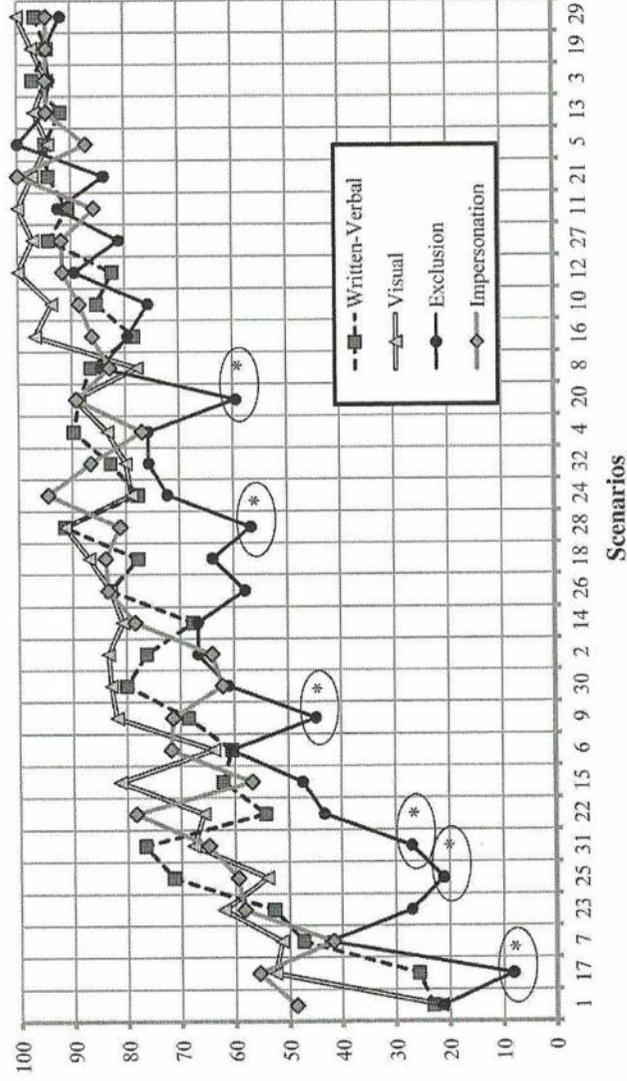
Notes. * = significant differences between types of behaviour ($p < .001$).

ues, together with the inspection of the "scree plot", suggested that the two–dimensions solution was the best one: adding an extra dimension did not significantly decrease the "badness-of-fit". The level of variance in the input proximities matrices explained by the two dimensional configuration is 95.14%. The two dimensions MDS solution is shown in Figure 3.

Given the complexity of research design and scenarios, to interpret the solution we first compared scenarios above the 85° percentile and below the 15° percentile on each dimension.

In the first dimension (horizontal axis), scenarios above the 85° percentile are n. 17, 22, 23 and 25 and below the 15° percentile n. 5, 11, 13 and 19. Scenarios of the latter group are characterized by the presence of both criteria of intentionality and imbalance of power (left-hand side of figure – quadrants 1 and 3), whereas scenarios of the former group are characterized by the lack of those criteria (right-hand side of figure – quadrants 2 and 4). In the central area, near the axis, we can find scenarios with a presence of one or other criterion (intentionality or imbalance of power and vice versa). We found only one partial exception: scenario n. 22 presents the criteria of intention- ality but is above the 85° percentile.

The second dimension (vertical axis) seems to oppose private scenarios with absence of anonymity on the top of figure, in quadrants 1 and 2 (scenarios above the 85° percentile are n. 2, 7, 15 and 30) and public scenarios with presence of anonymity on the bottom of figure, in quadrants 3 and 4 (scenarios below the 15° percentile are n. 20, 21, 22 and 24). In the central area, near the axis, we can find scenarios with a presence of one or other criterion (publicity or anonymity and vice versa). We found two partial exceptions in this interpretation: scenarios n. 15 and n. 30, above the 85°

Figure 3 - Multidimensional Scaling solution of scenarios structure for 2 dimensions.
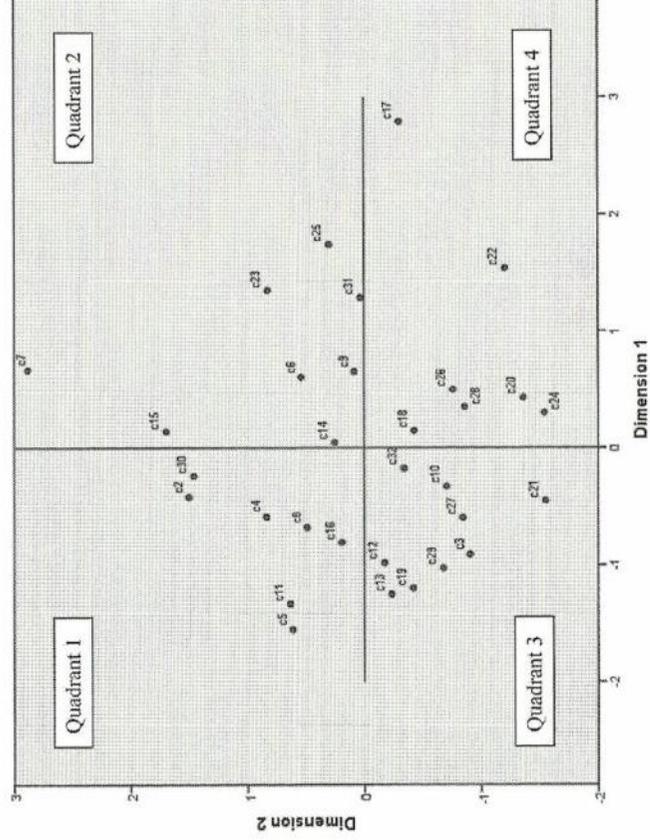
percentile, do not match completely our definition because the first does not have the criteria of anonymity but is public and the second has the criteria of anonymity but it is private.

To find support to our interpretation of the dimensions' meaning, we analyzed the scenarios over (quadrant 1 and 2) and under (quadrant 3 and 4) the horizontal axis, on the right side (quadrant 2 and 4) and on the left side (quadrant 1 and 3) of vertical axis. We found that only two of 32 scenarios are not located where we expected in relation to the horizontal axis: scenario n. 3 (with the criteria of intentionality and imbalance of power, private and not anonymous) is in the quadrant 3 instead of quadrant 4. Considering the representation as a whole, we can see that the scenarios are well distributed in the space with the exception of scenario n. 7 that is on the top of the figure, separated from the others. This scenario is characterized only by the presence of the criterion of repetitiveness: we can speculate that this criterion seems not to be considered in the definition of cyberbullying scenarios and this can affect its position.

Our interpretation of the MDS dimensions describes the scenarios rotated structure that best fits all groups simul-

taneously. At the same time, the consistency of this structure across the four types of behaviour is of great interest. In table 2 are shown the "dimension weights" calculated for the four proximity matrices. These weights range from 0 to 1. The greater the magnitude of a given dimension weight, the greater the relevance of the associated attribute for conceptualizing that particular dimension. The high dimension weight in the first dimension shows the strong relevance of intention/imbalance of power in the evaluation of scenarios for each type of behaviour considered. On the contrary, the second dimension has a different relevance across types of behaviour: it seems that the second dimension has greater relevance in the definition of cyberbullying for written-verbal and visual scenarios as compared to exclusion and impersonation.

Discussion

The present study contributes significantly to the understanding of adolescent's perception and definition of cyberbullying. In particular, this is one of the first studies where the three "traditional criteria" (intentionality, repetitiveness and power imbalance) and the two new "specific cyberbullying criteria" (publicity and anonymity) are systematically manipulated in order to test their relevance for the definition. The use of MDS allowed us to test the weight and the meaning of different criteria proposed in literature, also taking into account the different behaviours through which cyberbullying occurs.

Overall, results showed that scenarios are able to discriminate the relevance of different criteria. Descriptive data underlined that the presence of fewer criteria is associated with

Table 1 - Dimension weights for each type of behaviour on the two MDS dimensions.

	Dimensions	
	1	2
WRITTEN VERBAL	.573	.332
VISUAL	.632	.232
EXCLUSION	.675	.128
IMPERSONATION	.681	.121

lower percentages of cyberbullying (scenarios at the left side of the figure 2). In particular, only few scenarios are evaluated as cyberbullying by less than 50% of participants. The largest number of scenarios is acknowledged by over 75% of participants.

Results from the MDS suggest that when adolescents evaluate a scenario as cyberbullying they mainly consider the presence of the traditional bullying criteria with an exception: the criterion of repetitiveness. Intentionality and imbalance of power are the most relevant criteria, and they are strictly related to each other in defining the first dimension in the horizontal axis of our MDS plot. Their relevance is also confirmed for all the four types of behaviour. These findings support a previous study where adolescents reported that in cyberbullying the imbalance of power (defined as consequential on the victim who was upset and did not know how to defend him/herself) cannot be viewed independently from the intent to harm, but should be considered jointly (Nocentini et al., 2010). Besides, MDS results highlighted that repetitiveness is not a relevant criterion for cyberbullying definition. In the focus group study (Nocentini et al., 2010), adolescents said that repetition defines a cyberbullying act because it makes a difference between a joke and an intentional attack and char-

acterises the severity of the action. Thus, we can assume that repetitiveness does not seem to be a criterion required for the definition of cyberbullying given its overlap with intentionality. Furthermore, Italian participants in the focus group said that repetitiveness is not necessary when the action is public.

The role of this last criterion, publicity, emerged as relevant also in this study, specifically characterizing the second dimension. Indeed the second dimension of MDS map considers the joint presence of the two specific criteria for cyberbullying: publicity and anonymity (Menesini & Nocentini, 2009; Pellegrini, 2004; Slonje & Smith, 2008; Mitchell, Finkelhor & Wolak, 2007). They are strictly related: the dimension is defined by the presence or the absence of both. This means that for example the less severe scenario consists of a non-anonymous act sent only to the victim. When discussing about this dimension, we should take into account its different weight in different types of behaviour, having more relevance for written–verbal and visual behaviours as compared to exclusion and impersonation. The facts that "other people see" and the victim "doesn't know personally" seems to be particularly relevant if the harmful act is a text, a verbal message or a compromising photo/video. Overall, exclusion and impersonation presented some specificities for Italian

adolescents. In fact, in the focus group study all the Italian adolescents considered the visual and the written–verbal behaviours as forms of cyberbullying whereas they showed more disagreement on impersonation and exclusion (Nocentini et al., 2010). Furthermore, also in this study exclusion is reported as cyberbullying at a lower extent as compared to other types of behaviours. Future research can confirm this result related to the different cyberbullying forms.

In conclusion, the present study gives some relevant suggestions to researchers and practitioners working on cyberbullying. Traditional bullying and cyberbullying share some definitional characteristics, such as intentionality and power imbalance, but the latter presents also some specific attributes of the virtual context which are relevant for its definition such as: anonymity and publicity. Thus, adolescents define a cyberbullying act first of all considering if the action is done intentionally to harm the victim together with the effect it might have on the victim. Then, they evaluate if the act is done by a known person and if there are other people seeing.

The current study presents also some limitations. The small number of participants and the randomized administration of the scenarios can limit the generalizability of the results. In particular, cross cultural studies are needed to compare our results with other countries

in order to analyze a possible shared definition of cyberbullying. Another limitation lies in the fact that gender and age related differences were not taken into account. An interesting possible future direction of the research should be the evaluation of the relation between personal involvement in this phenomenon and the meaning and weight of the different criteria used for cyberbullying definition.

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Appendix

Table A - *Presence (Y) or absence (N) of the criteria for all 32 scenarios.*

Scenario	Intention	Repetition	Imbalance of Power	Public/private	Anonymity
1	N	N	N	PRI	N
2	N	N	Y	PRI	N
3	Y	N	Y	PRI	N
4	N	Y	Y	PRI	N
5	Y	Y	Y	PRI	N
6	Y	N	N	PRI	N
7	N	Y	N	PRI	N
8	Y	Y	N	PRI	N
9	N	N	N	PUB	N
10	N	N	Y	PUB	N
11	Y	N	Y	PUB	N
12	N	Y	Y	PUB	N
13	Y	Y	Y	PUB	N
14	Y	N	N	PUB	N
15	N	Y	N	PUB	N
16	Y	Y	N	PUB	N
17	N	N	Y	PUB	Y
18	N	N	Y	PUB	Y
19	Y	N	Y	PUB	Y
20	N	Y	Y	PUB	Y
21	Y	Y	Y	PUB	Y
22	Y	N	N	PUB	Y
23	N	Y	N	PUB	Y
24	Y	Y	N	PUB	Y
25	N	N	N	PRI	Y
26	N	N	Y	PRI	Y
27	Y	N	Y	PRI	Y
28	N	Y	Y	PRI	Y
29	Y	Y	Y	PRI	Y
30	Y	N	N	PRI	Y
31	N	Y	N	PRI	Y
32	Y	Y	N	PRI	Y

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